

# DECENTRALIZED COLLABORATION THROUGH PRIVATE ORDERING

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*This Article sets forth the theory of decentralized collaboration to explain how NFT projects coordinate business and creative collaborations in a decentralized manner through NFTs. Conducting an empirical study of the Top 25 NFT projects, this Article shows that a majority of the Top 25 NFT projects have employed a new, more innovative approach to creative production. Decentralized collaboration refers to the creative activities among unrelated actors who are involved in creating a shared content production project through a decentralized, asynchronous process open to the public. Utilizing a combination of smart contracts that create non-fungible tokens (NFTs) recorded on blockchain and intellectual property (IP) licenses setting forth rights for the NFT owners to use the associated content, such as visual characters, a substantial majority of the NFT projects have adopted a far more permissive approach to IP licensing granting the NFT owners the right to commercialize the artworks, including by making derivative works. The NFT owners who commercialize the artwork get to keep all their profits. Simultaneously, most of the Top 25 NFT projects still impose some restrictions, such as a prohibition against using the project's*

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*trademarks to prevent the potential abandonment of trademark rights. This innovative approach to creative production—in which startups enlist their customers to become cocreators, who receive commercial rights to monetize the artwork identified by NFTs—is a dramatic change from the traditional All Rights Reserved approach of the major media industries. Proponents of this more permissive approach believe it has greater potential for empowering creators and maximizing the Internet for creativity.*

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## INTRODUCTION

Imagine in the 1920s, Walt Disney Studio sold merchandise for its loveable new character, Mickey Mouse.<sup>1</sup> Buyers received not only the merchandise but also commercial rights to make and sell their own Mickey Mouse merchandise and derivative works involving Mickey. The buyers kept all profits they earned in monetizing Mickey for their own efforts.

Disney did not stop there. Disney offered commercial rights for each of its many iconic characters, from Aladdin to Snow White. Simply by owning Disney goods, the buyers received licenses to commercialize Disney’s intellectual property (IP), including on merchandise and in new works, even movies, featuring Disney characters. Anyone could help to build the Disney franchise—and reap the rewards. In the process, Disney became the most popular movie studio in the world, with its characters becoming household names. The other major movie studios saw Disney’s popularity, so they all adopted the same approach, proving again a truism of capitalism: when you see a great idea, copy

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1. Cf. NEAL GABLER, *WALT DISNEY: THE TRIUMPH OF THE AMERICAN IMAGINATION* 116, 196–97 (2006); L. H. Robbins, *Mickey Mouse Emerges as Economist*, N.Y. TIMES MAG. 8 (Mar. 10, 1935), <https://timesmachine.nytimes.com/timesmachine/1935/03/10/93459922.pdf> [<https://perma.cc/7LVR-CEUU>] (describing Disney’s licensing of Mickey Mouse merchandise in the 1930s).

it.<sup>2</sup> This new business model spurred tremendous collaboration—and a dynamic environment for creative production—among many people, who became not only fans, but cocreators of Disney’s IP.

Sound far-fetched? It should. It is fantasy. Disney took the opposite approach. Disney adopted what can be characterized as the traditional All Rights Reserved approach by which the company tightly reserves its IP, except for the licensing deals it strikes with other businesses.<sup>3</sup> Indeed, Disney uses the term “All Rights Reserved” nineteen times on its comprehensive listing of its various intellectual property.<sup>4</sup> The average consumer is not authorized to use Disney characters commercially.<sup>5</sup> Moreover, if consumers do, they should expect a cease-and-desist letter.<sup>6</sup> Indeed, Disney is known for policing unauthorized uses of its characters with hypervigilance.<sup>7</sup> Disney is not the only one. All major

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2. See, e.g., Dan Farber, *What Steve Jobs Really Meant when He Said ‘Good Artists Copy; Great Artists Steal,’* CNET (Jan. 28, 2014, 8:04 AM), <https://www.cnet.com/tech/tech-industry/what-steve-jobs-really-meant-when-he-said-good-artists-copy-great-artists-steal> [<https://perma.cc/WU73-FX27>] (describing how Apple used existing ideas and took them a step further); Jacob Laukaitis, *Why Smart People Copy Great Ideas*, FORTUNE (July 21, 2016, 3:14 PM), <https://fortune.com/2016/07/21/why-smart-people-copy-great-ideas> [<https://perma.cc/N3QV-U45E>] (stating that society benefits when companies copy great ideas).

3. See generally Shradha Jain, *Popular Copyright Infringement Cases Highlighting How Disney Is Protective of Its Intellectual Property Rights*, IPLEADERS (July 10, 2021), <https://blog.ipleaders.in/popular-copyright-infringement-cases-highlighting-disney-protective-intellectual-property-rights> [<https://perma.cc/EHR9-THJK>] (documenting example cases where Disney has alleged copyright infringement); Christopher S. Brown, Comment, *Copyleft, the Disguised Copyright: Why Legislative Copyright Reform Is Superior to Copyleft Licenses*, 78 UMKC L. REV. 749, 749–50 (2010) (explaining that the All Rights Reserved approach to copyright protection, while meant to incentivize the creation of new works, provides strict liability copyright laws that can be overly broad).

4. *Legal Notices*, DISNEY, <https://support.disney.com/hc/en-us/articles/360000829466-Legal-Notices> [<https://perma.cc/HNS3-MTJK>].

5. See Kambrea Pratt, *Disney Is Cracking Down on IP Infringing Merchandise Sellers*, PIRATES & PRINCESSES (Jan. 4, 2023), <https://www.piratesandprincesses.net/disney-is-cracking-down-on-ip-infringing-merchandise-sellers> [<https://perma.cc/8DV4-Y6RA>] (stating that Disney brings suits against small sellers of unauthorized merchandise).

6. *Id.*

7. See, e.g., Jain, *supra* note 3 (noting cases where Disney sued daycare centers for displaying life-size drawings of Disney characters and a parent-teacher association for screening a *Lion King* remake); Pratt, *supra* note 5 (flagging that Disney has pursued actions to protect its IP rights against small sellers on Etsy and eBay); *Popular Copyright Infringement Cases Highlighting How Disney Is Protective of Its Intellectual Property Rights*, IPLEADERS (July 10, 2021), <https://blog.ipleaders.in/popular-copyright-infringement-cases-highlighting-disney-protective-intellectual-property-rights> [<https://perma.cc/KJ>].

studios, record labels, and publishers typically follow this traditional approach of All Rights Reserved.<sup>8</sup> IP is a company's crown jewel.

Now imagine a different scenario: in the 2020s, a startup company adopted the same business strategy imagined above, but instead of physical goods representing characters, the startup sold virtual tokens of the characters. The tokens, which lacked a physical embodiment, existed only virtually—akin to a figment of the imagination. Buyers of these virtual tokens receive commercialization rights to use the characters associated with their token, such as, let us say, a loveable CryptoMouse. Under the license, buyers can make and sell derivative works of their CryptoMouse, including merchandise and movies—and keep all the profits.

Although this story about virtual tokens from the 2020s may sound even more far-fetched than the imagined one for Disney in the 1920s, this story is fact, not fantasy. Innovative startups are selling non-fungible tokens (NFTs) for copyrighted visual characters they have created, which come with commercialization rights for the buyers to monetize the characters, including in their own derivative works.<sup>9</sup> Indeed, as this Article demonstrates, among the top NFT projects, this innovative business model is the rule, not the exception.

Through an empirical study, this Article shows how startups are using NFTs to coordinate the use of a limited supply of NFTs (e.g., 10,000 NFTs) in a project while taking a permissive approach in allowing the owners to monetize the associated artwork. Most of the Top 25 NFT projects offer IP licenses that grant the owner of the NFT

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N3-NE4Q] (emphasizing the intellectual property rights Disney has in its characters and the numerous lawsuits its filed to protect those rights); *see also* *Walt Disney Prods. v. Air Pirates*, 581 F.2d 751, 752 (9th Cir. 1978) (detailing Disney's claims for copyright and trademark infringement against creators of adult comic books featuring Disney characters).

8. *See* Jennifer E. Rothman, *Copyright's Private Ordering and the "Next Great Copyright Act,"* 29 BERKELEY TECH. L.J. 1595, 1600 (2014) ("These litigation-avoidance customs form a 'clearance culture' in which the default approach is to clear everything without regard to whether the uses would have otherwise been lawful.").

9. *See* Daniel Anthony, *Commercializing NFTs—Generating Value from Digital Assets and Intellectual Property Rights*, JD SUPRA (Mar. 2, 2022), <https://www.jdsupra.com/legalnews/commercializing-nfts-generating-value1110648> [<https://perma.cc/VWP5-2CZF>] (noting the high-profile commercialization of NFTs have included Timbaland, Universal Music Group, and Arizona Iced Tea); Yohann Calpu, *Why I'm Excited About Commercial IP NFTs*, FORKAST (Apr. 29, 2023, 9:43 AM), <https://forkast.news/why-im-excited-about-commercial-ip-nfts> [<https://perma.cc/NB73-A5NY>] (emphasizing the various ways Mfers NFTs can be used and how the "official" derivative collections have grown the brand).

commercial rights, including the right to make new derivative works based on the projects' own artworks. This finding debunks a myth about NFTs: "[M]any or most NFTs include a license that only grants the NFT buyer the license to use, copy, and display the NFT."<sup>10</sup> For the top NFT collections, the approach is far more generous and collaborative: owners get commercial rights and can keep the profits derived from their efforts.

This Article is the first empirical study in legal scholarship to examine this emerging phenomenon. By examining the licenses used by the Top 25 NFT collections in terms of total sales volume, this Article shows the emergence of a far more innovative and permissive approach to intellectual property licensing that fosters *decentralized collaboration* among buyers of NFTs and their producers. Decentralized collaboration refers to creative activities among various unrelated actors who are involved in creating a shared project through a decentralized process open to anyone.<sup>11</sup> Simply by buying and owning an NFT with a commercial license, one can collaborate with many others to develop a set of characters and other artworks for an entire cultural ecosystem, such as the imaginary universe of the CryptoMice. The collaboration is *decentralized*: the NFTs are created on blockchain, a decentralized public ledger, and are offered for sale to the public.<sup>12</sup> Collaborators do not need approval from the NFT creator. The collaboration is *asynchronous* and *self-directed*: once purchasing the NFT with the accompanying license, buyers can collaborate on their own time without any direction from the NFT project.<sup>13</sup> Although the NFT

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10. Elizabeth D. Ferrill, Soniya Shah & Michael V. Young, Sr., *Demystifying NFTs and Intellectual Property: What You Need to Know*, FINNEGAN (May 10, 2022), <https://www.finnegan.com/en/insights/articles/demystifying-nfts-and-intellectual-property-what-you-need-to-know.html> [https://perma.cc/RD43-QN7Y]; see also Nick Breen, *NFT Commercial Licenses: A Non-fungible Triumph or Tragedy?*, REEDSMITH (Jan. 27, 2022), <https://www.reedsmith.com/en/perspectives/2022/01/nft-commercial-licences-a-non-fungible-triumph-or-tragedy> [https://perma.cc/NPW8-TMKP] (claiming that most NFT projects only grant narrow non-commercial use rights or grant no express rights at all).

11. See Edward Lee, *The Bored Ape Business Model: Decentralized Collaboration via Blockchain and NFTs*, SSRN (Nov. 16, 2021), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3963881](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3963881) (providing an example of decentralized collaboration used by the Bored Ape Yacht Club); see also Ferrill et al., *supra* note 10 (discussing how NFTs and blockchains are connected).

12. Lee, *supra* note 11, at 2–3.

13. *Id.* at 3.

projects relinquish some control over their artistic works, decentralized collaboration offers the potential for greater innovation.

Part I explains the concept of decentralized collaboration and how it differs from the traditional approach of media companies to copyright licensing and creative production. Instead of adopting the All Rights Reserved approach, the top NFT producers have embraced a far more permissive approach by granting commercial rights to the buyers of their NFTs to exploit and monetize the artworks and characters associated with their NFTs. This new business model offers an innovative, decentralized approach to creative production and collaboration.

Part II sets forth the empirical study, design, and results. The study's key finding is that a substantial majority of the Top 25 NFT projects have adopted licenses for decentralized collaboration, granting commercial rights to buyers to monetize the associated artworks, including new derivative works. At the same time, the NFT projects typically attempt to maintain some control over their licensees by including restrictions against using the project's trademarks or the use of the NFTs in hate speech or for illegal purposes. This Part identifies potential issues and problems with the NFT licenses, including the vexing issue regarding the license transfer to subsequent owners who have acquired the NFT.

Part III discusses several challenges to decentralized collaboration, including navigating the ongoing economic downturn and the so-called "crypto winter"; the substantial regulatory burdens if NFTs are classified as securities; the lurking issue of the copyrightability of computer-generated artworks, which are commonly used for NFT collections; and the circumvention of creator royalties sought by the NFT projects. Each of these challenges can potentially undermine the effectiveness or change the economics of using NFTs to facilitate decentralized collaboration. Because startups have only used NFTs to foster decentralized collaboration for a few years, it remains to be seen how successful this business model will be. The potential is vast.

## I. THE RISE OF DECENTRALIZED COLLABORATION THROUGH NFTS

This Part provides the background to the empirical study to understand its significance for business models for creative production.<sup>14</sup> Within a few years, a new type of technology called the non-fungible token (NFT) disrupted how content is produced and licensed.<sup>15</sup> NFTs create a new type of property derived from smart contracts for virtual tokens that are typically coupled with IP licenses that grant the NFT owners certain rights to use the associated copyrighted artwork identified by the smart contracts.<sup>16</sup> Through this hybrid arrangement of property (token) and contract (license), creators are innovatively using NFTs to foster decentralized collaboration.<sup>17</sup>

### A. *Copyright Law and Private Ordering*

To understand how private ordering in copyright occurs, it is necessary to understand some basic components of how the Copyright Act<sup>18</sup> structures exclusive rights and addresses (or not) the opportunity for collaboration, as well as the evolution of the All Rights Reserved approach adopted by major media producers during the twentieth century.

#### 1. *The Copyright Clause, the Copyright Act, and centralized control by copyright owners*

The Copyright Clause of the U.S. Constitution says little about collaboration. It recognizes that Congress has the power to grant “Authors . . . the exclusive Right to their respective Writings” in order “[t]o promote the Progress of Science.”<sup>19</sup> There is a tendency to

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14. See generally Shubha Ghosh, *Deprivatizing Copyright*, 54 CASE W. RESV. L. REV. 387, 388 (2003) (“Since much cultural production occurs in corporate settings, such as television and motion picture conglomerates or large software companies, the protection of authors as a means of enriching the public sphere with cultural creations has been transformed into the protection of business interests.”).

15. Steve Kaczynski & Scott Duke Kominers, *How NFTs Create Value*, HARV. BUS. REV. (Nov. 10, 2021), <https://hbr.org/2021/11/how-nfts-create-value> [<https://perma.cc/RGR5-L3E6>] (discussing the advent of NFTs).

16. Ferrill, *supra* note 10 (describing the process of generating a cryptographic token and smart contracting programming).

17. See Lee, *supra* note 11, at 2–3 (stating that “the IP owner allows consumers to make derivative works of the businesses’ IP and permits consumers to monetize the IP”).

18. Copyright Act of 1976, 17 U.S.C. §§ 101–805, 1001–1205.

19. U.S. CONST. art. I, § 8, cl. 8.



conceive of copyright in terms of an *individual* author, glossing over the plural “Authors” mentioned in the Clause.<sup>20</sup> Moreover, the Supreme Court has sometimes described the Clause in terms of an individual author, even in the seminal case *Feist Publications, Inc. v. Rural Telephone Service Company*,<sup>21</sup> in which multiple employees of two companies were compiling phonebooks.<sup>22</sup> In interpreting the “writings of authors” under the Copyright Clause, the Court turned the issue into the singular activity of an “author,” not authors: “In [the prior case] *Burrow-Giles*, the Court distilled the same requirement from the Constitution’s use of the word ‘authors.’ The Court defined ‘author,’ in a constitutional sense, to mean ‘he to whom anything owes its origin; originator; maker.’”<sup>23</sup>

But, if we broaden our focus on “Authors” and “promot[ing] the Progress of Science,”<sup>24</sup> the need to consider the collaboration of multiple people becomes more apparent. Legal scholars contend that “Progress of Science” refers to a range of activities, including the creation of new works and the advancement and spread of knowledge through the dissemination and cultivation of those works.<sup>25</sup> This interpretation of “Progress” is premised on the continued creation of works to fuel learning and knowledge.<sup>26</sup> Put bluntly, if no one created any works, there would be no way to advance or spread knowledge or learning and progress would stop.

Thus, if meeting the goal of the Copyright Clause depends, at a basic level, on the ability of authors *to create* new works, it is important to understand how authors create, especially the environments conducive to their creative activity. Today, psychologists have developed an extensive body of research documenting how creativity, particularly the

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20. *Feist Publ’ns Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 343–44, 346–49 (1991).

21. 499 U.S. 340 (1991).

22. *Id.* at 343–44.

23. *Id.* (quoting *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884)).

24. U.S. CONST. art. I, § 8, cl. 8.

25. See Ned Snow, *Discrimination in the Copyright Clause*, 67 ALA. L. REV. 583, 594–95 (2016) (summarizing views); *Eldred v. Ashcroft*, 537 U.S. 186, 206 (2003) (“The [1998 Copyright Term and Extension Act] may also provide greater incentive for American and other authors to create and disseminate their work in the United States.”). *But see* Jessica Silbey, *Questions of Intellectual Property and Fundamental Values in the Digital Age*, 27 MARQ. INTELL. PROP. & INNOVATION L. REV. 1, 3–6 (2023) (criticizing the “progress as more” interpretation of the Copyright Clause as too restrictive, particularly in light of disruptions caused by the Internet).

26. See Snow, *supra* note 25, at 594 (summarizing Professor Solum’s advances in learning construction of “Progress”).

most transformative, is often fueled by collaboration among creators—what psychologists call *creative collaboration*.<sup>27</sup>

Vera John-Steiner, a leading psychologist and theorist in this area, explained: “In collaborative endeavors we learn from each other by teaching what we know; we engage in mutual appropriation.”<sup>28</sup> This extensive research “increasingly challenge[s] individualist conceptions of creativity to argue that social interaction, communication, and collaboration are key elements in creative thought and practice.”<sup>29</sup> Legal scholars have also called attention to the role that collaboration plays in creativity, especially with advances in digital technologies and the Internet offering tools for collaboration to the world.<sup>30</sup> And, a more recent phenomenon in today’s Creator Economy is the rise of “user-generated content,” and the democratization of authorship and creative activities.<sup>31</sup> Everyone can be a creator;<sup>32</sup> and, on social media, everyone can be a collaborator.<sup>33</sup>

Given the extensive body of research into the creative process, we should examine the copyright system to identify whether it fosters

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27. See, e.g., VERA JOHN-STEINER, CREATIVE COLLABORATION 7–8 (2000) (arguing that the creation of new modes of thought relies and thrives on the complementarity available in collaboration).

28. *Id.* at 192.

29. Margaret S. Barrett, Andrea Creech & Katie Zhukov, *Creative Collaboration and Collaborative Creativity: A Systematic Literature Review*, FRONTIERS PSYCH. 2 (Aug 9, 2021), <https://doi.org/10.3389/fpsyg.2021.713445> [<https://perma.cc/ZR7B-FDAE>] (summarizing literature).

30. See, e.g., DANIELA SIMONE, COPYRIGHT AND COLLECTIVE AUTHORSHIP: LOCATING THE AUTHORS OF COLLABORATIVE WORK 72–90 (2019) (discussing Wikipedia and contributors).

31. See Katherine Manuel, *The Dawn of the User-Generated Content Era: Four Trends You Should Know*, FORBES (Jan. 19, 2023, 10:00 AM), <https://www.forbes.com/sites/forbestechcouncil/2023/01/19/the-dawn-of-the-user-generated-content-era-four-trends-you-should-know> [<https://perma.cc/636X-VBVZ>] (describing user-generated content as “taking the gaming industry by storm”); Edward Lee, *Warming up to User-Generated Content*, 2008 U. ILL. L. REV. 1459, 1500–02 (detailing the growth of user-generated content from personal blogs to collaborative projects that are part of connections made through social networking websites).

32. See generally Richard Florida, *The Creator Economy is the Future of the Economy*, FAST CO. (Nov. 18, 2022), <https://www.fastcompany.com/90812387/the-creator-economy-is-the-future-of-the-economy> [<https://perma.cc/MZ33-US73>] (observing the increasing scale and geographic scope of the creative economy).

33. See generally Brent Barnhart, *Social Media Collaboration: Examples and Benefits for Brands*, STATUSPHERE (Oct. 22, 2022), <https://brands.joinstatus.com/social-media-collaboration> [<https://perma.cc/HK7U-ZLQL>] (providing tips for social media collaboration).

creative collaboration. In the beginning of U.S. copyright law, the system allowed collaboration by limiting the scope of copyright: from 1790 to 1870, the copyright did not include the right to translation, dramatization, or even the making of derivative works.<sup>34</sup> Other features, such as formalities and the lack of protection for foreign works, also circumscribed the reach of copyright and increased the public domain.<sup>35</sup> With a more limited scope of copyright, the copyright system enabled people to engage in downstream collaborations without needing IP licenses.<sup>36</sup> As a result, the early copyright system fostered decentralized collaboration by its design—and did not depend on the decisions of authors and copyright owners.<sup>37</sup>

As the scope of copyright expanded and included a broad exclusive right to make derivative works, the opportunities for decentralized collaboration decreased. In other words, as authors or copyright owners were granted more exclusive rights under copyright, they were given greater legal control over their works, including downstream uses in collaboration. We can characterize this expansion of copyright as a shift from the copyright system's own design favoring decentralized collaboration to the copyright system favoring centralized control by giving the copyright owners greater control over their works, including the authority to decide what collaborations (if any) others can undertake with the works.

Centralized control by copyright owners is evident in the right to make derivative works.<sup>38</sup> The Copyright Act of 1976 (Act) expanded

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34. See Lawrence Lessig, *The Architecture of Innovation*, 51 DUKE L.J. 1783, 1793–94 (2002) (noting early changes in U.S. copyright law, the scope, and limitations on copyright protections it afforded).

35. *Id.*; see John A. Rothchild, *How the United States Stopped Being a Pirate Nation and Learned to Love International Copyright*, 39 PACE L. REV. 361, 365 (2018) (explaining how an 1891 copyright amendment limited copyright protection to books manufactured in the United States); Edward Lee, *The Public's Domain: The Evolution of Legal Restraints on the Government's Power to Control Public Access Through Secrecy or Intellectual Property*, 55 HASTINGS L.J. 91, 103 (2003) (discussing the origin of the concept of the public domain as a limit to IP protections).

36. See Lessig, *supra* note 34, at 1793–94 (discussing the evolution of copyright protection).

37. *Id.* at 1795.

38. See 17 U.S.C. § 106 (setting forth exclusive rights, including the right to do and authorize derivative works, which is broader than the limited protection of the exclusive right to reproductions); Lydia Pallas Loren, *The Changing Nature of Derivative Works in the Face of New Technologies*, 4 J. SMALL & EMERGING BUS. L. 57, 63 (2000) (“Thus, copyright law allows the copyright owner of an existing work to control the production

the exclusive right from adaptations, abridgments, dramatizations, and translations to the general, all-encompassing right to make “derivative works.”<sup>39</sup> The Act defines derivative work broadly.<sup>40</sup> With this right, copyright owners now possess the authority to decide what collaborations with their works are allowed.<sup>41</sup> Granted, there are exceptions to copyright: among others, fair use and the music compulsory license for cover versions of songs can be characterized as instances in which the Act facilitates decentralized collaboration outside the copyright owner’s control.<sup>42</sup> These copyright limitations enable people to collaborate with the copyrighted works of other authors.<sup>43</sup> Ultimately, however, the copyright owner’s broad right to make derivative works curbs the scope of collaboration under these limitations, discouraging others from engaging in collaboration without securing licenses from the copyright owners.<sup>44</sup> Indeed, the Supreme Court’s recent decision in *Andy Warhol Foundation for the Visual Arts, Inc. v. Goldsmith*<sup>45</sup> demonstrates that the

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of derivative works both directly, by permitting assertions of copyright infringement, and indirectly, by denying copyright protection for unauthorized derivative works. This indirect control effectively permits copyright owners in existing works to capture the value added by subsequent creators.”).

39. See Paul Goldstein, *Derivative Rights and Derivative Works in Copyright*, 30 J. COPYRIGHT SOC’Y U.S.A. 209, 209–10 (1983) (stating that the Act, like the 1909 Copyright Act, expanded the protected rights and subject matter and that “[t]he 1976 Act . . . leaves no doubt that derivative works are themselves independently copyrightable”).

40. 17 U.S.C. § 101 (“A ‘derivative work’ is a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship, is a ‘derivative work.’”).

41. See Loren, *supra* note 38, at 63 (stating that the owner of an original copyrighted work can prevent the subsequent creator of a derivative work from obtaining a copyright of the derivative work).

42. 17 U.S.C. §§ 107, 115.

43. See John Baldrice, *Cover Songs and Donkey Kong: The Rationale Behind Compulsory Licensing of Musical Compositions Can Inform a Fairer Treatment of User-Modified Videogames*, 11 N.C. J.L. & TECH. 103, 113–14 (2009) (describing the doctrine of fair use and its four-factor requirement).

44. See Matthew J. Astle, *Stop the Music: Podcasting’s Licensing Conundrum*, 10 J. INTERNET L. 1, 19 (2006) (“[I]f the works on which the derivative work is based are still under copyright, the author of the derivative work must obtain a license from the original copyright holder.”).

45. 143 S. Ct. 1258, 1282 (2023). The case involves Andy Warhol’s use of Lynn Goldsmith’s photograph of the musician Prince.

scope of fair use must be understood—and, in the Court’s view, limited to some extent—by the copyright owner’s right to make derivative works.<sup>46</sup> As the Court put it, “[o]therwise, ‘transformative use’ [for fair use] would swallow the copyright owner’s exclusive right to prepare derivative works.”<sup>47</sup>

Another way in which copyright law favors centralized control is through the legal test(s) for who can be deemed joint authors of a work.<sup>48</sup> The Copyright Act recognizes that authors can create “joint works,” which involve collaboration among joint authors.<sup>49</sup> However, the courts have devised a set of requirements—e.g., each contributor’s addition of independently copyrightable elements to the work, and the intent of collaborators to be considered joint authors—that often disqualify some collaborators from joint authorship.<sup>50</sup> As the Ninth Circuit stated, “[c]laimjumping by research assistants, editors, and former spouses, lovers and friends would endanger authors who talked with people about what they were doing, if creative copyrightable contribution were all that authorship required.”<sup>51</sup> This restrictive approach favors “a contract saying that the parties intend to be or not to be co-authors.”<sup>52</sup> One collaborator can deny other collaborators from being deemed joint authors by convincing the court he had not intended the others be considered co-authors. As Mary LaFrance explained, the courts’ “joint authorship standard . . . is designed to

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46. *Id.*

47. *Id.*

48. See Russ VerSteeg, *Intent, Originality, Creativity and Joint Authorship*, 68 BROOK. L. REV. 123, 142–46 (2002) (noting the different tests courts have fashioned when addressing joint authorship); see also *infra* notes 49–54 and accompanying text.

49. 17 U.S.C. § 201(a).

50. See Mary LaFrance, *Apportioning Authorship*, 71 U. KAN. L. REV. 209, 211–13 (2022) (going through court decisions making it more difficult to be recognized as joint authors); Scott C. Brophy, *Joint Authorship Under the Copyright Law*, 16 HASTINGS COMM’NS. & ENT. L.J. 451, 462–72 (1994) (summarizing the academic disagreement and the different circuits’ conflicting jurisprudence regarding approaches to joint works). The Nimmer treatise disagrees with imposing a requirement that each author must contribute an independently copyrightable element. See 1 NIMMER ON COPYRIGHT § 6.07 (2021) (“[E]ach such contribution must, in any event, be more than *de minimis*.”); see also *Gaiman v. McFarlane*, 360 F.3d 644, 659 (7th Cir. 2004) (recognizing the need for an exception to the general requirement of independently copyrightable contributions by joint authors where none of the contributions were independently copyrightable).

51. *Aalmuhammed v. Lee*, 202 F.3d 1227, 1235–36 (9th Cir. 2000).

52. *Id.* at 1235.

reduce the likelihood of successful joint authorship claims.”<sup>53</sup> By contrast, the English approach to joint authorship fosters greater recognition of joint authors, who share revenues derived from the joint works based on the proportional contribution each made, instead of the equal shares approach of U.S. copyright law.<sup>54</sup>

Some scholars defend, as a matter of policy, the copyright system’s approach in giving authors greater control over their works. Paul Goldstein contends that the broad right to make derivative works gives greater economic incentives for authors to create because they can “proportion their investment in a work’s expression to the returns expected not only from the market in which the copyrighted work is first published, but from other, derivative markets as well.”<sup>55</sup> Likewise, Edmund Kitch’s prospect theory of patents might be applied to copyrights to defend the notion that centralized control over a work by the copyright owner leads to more efficient development, improvements, and management of the underlying IP.<sup>56</sup> As discussed below, this view of broad IP rights has elicited criticism.<sup>57</sup> For now, it is important to recognize that the broad right to make derivative work discourages collaborations involving copyrighted works except through formal licenses and the permission of the copyright owners.

## 2. *The history of the traditional “All Rights Reserved” approach*

The label “All Rights Reserved” on copyrighted works is a historical artifact. Before Congress granted authors the “exclusive right to dramatize and translate any of their works” in 1891,<sup>58</sup> the Copyright Act of 1870<sup>59</sup> stated: “authors may reserve the right to dramatize or to translate their own works.”<sup>60</sup> In interpreting this provision, the Copyright Office issued a circular “for securing copyrights,” advising:

Any author may reserve the right to translate or dramatize his own work. In this case, notice should be given by printing the words, Right of translation reserved, or All rights reserved, below the notice

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53. LaFrance, *supra* note 50, at 213 (emphasis added).

54. Tehila Rozencwaig-Feldman, *The Author and the Other: Reexamining the Doctrine of Joint Authorship in Copyright Law*, 32 *FORDHAM INTELL. PROP. MEDIA & ENT. L.J.* 172, 176 (2021).

55. Goldstein, *supra* note 39, at 216.

56. See Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 *J.L. & ECON.* 265, 275–76 (1977).

57. See *infra* note 80 and accompanying text.

58. Act of Mar. 3, 1891, ch. 565, 26 Stat. 1106.

59. Act of July 8, 1870, ch. 230, § 86, 16 Stat. 212.

60. *Id.*

of copyright entry, and notifying the Librarian of Congress of such reservation, to be entered upon the record.<sup>61</sup>

Thus, under the Copyright Act of 1870, authors were required to comply with this formality: to reserve their rights to translate and dramatize, authors were required to add such reservation labels to copies of the work and by notifying the Librarian of Congress.<sup>62</sup> Even though the express reservation requirement was eliminated in 1891, when Congress recognized the exclusive right to dramatize and translate for authors,<sup>63</sup> U.S. authors had an incentive to continue to include such a reservation of rights to ensure foreign copyrights for their works from countries in the Buenos Aires Convention on Literary and Artistic Copyright.<sup>64</sup> The United States was one of the eighteen signatories of this Convention.<sup>65</sup> The United States then joined the Universal Copyright Convention, which adopted a more straightforward standard for foreign works to satisfy any domestic formalities by ensuring that:

[A]ll the copies of the work published with the authority of the author or other copyright proprietor bear the symbol © accompanied by the name of the copyright proprietor and the year

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61. LIBRARIAN OF CONGRESS, DIRECTIONS FOR SECURING COPYRIGHTS UNDER THE REVISED ACT OF CONGRESS, WHICH TOOK EFFECT JULY 8, 1870.

62. See *Atlas Mfg. Co. v. Street & Smith*, 204 F. 398, 403 (8th Cir. 1913) (“Unless this reservation was made, the public was free to make such use of them.”); *Stephens v. Howells Sales Co.*, 16 F.2d 805, 810 (S.D.N.Y. 1926) (“The purpose of this amendment undoubtedly was to correct a then existing situation, resulting in an unjust loss of rights by the owner or by the author of a copyrighted book, and to protect such a one from just such a situation as now confronts these plaintiffs; and it seems quite evident that, after July 1, 1891, the right to dramatize became part of all existing copyrights in books.”).

63. Act of March 3, 1891, ch. 565, 26 Stat. 1106 (U.S. Comp. St. 1901, p. 3406); see *Stewart v. Abend*, 495 U.S. 207, 247 (1990) (Stevens, J., dissenting) (“The Act of 1891 was a landmark. It gave the same rights to the ‘author’ as had the previous statutes, but provided further that ‘authors or their assigns shall have exclusive right to dramatize and translate any of their works for which copyright shall have been obtained under the laws of the United States.’” (quoting Act of Mar. 3, 1891, ch. 565, 26 Stat. 1107)).

64. Buenos Aires Convention on Literary and Artistic Copyright art. 3, Aug. 11, 1910, 38 Stat. 1934, 155 U.N.T.S. 179 (“The acknowledgement of a copyright obtained in one State, in conformity with its laws, shall produce its effects of full right, in all the other States, without the necessity of complying with any other formality, provided always there shall appear in the work a statement that indicates the reservation of the property right.”).

65. *Contracting Parties/Signatories, Buenos Aires Convention*, WIPO, <https://www.wipo.int/wipolex/en/treaties/parties/398> [<https://perma.cc/TPR4-VJQM>].

of first publication placed in such manner and location as to give reasonable notice of claim of copyright.<sup>66</sup>

Thus, at least since 1952, there was no legal consequence for U.S. authors to omit “All Rights Reserved” in copies of their works: they did not lose any rights by such omission.<sup>67</sup> After the United States joined the Berne Convention in 1989, which prohibits imposing any formalities on foreign works in member countries, even copyright notice became optional under U.S. law.<sup>68</sup> Nevertheless, there still may be a practical benefit of adding the label “All Rights Reserved” on copyrighted works, such as on the front matter of a book: it may serve as a warning sign, similar to “No Trespassing” on real property.<sup>69</sup>

This brief history of the origin of All Rights Reserved helps explain the term’s longevity. For major media producers, including book and music publishers, movie studios, and music labels, the copyright industries eschewed permissive licensing and instead adopted a restrictive All Rights Reserved approach, retaining tight control over the use of copyrighted works.<sup>70</sup> The All Rights Reserved approach favored centralized control

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66. Universal Copyright Convention art. III, § 1, Sep. 6, 1952, 6 U.S.T. 2713.

67. Subcomm. on Patents, Trademarks, and Copyrights of the Comm. on the Judiciary, 86th Cong. 25 (Comm. Print 1960), <https://www.copyright.gov/history/studies/study7.pdf> [<https://perma.cc/W238-8NRA>].

68. See Alan E. Garfield, *Calibrating Copyright Statutory Damages to Promote Speech*, 38 FLA. ST. U. L. REV. 1, 43–44 (2010) (further explaining that courts are forbidden from considering a defendant’s innocent infringement defense if the defendant had access to works with the copyright notice).

69. See, e.g., Fernand Khnopff, *The New Gallery*, MAG. ART, 1898, at 428, 432, <https://archive.org/details/magazineofart22londuoft/page/432/mode/1up> (last visited Oct. 8, 2023) (“‘All rights reserved’ is a notice similar to ‘Trespassers will be prosecuted.’ It is an intimation that there are rights which the public must respect; but to print in a catalogue or book ‘all rights reserved’ does not create rights when they do not exist, nor protect rights which may exist, unless all the legal conditions as to copyright are complied with.”).

70. This All Rights Reserved practice is typically indicated with the copyright notice in the copies of the work, such as in the front matter of a book, the liner notes of an album, or the back cover of a DVD. See Major William H. Carnahan, *Copyright or Wrong*, 12 U.S.A.F. JAG L. REV. 4, 14 (1970) (noting that book publishers’ All Rights Reserved practice dates back to 1966); see, e.g., *Harry Styles – Fine Line*, DISCOGS, <https://www.discogs.com/release/14525240-Harry-Styles-Fine-Line/image/SW1hZ2U6NDY3MDQwMTc=> [<https://perma.cc/57WZ-ZXXY>] (image 5 showing the copyright notice); *Sunshine*, AMAZON, <https://www.amazon.com/Sunshine-Ralph-Fiennes/dp/B00005ALMM> [<https://perma.cc/6WMG-RES6>] (image 2 showing copyright notice). The practice can also be seen in the terms of use of the media companies. See, e.g., Paramount, *Terms of Use*, PARAMOUNT, <https://www.paramount.com/terms-of-use>



over copyrighted works, which, in turn, favored centralized collaboration.<sup>71</sup> For the most part, copyright owners retain control over their works and ultimately determine who can collaborate in further developing their copyrighted content.<sup>72</sup> Under the Supreme Court’s recent decision in *Andy Warhol Foundation*, which narrows the doctrine of transformative purpose under factor one of fair use, the approach reinforces the copyright owner’s ability to control downstream uses of their works that are substantially the same in purpose as the original “absent some other justification for copying.”<sup>73</sup>

*B. The Emergence of Decentralized Collaboration via NFTs*

We can now turn to the central concept elaborated by this Article: decentralized collaboration. Decentralized collaboration departs from the prevailing approach of the major media industries: All Rights Reserved. Instead of centralized control, the creators in the emerging NFT sector are willingly—and wholeheartedly—relinquishing control over their works to allow others to engage in decentralized collaboration.

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71. See Lee, *supra* note 11, at 1 (explaining a business’s centralized control over IP).

72. See *Copyright Ownership: Who Owns What?*, STANFORD LIBRARIES, <https://fairuse.stanford.edu/overview/faqs/copyright-ownership> [<https://perma.cc/94SQ-8JXL>] (describing the rights granted to copyright holders).

73. *Andy Warhol Found. for the Visual Arts, Inc. v. Goldsmith*, 143 S. Ct. 1258, 1280 (2023).

1. *Tradeoffs of centralized collaboration*

Copyright law operates against the backdrop of private ordering.<sup>74</sup> It is a feature, not a bug, of copyright law. The copyright for a work “vests initially in the author or authors of the work,” but the Copyright Act enables the copyright owner to transfer its rights “in whole or in part.”<sup>75</sup> As copyright law developed, shaped by the practice of the major media industries, the predominant approach reserved all rights to the copyright owner when a work was disseminated to the public.<sup>76</sup> All Rights Reserved became a common notice in books and movies. With the advent of digital technologies and the Internet, many legal scholars criticized the All Rights Reserved approach as too restrictive in light of the new capabilities these technologies offered people to share and remix digital content, creating user-generated content.<sup>77</sup> Reformers provided flexible alternatives to the All Rights Reserved approach, such as open-source and Creative Commons licenses, discussed below.

The All Rights Reserved approach fosters *centralized collaboration*.<sup>78</sup> The copyright owner decides when and with whom to collaborate in developing merchandise and derivative works based on the copyrighted works.

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74. See Rothman, *supra* note 8, at 1597–98 (discussing the development of copyright law and how private ordering across industries and customs can alter how copyrighted works can be used).

75. 17 U.S.C. § 201(a), (d).

76. Maria Lillà Montagnani, *A New Interface Between Copyright Law and Technology: How User-Generated Content Will Shape the Future of Online Distribution*, 26 CARDOZO ARTS & ENT. L.J. 719, 756 (2009); see also Victoria A. Grzelak, Comment, *Mickey Mouse & Sonny Bono Go to Court: The Copyright Term Extension Act and Its Effect on Current and Future Rights*, 2 J. MARSHALL REV. INTELL. PROP. L. 95, 101, 108, 110–11 (2002).

77. See, e.g., LAWRENCE LESSIG, REMIX: MAKING ART AND COMMERCE THRIVE IN THE HYBRID ECONOMY 38–43 (2008) (charting tensions, and copyright disputes between digital innovations and content industries since the 1990s).

78. See Lee, *supra* note 11, at 1 (noting that typically, businesses do not allow consumers to make derivative works of their IP).

*Table 1. Comparison Between Centralized and Decentralized Collaboration*

	<b>CENTRALIZED COLLABORATION</b>	<b>DECENTRALIZED COLLABORATION</b>
<b>CONTROL BY COPYRIGHT OWNER</b>	Maximizes control of copyright owner	Relinquishes some control of copyright owner
<b>TYPE OF LICENSE</b>	Negotiated individually by copyright owner	Licenses offered by copyright owner to public
<b>RESTRICTIVENESS</b>	All Rights Reserved	Permissive approach
<b>BENEFITS</b>	Copyright owner can control quality of secondary creations by licensees	Copyright owner invites greater collaboration and innovation
<b>DRAWBACKS</b>	Sacrifices innovation, third-party creativity Legal costs for each license	Risks of low-quality works, objectionable content, tarnishment of reputation

We discussed above the “prospect” theory of patents that might be used to defend centralized control and centralized collaboration for copyrighted works.<sup>79</sup> However, this argument has elicited criticisms for both patents and copyrights; for example, high transaction costs may saddle the ability of IP owners to engage in centralized collaborations through licensing to promote progress and benefit society.<sup>80</sup>

Another way to frame the issue is to examine IP’s effect on the industry structure for creative production.<sup>81</sup> As Tim Wu explained, “we must weigh the benefits of intellectual property assignments, which include subsidizing or making possible desirable economic activity, against the costs of the centralization of economic decisionmaking and

79. See *supra* note 56 and accompanying text.

80. See, e.g., Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 871–75 (1990) (casting doubt on Kitch’s “prospect theory” of patent rights, disagreeing that “coordinated development is better than rivalrous”); Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1053–83 (1997) (detailing the complexities of obtaining and drafting IP licenses and the corresponding costs).

81. Tim Wu, *Intellectual Property, Innovation, and Decentralized Decisions*, 92 VA. L. REV. 123, 123 (2006).

the creation of barriers to innovation and market entry.”<sup>82</sup> Given the fallibility of human predictions and centralized planning for economics, the economic literature favors “decentralized economic decisionmaking,” according to Wu.<sup>83</sup>

Yet IP operates against this grain. IP is believed to be necessary to “subsidize selected industries whose assets are vulnerable to misappropriation,” but at the cost of “delay[ing] the market entry of threats to intellectual property owners, and . . . the centralization of decisionmaking within the industry.”<sup>84</sup> Even though IP owners can opt for decentralized decisionmaking through permissive licensing, they can decide, instead, to “simply refuse to license decentralized improvement because [they] want[] to retain maximum control and [are] comfortable with [their] expected returns.”<sup>85</sup> IP owners have, in effect, veto power over collaboration.

There are inherent tradeoffs in choosing centralized decisionmaking. It “will tend to filter out too many good ideas but make fewer mistakes.”<sup>86</sup> In the copyright context, there is the added cost that the assertion of copyrights may block new, socially beneficial technologies.<sup>87</sup> By contrast, choosing a decentralized approach to collaboration may result in “more bad projects, and even outright fiascoes, but also in more new and innovative ideas.”<sup>88</sup> Indeed, the Internet’s open architecture provides a helpful example of how a decentralized approach allowing everyone to innovate and collaborate in developing online apps and digital content can yield tremendous benefits for society.<sup>89</sup>

The advances in digital technologies and tools that enable people to share and collaborate, often asynchronously online, make problematic the romantic vision of an individual author.<sup>90</sup> The highly atomistic,

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82. *Id.* at 123–24.

83. *Id.* at 127.

84. *Id.* at 134.

85. *Id.* at 140.

86. *Id.* at 127.

87. *Id.* at 139.

88. *Id.* at 127.

89. See Mark Lemley, David S. Levine & David G. Post, *Don’t Break the Internet*, 64 STAN. L. REV. ONLINE 34, 37 (2011) (identifying “the Internet’s uniquely decentralized structure to serve as a global platform for innovation, speech, collaboration, civic engagement, and economic growth”).

90. See, e.g., Peter Jaszi, *On the Author Effect: Contemporary Copyright and Collective Creativity*, 10 CARDOZO ARTS & ENT. L.J. 293, 293–94 (1992) (questioning the romantic view of an individual author and restrictive view).

traditional approach to copyright<sup>91</sup> prioritizes an aspect of copyright derived from the Copyright Clause—the right to *exclude*, or “the exclusive right.”<sup>92</sup> But one must read the entire Clause. If the goal of the Copyright Clause is to incentivize the creation and dissemination of works for the benefit of the public—and, ultimately, learning and progress in this country—it is doubtful that this narrow focus on the individual author is ideal. In light of the Internet and today’s digital technologies, Molly Shaffer Van Houweling explains: “This situation can raise information and transaction costs for participants in the creative marketplace, hampering future generations of creativity and ultimately undermining the purpose of copyright—to spur the creation and dissemination of works of authorship for the ultimate benefit of the public.”<sup>93</sup> Contemporary cultural and social psychology studies have shown how collaboration, interdependence, and joint activity often underlie creative works.<sup>94</sup>

## 2. *Past examples of decentralized collaboration*

### a. *Open-source software licenses*

The first example of a license that facilitated decentralized collaboration started in 1989 with open-source software, which used public licenses that allowed anyone to improve software under the conditions of the open-source license.<sup>95</sup> Under the General Public License, everyone is free to copy, use, distribute, and modify the source code for a software program; however, any improvements must be shared with the community to further develop the program, subject to the same license terms.<sup>96</sup> Open-source licenses are decentralized: no one controls who can receive the license—it is open to all comers.<sup>97</sup> Furthermore, the license

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91. See Molly Shaffer Van Houweling, *Author Autonomy and Atomism in Copyright Law*, 96 VA. L. REV. 549, 592–93 (“The 1790 Copyright Act was modeled on the Statute of Anne, and, like its predecessor, it had at its core a fundamentally atomistic feature: initial allocation of ownership to individual authors.”).

92. *Id.* at 581.

93. *Id.* at 555.

94. See, e.g., Barrett et al., *supra* note 29, at 12 (providing examples of studies demonstrating how various factors play a role in creativity).

95. Edward Lee, *NFTs as Decentralized Intellectual Property*, 2023 U. ILL. L. REV. 1049, 1069 (2023).

96. *Id.*

97. *Open Source Licenses – Definition, Types, and Comparison*, SOLUTIONS HUB (Feb. 3, 2023), <https://solutionshub.epam.com/blog/post/open-source-licenses-definition-types-and-comparison> [<https://perma.cc/U9SC-MCCQ>].

includes an express provision that it runs with a covered work to all “downstream recipients.”<sup>98</sup> A primary reason for adopting open-source licenses is to harness the brain power of programmers from around the world to identify bugs in the software, fix them, and improve the software.<sup>99</sup> As the Federal Circuit recognized, “[t]hrough such collaboration, software programs can often be written and debugged faster and at lower cost than if the copyright holder were required to do all of the work independently.”<sup>100</sup>

*b. Creative Commons licenses*

In 2002, drawing on insights from open-source licenses, Lawrence Lessig founded Creative Commons, a nonprofit that provided the next major form of decentralized collaboration.<sup>101</sup> Through a set of public licenses available to everyone, Creative Commons (CC0) licenses “allow creators to keep their copyrights while sharing their works on more flexible terms than the default ‘all rights reserved.’”<sup>102</sup> There are now seven CC licenses, which offer creators several different licensing options that are increasingly permissive, including authorizing users to make derivative works commercially with attribution to the original author (CC-BY).<sup>103</sup> The CC0 license is meant to abandon copyrights altogether and donate the work to the public domain.<sup>104</sup> As discussed below, some NFT projects have adopted the CC0 license, which they believe is more consistent with the emerging Web3 culture.<sup>105</sup>

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98. *GNU General Public License*, GNU (Jun. 29, 2007), <https://www.gnu.org/licenses/gpl-3.0.en.html> (version 3).

99. *See* *Jacobsen v. Katzer*, 535 F.3d 1373, 1378–79 (Fed. Cir. 2008) (“Open Source software projects invite computer programmers from around the world to view software code and make changes and improvements to it . . . . In exchange and in consideration for this collaborative work, the copyright holder permits users to copy, modify and distribute the software code subject to conditions that serve to protect downstream users and to keep the code accessible.”).

100. *Id.* at 1379.

101. *Lawrence Lessig*, LIBRARY OF CONGRESS, <https://www.loc.gov/item/lcwaN0001430> (last visited Oct. 8, 2023).

102. *Unit 1: What is Creative Commons*, CREATIVE COMMONS, <https://certificates.creativecommons.org/ccertedu/chapter/1-1-the-story-of-creative-commons> [<https://perma.cc/3HAX-2LS5>].

103. *About The Licenses*, CREATIVE COMMONS, <https://creativecommons.org/licenses> [<https://perma.cc/B7XL-VFV7>].

104. *Id.*

105. *See* Flashrekt & Scott Duke Kominers, *Why NFT Creators Are Going CC0*, A16ZCRYPTO (Aug. 3, 2022), <https://a16zcrypto.com/cc0-nft-creative-commons-zero->

### C. Non-Fungible Tokens (NFTs)

#### 2. Technology: smart contracts that create virtual tokens

Before discussing how NFT projects are facilitating decentralized collaboration, it is important to understand some basics about NFT technology. NFTs are created by computer programs called smart contracts that are stored on blockchain, a decentralized network that serves as a public ledger that creates a permanent, public record touted to be immutable.<sup>106</sup> The contracts are “smart” because they effectuate transactions, typically with cryptocurrency, in an automated fashion without needing an intermediary, such as a bank or payment service.<sup>107</sup> Cryptocurrencies, such as Bitcoin, are also stored on blockchain, but each cryptocurrency is typically fungible, meaning that each cryptocurrency unit has the same value and denomination (one Bitcoin equals one Bitcoin).<sup>108</sup> By contrast, as its name indicates, each *non-fungible* token is unique.<sup>109</sup> As computer programs, NFTs can be used to identify other subject matter, such as artwork, membership, real estate, and tickets.<sup>110</sup> In other words, the NFT provides a virtual token of something else. The most prominent example so far is for digital artworks.<sup>111</sup> By acquiring the NFT, the owner owns the token, and whatever rights or benefits come with such ownership as determined by the NFT creator.<sup>112</sup>

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license-rights [<https://perma.cc/8SZ8-XB63>] (describing the benefits of CC0 for content creators); MrClean, *CC0 NFT Projects: The Power of Public Domain in Web3*, MIRROR.XYZ (Dec. 23, 2021), [https://mirror.xyz/0x148089038088cC49CDcF26e0f96776c25e5CfACd/LyW1nstrKXvW22PD-QMOndzx\\_hQnzJYXeRj6e28vkM](https://mirror.xyz/0x148089038088cC49CDcF26e0f96776c25e5CfACd/LyW1nstrKXvW22PD-QMOndzx_hQnzJYXeRj6e28vkM) [<https://perma.cc/6YRX-2KD9>] (comparing CC0 licenses to non-CC0 licenses); *The Complete Guide to CC0 NFTs—Best CC0 NFT Projects (2023)*, WAGMI TIPS, <https://wagmi.tips/guides/cc0-nfts> [<https://perma.cc/NWX7-62QG>] (describing popular CC0 NFT projects).

106. *What Are Smart Contracts on Blockchain?*, IBM, <https://www.ibm.com/topics/smart-contracts> [<https://perma.cc/P8A2-KSBG>]. Blockchain operates like other peer-to-peer networks, but instead of sharing music files, people can trade, buy, and sell tokens, including cryptocurrencies and NFTs. *Id.*

107. *Id.*

108. Leticia Melo, *What’s the Difference Between NFT and Crypto? A Beginner’s Guide*, DAPPRADAR (Sep. 5, 2022), <https://dappradar.com/blog/difference-between-nft-and-crypto> [<https://perma.cc/6EW9-RLCC>].

109. *Id.*

110. *Id.*

111. *Id.*

112. See Ferrill et al., *supra* note 10 (noting that certain NFT creators give more expansive commercial rights).

## 2. *Decentralized collaboration licenses for NFTs*

If the NFT is used for a work protected by IP, the NFT creator should include a license setting forth the rights to use the IP, such as a copyrighted artwork or character, that the buyers of the NFTs receive. The license is typically published as or within the terms and conditions on the NFT project's website, which may set forth conditions beyond the IP license related to the use of the website.<sup>113</sup> An IP license is important because, without such a license, the buyers cannot know what uses of the associated artwork (e.g., using a character as one's profile pic, or PFP, on Twitter, later renamed X<sup>114</sup>) are proper.<sup>115</sup>

The need for an IP license created an opportunity for NFT creators. Instead of adopting the All Rights Reserved approach or some restrictive license, NFT creators can adopt far more innovative and permissive licenses that grant buyers greater rights, including commercial rights and the right to make derivative works.<sup>116</sup> Because these commercial licenses foster decentralized collaboration with

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113. See, e.g., *Terms of Use*, NBA TOP SHOT, <https://nbatopshot.com/terms> [<https://perma.cc/E9PP-ZQ8V>] (last updated Aug. 31, 2022) (including an ownership, license, and ownership restrictions provision).

114. Elon Musk acquired Twitter and renamed the company X. See Ryan Mac & Tiffany Hsu, *From Twitter to X: Elon Musk Begins Erasing an Iconic Internet Brand*, N.Y. TIMES (July 24, 2023), <https://www.nytimes.com/2023/07/24/technology/twitter-x-elon-musk.html> [<https://perma.cc/3CVP-YACS>]. Because I conducted my study before the name change, I use "Twitter" to refer to the company as it was called during the relevant period.

115. Ryan Rasmus, *What Do the Terms Mean in My Intellectual Property License, and Does it Protect Me?*, LIPP LAW, (Jan. 12, 2022), <https://www.lipplawfirm.com/intellectual-property-license-terms> [<https://perma.cc/VK98-KH8F>]. For example, the CryptoPunks collection initially lacked a formal license when launched in 2017. See Edward Lee, *The Cryptic Case of the CryptoPunks Licenses: The Mystery over the Licenses for CryptoPunks NFTs*, 2 (Dec. 16, 2021), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3978963](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3978963) (discussing how it is unclear what type of NFT license CryptoPunks has).

116. See Stuart Levi, Mana Ghaemmaghami & Gabriel Mohr, *Skadden Discusses the Growing Complexity of Commercial Rights Issues in NFTs*, COLUM. L. SCH.: CLS BLUE SKY BLOG (Jun. 1, 2022), <https://clsbluesky.law.columbia.edu/2022/06/01/skadden-discusses-the-growing-complexity-of-commercial-rights-issues-in-nfts> [<https://perma.cc/D872-E7MU>] ("This explicit limited grant of rights, and the accompanying restrictions, have been critical for NFT owners. This is because the default rule is that intellectual property rights, particularly rights in copyright, which are at the heart of most NFTs, remain with the owner of those rights unless they are explicitly granted, even where someone buys a physical work that embodies those rights.").



anyone who buys the related NFTs, we may refer to them as “decentralized collaboration” (De-Collab) licenses.<sup>117</sup>

It is useful to compare NFTs with open-source licenses and CC licenses. Table 2 summarizes the major differences.

*Table 2. Comparison of Open-Source, Creative Commons, and NFT Licenses*

	<b>OPEN-SOURCE LICENSES</b>	<b>CREATIVE COMMONS LICENSES</b>	<b>NFTs + IP LICENSES</b>
<b>STANDARD LICENSE</b>	Yes	Yes	No: each project crafts own license Some Public Licenses are available
<b>AVAILABILITY OF LICENSE</b>	Open to all	Open to all	Open to all but part of NFT sale
<b>COST MONEY?</b>	Often free license	Often free license, but can be used commercially	Commercial: NFTs typically sold as digital asset
<b>WHO OBTAINS LICENSE?</b>	If free, anyone	If free, anyone	Buyers of the NFTs
<b>CONVEYS IP OWNERSHIP</b>	No	No	Yes, token is intellectual property
<b>PURPOSE OR BENEFIT</b>	Improvements to software	Remixing and building on copyrighted works Greater dissemination of works	Community, collaboration, identity, building a creative ecosystem

As indicated in the first row, one difference with NFTs is that the Top 25 projects rely on their own (bespoke) licenses, which is typical for the NFT sector. By contrast, both open-source and Creative Commons licenses are standard public licenses that any individual, business, or entity can adopt, thereby saving on legal costs. Some

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117. See Lee, *supra* note 11, at 2 (noting that under the De-Collab model, IP owners relinquish creative control over derivative works of their IP).

entities have offered standard licenses for NFTs that anyone can adopt,<sup>118</sup> but it is too early to tell if they will gain widespread adoption, especially when the crypto winter caused a major downturn in the NFT market and slowed down new projects.<sup>119</sup>

As summarized in the middle rows in Table 2, another difference with NFT licenses is that they typically are tied to the purchase of NFTs and require payment by the buyers, who become the licensees. Although payment can be required for some open-source software or content that comes with a CC license, the more typical way in which open-source and CC licenses are used is that no payment is required to receive a copy of the licensed work. Open-source and CC licenses enable widespread public dissemination of the underlying works, often for free. By contrast, the NFT arrangement is typically different. NFTs are a hybrid arrangement of property (virtual token creating an embodiment of art) and an IP license to use associated artwork. Because the virtual token can command its own value as property—with some NFTs selling for millions of dollars—NFTs involve a far more complex arrangement and economics (called “tokenomics”)<sup>120</sup> than traditionally involved with open-source and CC licenses.

A third major difference among the types of licenses is how decentralized collaboration is used, as shown in the last row in Table 2. For open-source licenses, collaboration focuses on improving the software. Collaboration enables creators to remix and build on other copyrighted works for CC licenses. For NFT licenses, collaboration serves several functions. First, it fosters a different relationship: instead

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118. See, e.g., *NFT License*, NFT LICENSE, <https://www.nftlicense.org> [<https://perma.cc/M2LY-UW48>] (describing what the owner of an NFT license can and cannot do with the artwork associated with the NFT license); Miles Jennings & Chris Dixon, *The Can't Be Evil NFT Licenses*, A16ZCRYPTO (Aug. 31, 2022), <https://a16zcrypto.com/introducing-nft-licenses> [<https://perma.cc/S9U8-6XZ6>] (describing one method that creates a set of guidelines for determining rights associated with NFT licenses); *NFT Licenses*, ANIMOCA BRANDS, <https://www.animocabrands.com/nft-licences> [<https://perma.cc/RBK6-WYNQ>] (describing three different ways rights can be allocated to owners from NFT licenses).

119. Wayne Duggan, *What Is Crypto Winter?*, FORBES (Apr. 20, 2023), <https://www.forbes.com/advisor/investing/cryptocurrency/what-is-crypto-winter> [<https://perma.cc/RA7L-L2K4>] (“In the world of crypto, the phrase [crypto winter] means an extended period of trouble may be settling over the crypto market.”).

120. See Robert Stevens, *What Is Tokenomics and Why Is It Important?*, COIN DESK (Nov. 11, 2022, 12:00 PM), <https://www.coindesk.com/learn/what-is-tokenomics-and-why-is-it-important> [<https://perma.cc/P4K9-9KN8>] (“Tokenomics determine two things about a crypto economy—the incentives that set out how the token will be distributed and the utility of the tokens that influence its demand.”).

of producer and consumers, the NFT projects become collaborators with their NFT owners in a community. Second, the NFT owners often use the characters in their NFTs as their public-facing identity on social media—to identify themselves as part of the community (e.g., Doodles). And, if the NFT owners commercialize their characters in merchandise and new works, they help to build the creative ecosystem with the NFT project or business. The most successful project in this regard is the Bored Ape Yacht Club, which has spawned an impressive amount of decentralized collaboration and commercialization from its many NFT owners, including Snoop Dogg, Eminem, and Timbaland, to name just a few.<sup>121</sup> Harry Liu has compiled a graphic listing the many collaborators—involved in 303 different projects—in the Yuga Labs’ IP ecosystem.<sup>122</sup>

The unifying thread that underlies open-source, CC, and NFT licenses that include the right to make derivative works is that they involve a decision by the copyright or IP owner to relinquish control over downstream uses, collaboration, and exploitation of the works. Instead of All Rights Reserved, the three types of licenses reserve only some rights, while granting third parties rights to develop and build on the underlying works. The result is analogous to the more limited scope of copyright from 1790 to 1870 under U.S. copyright law: collaboration is fostered.<sup>123</sup> However, instead of Congress determining the limited scope of copyright by statute, copyright owners are doing so with NFT licenses.

The empirical study undertaken for this Article provides evidence of how substantial this development is among the top projects. As discussed in Part II, a majority of the Top 25 NFT projects have granted commercial licenses that facilitate decentralized collaboration with their community of buyers.

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121. See EDWARD LEE, *CREATORS TAKE CONTROL: HOW NFTS REVOLUTIONIZE ART, BUSINESS, AND ENTERTAINMENT* 166–70 (2023) (discussing BAYC collaborations across creative and corporate areas); see also Kyle Chayka, *Why Bored Ape Avatars Are Taking Over Twitter*, *NEW YORKER* (July 30, 2021), <https://www.newyorker.com/culture/infinite-scroll/why-bored-ape-avatars-are-taking-over-twitter> [https://perma.cc/3242-TYSB] (noting that “[t]he collection has since seen almost a hundred million dollars in trading, with the cheapest apes often going for almost fourteen thousand dollars”).

122. Harry Liu (@harry\_forj), X (Jun. 11, 2023, 2:33 AM), [https://twitter.com/harry\\_forj/status/1668144420636737537](https://twitter.com/harry_forj/status/1668144420636737537) [https://perma.cc/JB8V-FKX3].

123. See *supra* note 34 and accompanying text.

### 3. *Conceptualizing how NFTs and licenses operate with artistic works*

Because NFTs are an emerging, rapidly developing technology, scholars and theorists have just begun offering theories to explain how artists and businesses use NFTs—and why they are so attractive to many creators. Before turning to the study, it is helpful to conceptualize the NFT licenses that foster decentralized collaboration. This Section offers three different theories or ways to conceptualize how NFTs operate. First, NFTs are an example of decentralized intellectual property (De-IP) in which private actors are reconfiguring intellectual property rights, especially copyright, to suit their needs better than the formal law does. Second, NFTs can be described as a hybrid arrangement involving intellectual property (artworks) and contracts (licenses), analogous to real property and covenants. Third, NFT projects are an example of the governance of a knowledge commons: the common resource is a dynamic cultural ecosystem centered around a limited set of visual characters, allocated through NFTs. These theories are complementary: collectively, they show the significance—and complexity—of the arrangement of NFTs.

#### a. *NFTs as De-IP*

In prior scholarship, I have set forth a new theory that conceptualizes using NFTs with artistic works as an example of *decentralized intellectual property* (De-IP).<sup>124</sup> De-IP refers to a movement to reshape the contours of copyright and IP laws, to tailor them through a hybrid arrangement involving NFTs or virtual tokens (technology) and licenses without the need for an amendment by Congress.<sup>125</sup> This arrangement is an example of private ordering, which, as explained above, is an important aspect of our copyright system.<sup>126</sup> What is distinctive about NFTs, compared to past private ordering, is that they create a new form of intellectual property (the virtual token) that itself has value—some selling for millions of dollars.<sup>127</sup> De-IP is analogous to the movement to decentralized finance

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124. See Lee, *supra* note 95, at 1087–1113 (explaining how NFTs operate as an alternative to the copyright system).

125. *Id.* at 1053–54.

126. See *supra* notes 74–76 and accompanying text.

127. See, e.g., Abram Brown, *Beeple NFT Sells for \$69.3 Million, Becoming Most-Expensive Ever*, FORBES (Mar. 11, 2021, 10:03 AM), <https://www.forbes.com/sites/abrambrown/2021/03/11/beeple-art-sells-for-693-million-becoming-most-expensive-nft-ever> [<https://perma.cc/2VAC-96KQ>] (discussing the sale of Beeple’s (Mike Winkelmann) digital artwork in the Christie’s auction).

(DeFi), by which proponents seek to create decentralized financial services that the Federal Reserve or other centralized regulatory institutions cannot manipulate.<sup>128</sup> One of the clearest examples of De-IP is the widespread adoption of a right to resale royalties by NFT artists (also called creator royalties)—a right that Congress has failed to provide, despite the recommendation of the Copyright Office in 2013 and eighty countries recognizing such a right under copyright law.<sup>129</sup> Many artists adopted NFTs because of resale royalties, which they believe are essential to survive and sustain themselves as artists.<sup>130</sup> De-IP highlights the potential for NFTs to effectuate macro changes to the copyright system through a new mechanism of private ordering and a complex arrangement involving technology and content licenses, along with the practices and norms of the NFT project.

*b. NFTs as virtual property and inclusive covenants*

Another way to conceptualize NFTs and their licenses is to liken them to real property (the NFT) and covenants (the license).<sup>131</sup> Legal scholars have characterized the use of contracts to impose restrictions on downstream uses of intellectual property, such as computer software, as a *servitude*, a covenant or agreement that attaches to or “run[s] with the” land.<sup>132</sup> As Van Houweling explained, “[a]s with more familiar land servitudes, the restrictions contained in this license aim to run with the intangible work to which the license attaches, and thus to bind every user of that work.”<sup>133</sup> Among the problems with imposing servitudes

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128. Lee, *supra* note 124, at 134–49 (comparing DeFi with NFTs).

129. *Id.* at 149.

130. See LEE, *supra* note 121, at 140–44 (explaining how the photographer Aversano adopted NFTs to recoup resale royalties for his photos); Lee, *supra* note 95, at 115, 150 (elaborating on how resale royalties provide incentives for creativity because of their value and longevity); Aleksandar Gilbert, *Artists Say NFT Markets Betray Web3 by Nixing Royalty Payments*, DEFIANT (Sept. 8, 2022), <https://thedefiant.io/nft-markets-betray-web3-royalties> [<https://perma.cc/2W8L-ZFBU>] (interviewing artists who were incentivized to create NFTs for the promise of royalties); 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/4KG6-NYMX>] (describing resale royalties as a “dream of five generations of artist-activists”).

131. See LEE, *supra* note 121, at 109–15 (further analogizing NFTs and real property concepts).

132. See Molly Shaffer Van Houweling, *The New Servitudes*, 96 GEO. L.J. 885, 889 & n.9 (2008) (collecting literature).

133. *Id.* at 889.

through contracts for the use of intellectual property works, Van Houweling focuses on the potential lack of notice to buyers:

The problem that remains, however, is that even explicit and firmly attached notice is not effective for people who do not read it or fully integrate it into their decisions . . . . [W]hen restrictions—even those that purport to be “contractual”—attach to and run with objects or intangible intellectual works, they can raise special concerns with notice and information costs that distinguish them from traditional contracts. The specific features of chattel servitudes that raise these concerns include the remoteness between the parties, the durability and ubiquity of restrictions that run automatically to everyone who acquires a type of good, and the special lack of salience of restrictive features bundled with possession of inexpensive objects.<sup>134</sup>

We will return to this notice problem in discussing the results of our study—the lack of notice may be an issue for at least some projects.<sup>135</sup>

The critique of using contracts to impose software and other intellectual property servitudes has been largely negative.<sup>136</sup> That is not surprising, given that these contracts are often restrictive—akin to restrictive covenants on land—sometimes purporting to deny the buyer the rights that might otherwise arise.<sup>137</sup> More generally, property is traditionally understood as entitling the owner to the right to exclude others.<sup>138</sup> For intellectual property, that notion is built into conceptualizing IP as a bundle of “exclusive rights.”<sup>139</sup>

Nevertheless, as legal scholars have more recently called attention to, the flip side of the owner’s right to exclude others is the right to

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134. *Id.* at 933.

135. *See infra* Part II.

136. *See, e.g.*, Van Houweling, *supra* note 132, at 932 (noting “[s]ome critics . . . question commercial software licenses on the basis of their servitude-like character . . . extend that characterization—and their criticism—to both the GPL and Creative Commons licenses”).

137. *See, e.g.*, *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447, 1449 (7th Cir. 1996) (upholding enforcement of a contractual provision that limited use to noncommercial uses).

138. *See LEE, supra* note 121, at 110 (“The right to exclude also plays a central role in intellectual property (IP) for creations of the mind. Inventors and authors are granted the ‘exclusive right’—a term even mentioned in the U.S. Constitution—to prevent third parties from unauthorized use of times protected by their patents and copyrights.”).

139. *See, e.g.*, 17 U.S.C. § 106 (listing the exclusive rights of the copyright owner under U.S. law).

*include* them.<sup>140</sup> Instead of restrictive covenants, the IP owner can choose *inclusive* covenants that bring people into a community and enable them to collaborate in a creative ecosystem.<sup>141</sup> As Robert Merges described: “The ability to easily *include* is an important flip side to the grant of property rights—one that is obscured by an overemphasis on the muscular rights that accompany a grant of property.”<sup>142</sup> In 2004, Merges identified and supported the practice of “private actors . . . taking action” to build a “new dynamism in the public domain,” and to “counteract[]” broad intellectual property protection, such as with software companies deploying open-source software, and content creators adopting Creative Commons licenses.<sup>143</sup> Although Merges wrote before the development of NFTs, his general recommendation foreshadows the type of permissive licensing that NFT creators are now, in fact, using to foster decentralized collaboration with artistic works.<sup>144</sup> As discussed below, the licenses for the Top 25 projects typically have both inclusive covenants, which authorize the owners to engage in a common project through collaboration, and restrictive covenants, which prohibit the owners from certain uses (e.g., no use of the project’s trademarks, no use of the artworks in hate speech).<sup>145</sup>

*c. NFTs as a governing knowledge commons*

Thirdly, NFTs are also being used as a governing knowledge commons. Drawing from the influential work of Elinor Ostrom on common-pool resources (CPR),<sup>146</sup> scholars have examined situations

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140. See Molly Shaffer Van Houweling, *Tempting Trespass or Suggesting Sociability? Augmented Reality and the Right to Include*, 51 U.C. DAVIS L. REV. 731, 741, n.40 (2017) (collecting literature); see also Daniel B. Kelly, *The Right to Include*, 63 EMORY L.J. 857, 923 (2014) (“[U]nderstanding the right to include may assist in properly contextualizing the right to exclude and perhaps reconciling competing perspectives about the function of property.”); Thomas W. Merrill, *Property and the Right to Exclude II*, 3 BRIGHAM-KANNER PROP. RTS. CONF. J. 1, 3 (2014) (“Given the nature of the right, the right to exclude and the right to include are effectively the same thing.”).

141. See LEE, *supra* note 121, at 111–15 (explaining the right to include in the NFT context).

142. ROBERT P. MERGES, *JUSTIFYING INTELLECTUAL PROPERTY* 296 (2011).

143. Robert P. Merges, *A New Dynamism in the Public Domain*, 71 U. CHI. L. REV. 183, 183–84, 198–99 (2004).

144. See *infra* notes 175–79 and accompanying text.

145. See *infra* Section I.C.3.c.

146. Elinor Ostrom’s theory has produced a substantial body of literature, including in relation to the internet and the so-called knowledge commons. See, e.g., Charlotte Hess & Elinor Ostrom, *Ideas, Artifacts, and Facilities: Information as a Common-Pool*

beyond CPRs in which knowledge (in the form of information, innovation, and creative works) is the underlying resource to be governed.<sup>147</sup> A knowledge commons is a “shorthand for the institutionalized community governance of the sharing and, in some cases, creation, of information, science, knowledge, data, and other types of intellectual and cultural resources.”<sup>148</sup> Blockchain networks can be conceptualized as establishing the governance of a knowledge commons: “One of the purposes of blockchains is to share resources, where these resources include knowledge, data, and opportunities to use outputs created by networks (we highlight opportunities since the outputs, such as tokens, can be privately owned).”<sup>149</sup>

That description aptly describes NFTs. For example, the Doodles project consists of 10,000 NFTs that identify 10,000 different characters.<sup>150</sup> The Doodles creators have established a complex property-rights system for Doodles characters. The NFT itself is property—a new type of intellectual property, which can be likened to the virtual twin of the artistic creation.<sup>151</sup> To borrow WIPO’s definition of intellectual property, NFTs operate as rights “to creations of the mind” that “enable people to earn recognition or financial benefit from what they . . . create.”<sup>152</sup> The

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*Resource*, 66 LAW & CONTEMP. PROBS. 111, 128 (2003) [hereinafter Hess & Ostrom, *Ideas, Artifacts, and Facilities*] (noting studies have been written about the internet as a common pool resource, especially with regards to issues such as technology and social networking); Charlotte Hess & Elinor Ostrom, *Introduction: An Overview of the Knowledge Commons*, in UNDERSTANDING KNOWLEDGE AS A COMMONS: FROM THEORY TO PRACTICE 3 (Charlotte Hess & Elinor Ostrom eds., 2007) [hereinafter Hess & Ostrom, *Knowledge Commons*] (explaining that the internet functioned as a “new conduit of distributing information” which was neither “private nor strictly a public resource”).

147. See BRETT FRISCHMANN, MICHAEL J. MADISON & KATHERINE STRANDBURG, *GOVERNING KNOWLEDGE COMMONS* 1–2 (2014) (providing a list of a variety of knowledge resources which act as knowledge commons).

148. *Id.* at 3.

149. Ilia Murtazashvili, Jennifer Brick Murtazashvili, Martin B. H. Weiss & Michael J. Madison, *Blockchain Networks as Knowledge Commons*, 16 INT’L J. COMMONS 108, 113 (2022).

150. *Doodles*, DOODLES, <https://home.doodles.app/doodles/about> [<https://perma.cc/W8ZJ-R3AT>]; see Langston Thomas, *The Ultimate Guide to Doodles NFTs: Everything You Need to Know*, NFT NOW (Apr. 19, 2023), <https://nftnow.com/guides/doodles-guide> [<https://perma.cc/V9FB-BX7A>] (providing guidance and explanation on the Doodles community).

151. See LEE, *supra* note 121, at 6.

152. WIPO, *What is Intellectual Property?*, WIPO, <https://www.wipo.int/about-ip/en> [<https://perma.cc/U9AT-NMZE>].



Doodles characters are also copyrighted works of authorship.<sup>153</sup> The governance of the Doodles ecosystem is effectuated through a combination of the technology of NFTs (smart contracts) stored on blockchain, the license that accompanies the NFT and sets forth the permissible uses of the artworks, and the NFT creators' practices and norms in allowing other third-party uses of the Doodles.

Deciding which theory best explains how NFTs operate is not crucial for our study. They all help to understand important aspects of this disruptive technology, although they all warrant further debate and discussion as NFTs continue to evolve. They provide helpful frameworks to appreciate the significance of the results of this study.

## II. THE EMPIRICAL STUDY OF THE IP LICENSES OF THE TOP 25 NFT PROJECTS

This Part explains the study design and key results. Overall, the study shows that most of the Top 25 NFT projects have adopted, through NFTs and accompanying IP licenses, a complex balance granting greater rights to their consumers than the All Rights Reserved Approach, including commercial rights to make derivative works, while imposing some conditions on NFT ownership, including the payment of royalties upon the resale of the NFTs and a prohibition on the use of the NFT project's trademarks. Through this elaborate arrangement or management of intellectual property, these NFT projects are fostering decentralized collaboration among their owners and are using NFTs as a form of decentralized IP.

### A. Study Design

This study examined the Top 25 NFT projects in terms of all-time sales volume measured by Cryptoslam! on January 19, 2023, as listed in Table 3.<sup>154</sup> Sales volume includes secondary sales, meaning a buyer of

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153. *Doodles Terms of Service*, DOODLE, <https://www.doodles.app/terms> [<https://perma.cc/XB74-UG7C>] (last updated Aug. 16, 2022).

154. The study relied on the list provided by Cryptoslam! on Jan. 19, 2023. See *Top NFT Collectible Sales All-time*, CRYPTOSLAM, <https://www.cryptoslam.io> [<https://web.archive.org/web/20230119005634/https://www.cryptoslam.io>] [hereinafter *Top NFT Sales*]. Other websites had variations in the estimated sales volume and the NFT projects in the Top 25, but reaching a consensus on the Top 25 NFT projects is not crucial. No matter the source, any project listed in the Top 25 all-time sales for a project has had some level of market success. For our purposes, that is sufficient.

an NFT has sold it to someone else after the initial sale by the NFT project. For secondary sales, the revenue from the sale goes to the seller, although the NFT project may receive a resale royalty (or commission) for the sale, as discussed below. Examining the Top 25 NFT projects helps to show how the leading NFT producers are ordering the use of their intellectual property by consumers. Total sales volume provides some indication of the popularity and success of the NFT projects studied. The all-time sales volume ranged from a high of \$4 billion for Axie Infinity to a low of \$166 million for 0N1Force.<sup>155</sup>

Table 3 categorizes each NFT project by type: (1) visual characters or profile pictures (“PFP”), including in gaming, (2) sports collectibles, and (3) virtual land. Most of the projects examined involved visual characters, commonly described as “PFPs,” referring to profile pictures. People started using the visual characters from NFTs they owned as their PFPs on Twitter and other social media.<sup>156</sup> Two projects (Axie Infinity and Crabada) involved PFP characters for their virtual gaming worlds. ZED Run involved virtual horses for a virtual race. Two projects (NBA Top Shot and Sorare) involve NFTs related to collectibles for professional sports: basketball and soccer. Finally, Otherdeeds was the one project involving virtual land—its placement in the Top 5 projects is understandable, given that it is a joint project launched by Yuga Labs, which is the market leader responsible for three other blue-chip collections: the Bored Ape Yacht Club,

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The study excluded Art Blocks, Loot, and Metroverse Blackout City Block, which were in the Top 25 listings. Art Blocks is a platform that includes art NFT projects of various artists, and, as such, each artist selects a license. Loot is a unique project offering NFTs with textual description of items or “loot,” without any artwork or licenses. Kyle Russell, *The Loot Project Flips the Script on NFTs*, TECH CRUNCH (Sep. 3, 2021, 7:29 AM), <https://techcrunch.com/2021/09/03/loot-games-the-crypto-world> [<https://perma.cc/NGC3-6CWV>]. Before shutting down in March 2023, Metroverse Blackout City Block was an online game that did not include a license. *Metroverse Documentation*, METROVERSE DOCUMENTATION, <https://docs.metroverse.com/introduction/summary> [<https://web.archive.org/web/20230224005651/https://docs.metroverse.com/introduction/summary>]. The next projects that provided licenses and fit the criteria were Zed Run (No. 28), 0N1 Force (No. 29), and HAPE PRIME (No. 31).

155. *Top NFT Sales*, *supra* note 154.

156. See Benedict George, *What Are PFP NFTs?*, COIN DESK, <https://www.coindesk.com/learn/what-are-pfp-nfts> [<https://perma.cc/XKU3-FBMC>] (last updated May 11, 2023, 11:21 AM) (describing an example of how some celebrities used their Bored Ape Yacht Club NFTs for their profile pictures).

CryptoPunks (through acquisition from Larva Labs), and Mutant Ape Yacht Club.<sup>157</sup>

*Table 3. Top 25 NFT Projects by Sales Volume*<sup>158</sup>

<b>RANK</b>	<b>PROJECT</b>	<b>TYPE</b>
1	Axie Infinity	Game Characters (PFP)
2	Bored Ape Yacht Club	Characters (PFP)
3	CryptoPunks	Characters (PFP)
4	Mutant Ape Yacht Club	Characters (PFP)
5	Otherdeed	Virtual land
6	NBA Top Shot	Sports: basketball video highlights
7	Azuki	Characters (PFP)
8	CloneX w/o Murakami	Characters (PFP)
9	CloneX w Murakami	Characters (PFP)
10	Moonbirds	Characters (PFP)
11	Doodles	Characters (PFP)
12	Meebits	Characters (PFP)
13	Sorare	Sports: soccer players
14	Cool Cats	Characters (PFP)
15	Hashmasks	Characters (PFP)
16	World of Women	Characters (PFP)
17	Cryptoadz	Characters (PFP)
18	VeeFriends	Characters (PFP)
19	Beanz (Azuki)	Characters (PFP)
20	Crabada	Game Characters (PFP)
21	CyberKongz	Characters (PFP)
22	PudgyPenguins	Characters (PFP)
23	ZED RUN	Game horses
24	0N1 Force	Characters (PFP)
25	HAPE PRIME	Characters (PFP)

157. See Andre Beganski, *What is Yuga Labs' Otherside? Inside the Bored Ape Yacht Club Metaverse*, DECRYPT (Aug. 4, 2022), <https://decrypt.co/resources/what-is-yuga-labs-otherside-inside-the-bored-ape-yacht-club-metaverse> [https://perma.cc/MKG4-BKTB] (announcing that Bored Ape Yacht Club is “branching out into the virtual world” with developers Yuga Labs).

158. *Top NFT Sales*, *supra* note 154.

One significant limitation of this study: it did not examine individual digital artists, some of whom are incredibly successful. Many of the most successful artists sell their NFTs on the Art Blocks platform, which ranked No. 4 in the Top 25.<sup>159</sup> As an NFT platform or marketplace, Art Blocks does not stand in the same position as an NFT project. Art Blocks leaves the license to each creator selling NFTs on its platform.<sup>160</sup> (My anecdotal impression is that the licenses for this type of digital art have not typically adopted decentralized collaboration; I leave the issue for further study.) Limiting the study to NFT projects or startups makes the comparison with the business model of traditional media companies more apt.

### B. Results

#### 1. Majority of Top 25 NFT projects grant commercial licenses to NFT owners to promote decentralized collaboration

The first major finding is that the majority (64%) of the Top 25 projects grant commercial rights to buyers of their NFTs, as depicted in Figure 1 below. If one treats the CC0 license as a commercial license, allowing everyone to commercialize the associated artwork, the figure increases to 72%. Notably, the Top 4 projects all granted commercial rights to their NFT owners; three of them (the Bored Ape Yacht Club, CryptoPunks, and Mutant Ape Yacht Club) are owned by Yuga Labs, which is the clear leading startup in the NFT sector.<sup>161</sup> Likewise, if we focus solely on the PFP projects that depict characters,<sup>162</sup> fully 85.7% (eighteen of twenty-one) offer the NFT owners the ability to commercialize the artworks, including the right to make derivative

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159. *Top NFT Sales*, *supra* note 154.

160. See *Terms of Service*, para. 5, ART BLOCKS (Feb. 10, 2023), <https://www.artblocks.io/terms-of-service> [<https://perma.cc/S6KM-PA4F>] (“[T]he terms of the license in the Creator IP that is granted to the User who Mints an Item using such Creator IP or any subsequent owners of such Item.”). Six of the Top 10 artists in terms of all time sales have sold their NFTs on Art Blocks. Ola, *The 10 Best-Selling NFT Artists of All Time*, NFT EVENING (Apr. 17, 2023), <https://nftevening.com/the-10-best-selling-nft-artists-of-all-time> [<https://perma.cc/ME49-TRMG>].

161. Josh Adams & Michael Washburn, *Yuga Labs Bags Gaming Exec as Dominance of NFT Market Continues*, BEINCRYPTO (Apr. 28, 2023), <https://beincrypto.com/yuga-labs-gaming-exec-dominance-continues> [<https://perma.cc/8GN2-5UBJ>].

162. The seven NFT projects that adopt noncommercial licenses constitute only 28% of the Top 25. Some projects that adopted noncommercial licenses were not PFP projects; NBA Top Shot and Sorare involved sports-related collectibles, while Otherdeeds involved virtual land.

works.<sup>163</sup>

Among the projects granting commercial rights to NFT owners, the approaches varied:

28% allowed *unlimited* commercialization in a non-exclusive license (meaning the licensee did not own an exclusive right of copyright);

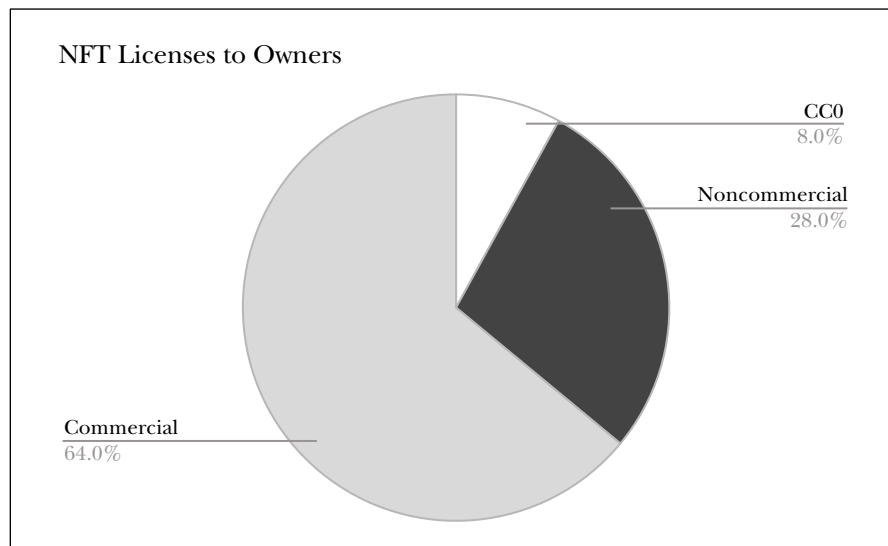
16% allowed *unlimited* commercialization in an exclusive license;

16% limited the total revenue of commercialization allowed per year; and

4% (or 1 project, the World of Women) completely transferred copyright to their buyers.

The four projects that limited commercialization with a cap on the total annual revenue nonetheless allow the licensees to seek permission to surpass the limit.

Figure 1. Commercial vs. Noncommercial Licenses to NFT Buyers



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163. Moonbirds and Cryptoadz are the two projects that do not allow commercialization. Such a high percentage of the Top 25 projects offering NFT owners the ability to commercialize the associated content is significant. Even assuming many other NFT projects grant only noncommercial rights—which I doubt is the case—the greater sales volume of the Top 25 projects provides at least some indication that most of the NFT market leaders involved in PFP projects favor granting commercial rights to their owners.

The rise of commercial licenses for NFTs represents a radical change in the relationship between media companies and their consumers. Under the traditional All Rights Reserved approach, the idea that Disney or another major studio would allow consumers to monetize the copyrighted characters owned by the studios is unthinkable. The approach taken by the top NFT projects is also more expansive than the noncommercial licenses accompanying popular games, such as World of Warcraft, that enable users to create derivative works and user-generated content as fan art and avatars.<sup>164</sup> Instead of the traditional company-consumer model, the NFT projects reconfigured the relationship to be a cocreator community.<sup>165</sup> The NFT licenses contain inclusive covenants, inviting the NFT owners to collaborate with the project in building a new, cultural ecosystem revolving around the artistic creations of the project. Indeed, some Web3 startups, such as Yuga Labs, aspire to become a “decentralized Disney,” in which the NFT owners help the company build the cultural ecosystem for their characters.<sup>166</sup> The NFT owners are not treated as users or consumers.<sup>167</sup> They are treated as collaborators and cocreators.<sup>168</sup> Yuga Labs created an online directory for its NFT owners to list their collaborations and a logo that certifies their project as a part of the “Made by Apes” ecosystem.<sup>169</sup>

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164. See Christina J. Hayes, *Changing the Rules of the Game: How Video Game Publishers Are Embracing User-Generated Derivative Works*, 21 HARV. J.L. & TECH. 567, 578 (2008) (describing how fan-created work drives further interest in popular media content, including video games); Reina Shinohara, *Avatars and Derivative Works: Harmonizing the Interests of Creators and Consumers*, 73 HASTINGS L.J. 919, 933–34 (2022) (explaining the ways in which some video game developers have engaged with derivative user-generated, including the example of EULA with their game “Cyberpunk 2077” that had specific policy provisions for what fans could do with the game’s intellectual property).

165. See LEE, *supra* note 121, at 67–68, 166–70 (explaining that NFT project RTFKT is “reimagining . . . the relationship between companies and people” through community-building rather than consumerism and further noting how Bored Ape NFT involve themselves in innovating creative production).

166. *Id.* at 163; see, e.g., Chayka, *supra* note 121 (describing a Bored Ape NFT owner’s vision that BAYC could become a “decentralized Disney”).

167. See *supra* note 165 and accompanying text.

168. LEE, *supra* note 121, at 67–68, 166–70.

169. See Andrew Rossow, *Made by Apes Lets BAYC Holders Request a License for Projects*, NFT NOW (July 25, 2023), <https://nftnow.com/news/yuga-labs-debuts-licensing-platform-for-ape-holders-projects> [<https://perma.cc/F44Y-3Y94>] (noting that “[s]panning across retail clothing and entertainment to food, consumer packaged goods, and cannabis, Apes have started to pop up more frequently in pop culture”).

This new approach to creative production is viewed as more consistent with the goals of Web3: to build a more decentralized Web—beyond the control of Big Tech—in which people can control their online identities and data and own a part of the online content they engage with.<sup>170</sup> As a16z venture capitalist Chris Dixon, a leading Web3 proponent, explained, NFTs “align network participants to work together toward a common goal—the growth of the network and the appreciation of the token.”<sup>171</sup> As the Lazy Lions NFT project put it:

We are convinced that the entertainment industry is on the brink of a revolutionary change, driven by the simple yet powerful idea of co-creation and distribution of rewards. Our vision is to lead this change by providing a decentralized means for rights holders to exploit their intellectual property across various forms of entertainment.

We anticipate that this will also lead to a seamless integration of the real world and the Web3 ecosystem through the use of NFTs.

At Lazy Lions, we don’t believe in the outdated concept that fun should be controlled by a single corporation. Instead, we believe in a future where fun and the value it generates is democratized and decentralized, accessible to all.<sup>172</sup>

One of the ways in which NFTs empower their owners is by giving them the ability to control their online identity by using the visual character as their PFP.<sup>173</sup>

This new approach fostering decentralized collaboration developed when NFTs were just emerging.<sup>174</sup> The Axie Infinity project, which dates back to March 2018, adopted a limited commercial license, capped at \$10,000 in annual revenue.<sup>175</sup> Likewise, the CryptoKitties, a

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170. See *id.* (describing a re-imagined relationship between companies and people as more of a collaborative community and less of a consumer-driven model); Chris Dixon, *Why Web3 Matters*, A16ZCRYPTO (Sept. 26, 2021), <https://future.com/why-web3-matters> [<https://perma.cc/ACJ6-W2ZL>] (“Web3 is the internet owned by the builders and users . . .”).

171. Dixon, *supra* note 170.

172. Lazy Lions, *Lazy Lions Update #39*, MEDIUM (Jan. 25, 2023), <https://medium.com/lazy-lions-nft/the-future-of-lazy-lions-3165ac0f0710> [<https://perma.cc/EF3G-8PHC>].

173. See George, *supra* note 156 (describing the various perks afforded to NFT owners, including using them as profile pictures to indicate membership in the larger community).

174. See *supra* notes 175–79 and accompanying text.

175. See *Terms of Use*, AXIE INFINITY, <https://axieinfinity.com/terms> [<https://web.archive.org/web/20221028030927/https://axieinfinity.com/terms>]. The project

sensation in late 2017, granted the owners a limited commercial license (capped at \$100,000 annually).<sup>176</sup> The CryptoPunks project, often viewed as the premier PFP collection—the Mona Lisa of NFTs—also adopted the same approach as the CryptoKitties in 2019.<sup>177</sup> These early, successful NFT projects influenced the projects that followed. In January 2021, when the NFT market was about to boom, the Hashmasks project granted an unlimited, exclusive commercial license to NFT owners.<sup>178</sup> In April 2021, the Bored Ape Yacht Club project copied the Hashmasks’ approach (even borrowing nearly all the language of the Hashmasks license) in granting an unlimited, though nonexclusive license.<sup>179</sup>

Although it is too early to tell how successful this new Web3 business model will be, it has the potential to facilitate collaboration in creative production in ways that are far more diverse and dynamic than the traditional approach that predominated in the twentieth century.<sup>180</sup>

## 2. *Most Top 25 NFT projects adopt resale or creator royalties*

The second major finding of the survey is that nearly all (twenty-three of twenty-five, or 92%) of the Top 25 NFT projects adopt resale

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later changed its license for NFTs sold by Axie Infinity after June 21, 2023 to a license allowing noncommercial use only. *Terms of Use*, AXIE INFINITY, <https://axieinfinity.com/terms-of-use> [<https://perma.cc/Q3KX-Z4L8>].

176. See *NFT License*, NFT LICENSE, <https://www.nftlicense.org> [<https://perma.cc/FPQ5-9M3Y>] (detailing the procedure and functions of an NFT license, specifically with commercial use and earnings caps); Nellie Bowles, *CryptoKitties, Explained . . . Mostly*, N.Y. TIMES (Dec. 28, 2017), <https://www.nytimes.com/2017/12/28/style/cryptokitties-want-a-blockchain-snuggle.html> [<https://perma.cc/33WJ-L2BR>] (categorizing CryptoKitties as the lucrative blockchain game that allowed the owners of the NFTs limited licenses).

177. Lee, *supra* note 115, at 5–7.

178. See *Terms and Conditions*, HASHMASKS, <https://www.thehashmasks.com/terms> [<https://perma.cc/6XRH-A4AR>] (last updated Jan. 27, 2021) (“Subject to your continued compliance with these Terms, The Company grants you an unlimited, worldwide, exclusive, license to use, copy, and display the purchased Art for the purpose of creating derivative works based upon the Art.”).

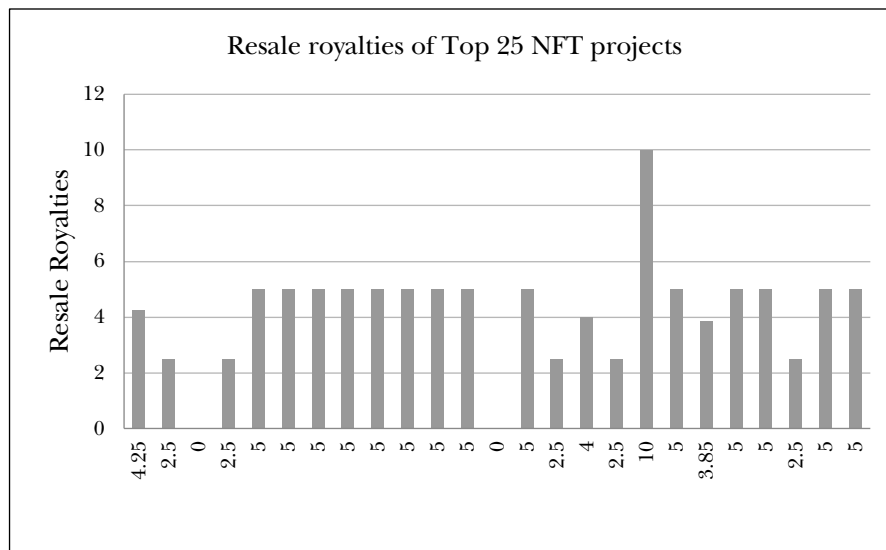
179. See LEE, *supra* note 121, at 166 (explaining that when Bored Ape Yacht Club adopted this type of unlimited commercialized license, at the time such licenses were rare).

180. See Diana Stern, *Better Policy Can Turn NFTs into an Intellectual Property Powerhouse*, COIN DESK, <https://www.coindesk.com/consensus-magazine/2023/01/27/better-policy-can-turn-nfts-into-an-intellectual-property-powerhouse> [<https://perma.cc/9G72-QJYS>] (last updated Jan. 30, 2023, 12:04 PM) (“Companies have activated entire communities of brand ambassadors overnight through NFT drops, and holders can remain engaged over time through experiences only made available to them.”).



royalties, also called creator royalties. Only two projects (CryptoPunks and Sorare) did not adopt resale royalties. Resale royalties are a percentage of the sales price that goes back to the NFT creators for every sale and resale of their NFTs. The median resale royalty was 5%, and the mean amount was 4.184%. Among the Top 25, Veefriends had the highest rate at 10%, which was an outlier at twice the amount of the next highest rate. The lowest rate was 2.5%.

Figure 2. Resale Royalties Percentages of Top 25 NFT Projects



Resale royalties originated in French copyright law (*droit de suite*) for (physical) visual art, such as paintings.<sup>181</sup> The rationale for granting resale royalties was to provide traditional visual artists, such as painters, with a source of remuneration that can more adequately capture the value of their works over time, especially if their popularity increases.<sup>182</sup> Authors of books typically receive royalties for sales of each copy. By

181. See Eliza Hall, *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) (explaining the progression of French laws that created and defined resale royalties for visual artists); Jacqueline Pasharikov, *Edward 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, 386 (2015) (outlining the history of the "Droit de Suite" concept in French law and how the law has evolved to protect both artists' economic, as well as moral, rights to their work).

182. Hall, *supra* note 181, at 324.

contrast, for many visual artists, their artistic works have greater value in a single embodiment—e.g., the original painting—that conveys rarity and potentially greater value in the art market. Approximately eighty countries have adopted the right to resale royalties under copyright law; the United States has notably not enacted the right,<sup>183</sup> despite the Copyright Office’s support for it in 2013.<sup>184</sup>

The adoption of resale royalties by contract is not new,<sup>185</sup> but the effectuation through NFTs is. Indeed, resale royalties are an important reason why so many digital artists have explored NFTs for their works; the royalties offer a potential stream of income—and sustainability—that they did not have before.<sup>186</sup>

One complication with resale royalties among the Top 25 projects is contractual. Only ten projects (40%) included a specific clause in their licenses requiring the payment of resale royalties at the time of this survey, while the rest (60%) did not.<sup>187</sup> For the latter group, whether the NFT seller is contractually bound to pay resale royalties may depend on the terms of the marketplace where the sale occurs because NFT marketplaces typically have their own user agreements governing the NFT sales. For example, under its former policy, before announcing the company would make royalties optional in 2024,<sup>188</sup> the

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183. Catherine Jewell, *The Artist’s Resale Right: A Fair Deal for Visual Artist*, WIPO MAG. (June 2017), [https://www.wipo.int/wipo\\_magazine/en/2017/03/article\\_0001.html](https://www.wipo.int/wipo_magazine/en/2017/03/article_0001.html) [<https://perma.cc/3KNQ-3GR5>].

184. Since 1976, Congress has considered several bills, but failed to enact an amendment recognizing resale royalties under copyright law, such as the American Royalties Too (ART) Act of 2015, H.R. 1881, 114th Cong., the Equity for Visual Artists Act of 2011, H.R. 3688, 112th Cong., the Visual Artists Rights Act of 1987, H.R. 3221, 100th Cong., the Visual Artists Rights Amendment of 1986, S. 2796, 99th Cong., and the Visual Artists’ Residual Rights Act of 1978, H.R. 11403, 95th Cong. The Copyright Office study in 2013 recommended the adoption of resale royalties for artists, but Congress still failed to act. U.S. COPYRIGHT OFFICE, *RESALE ROYALTIES: AN UPDATED ANALYSIS* 65–73 (Dec. 2013), <http://www.copyright.gov/docs/resaleroyalty/usco-resaleroyalty.pdf> [<https://perma.cc/5AGH-SYDY>].

185. See generally U.S. COPYRIGHT OFFICE, *supra* note 184.

186. See Kent, *supra* note 130 (arguing that blockchains and their associated royalties may be able to address the power imbalance experienced by artists when it comes to a sustainable income related to their work); Lee, *supra* note 95, at 115 (“NFTs have proven that digital artists can greatly benefit from a right to resale royalties.”).

187. RTFKT was counted twice in the survey because it has two different licenses: CloneX with Murakami traits and CloneX without them.

188. See Sander Lutz, *OpenSea Will Make Creator Royalties Optional for NFT Trades*, DECRYPT (Aug. 17, 2023), <https://decrypt.co/152878/opensea-make-creator-royalties-optional-nft-trades> [<https://perma.cc/7BUM-P848>] (explaining why OpenSea’s

marketplace OpenSea explained on its website how it collected the creator earnings for each NFT sale.<sup>189</sup> Moreover, most (76%) of the NFT projects' licenses contained a provision allowing the project to modify the terms unilaterally. These types of provisions might allow projects to clarify the collection of royalties in updated terms. In any event, this problem may diminish for future NFT projects that meet each marketplace's requirements to receive resale royalties and include specific clauses obligating the owner to pay such royalties. The more pressing question is whether marketplaces can circumvent the collection of royalties against the wishes of the NFT projects.

The biggest complication is an ongoing controversy among NFT platforms—including OpenSea, Blur, Looksrare, X<sub>2</sub>Y<sub>2</sub>, and Sudoswap—over whether to respect and collect creator royalties.<sup>190</sup> This battle turned into a race to the bottom, with the leading platforms favoring zero or optional royalties despite their importance for artists.<sup>191</sup> Under the existing smart contracts that the majority of projects use, the collection of resale royalties is not automatic but must be administered by each marketplace where the NFT is sold.<sup>192</sup> In 2022, a controversy erupted when some new marketplaces, vying for new users and greater market share during the crypto winter, decided not to collect resale royalties, instead adopting “Zero Royalties” policies.<sup>193</sup> This sparked backlash from artists and creators and prompted some changes to the

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policy was a controversial tool and reporting on the removal of the OpenSea Operator Filter).

189. See 10. *Setting fees on secondary sales*, OPEN SEA, <https://docs.opensea.io/docs/10-setting-fees-on-secondary-sales> [<https://perma.cc/2R2Q-LYHL>] (noting that “[e]very time an item is sold on OpenSea, the project owner . . . can take a percentage of the sale as revenue”); see also mrhackio, *How to Setup Royalties in NFT Collection in OpenSea?*, YOUTUBE (Dec. 21, 2021), [https://www.youtube.com/watch?v=JU\\_fGeK4Wow](https://www.youtube.com/watch?v=JU_fGeK4Wow) (providing detailed instructions and going over how royalties work on OpenSea).

190. See Langston Thomas, *Here's What You Need to Know About the NFT Creator Royalty Debate*, NFT NOW (Aug. 26, 2022), <https://nftnow.com/features/nft-community-is-split-over-creator-royalties> (expounding the arguments in the debate for and against NFT royalties).

191. *Id.*

192. *Id.*

193. nftjedi, “Zero Royalties” Policies on NFT Marketplaces Pose Existential Threat to Web3 and Creators, NOU NFT (Nov. 11, 2022), <https://nounft.com/2022/11/11/zero-royalties-policies-on-nft-marketplaces-pose-existential-threat-to-web3-and-creators> [<https://perma.cc/WG7Y-VYCM>].

policies of marketplaces largely in favor of collecting resale royalties.<sup>194</sup> However, these updated policies are easier to implement for *new* NFTs that follow the technical requirements of electing resale royalties for each marketplace.<sup>195</sup> The Top 25 NFT projects were created before December 2022 and, therefore, cannot easily meet the new technical requirements without switching their existing smart contracts to new smart contracts, a cumbersome process that may be unattractive to the projects and their NFT owners.<sup>196</sup>

As a result, there remains a large class of NFTs—probably the majority of existing NFTs in 2023—for which it is easy to avoid paying the resale royalties NFT creators seek to collect.<sup>197</sup> To assuage the backlash from creators, some platforms adopted a nominal royalty for sales involving these existing NFTs.<sup>198</sup> For example, Blur, OpenSea’s main competitor that had initially adopted the controversial “Zero Royalties” policy, eventually changed course and agreed to collect a minimum 0.5% creator royalty on the existing “immutable collections” that cannot be altered to satisfy Blur’s technical requirements for

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194. See Benjamin James, *Is Web3’s Promise of Creator Royalties Broken?*, BILLBOARD: TECH (Dec. 16, 2022), <https://www.billboard.com/pro/nft-creator-royalties-cut-web3-artists-reaction> [<https://perma.cc/G47S-A37X>] (surveying the artist backlash to diminishing marketplace royalties); Harold, *Blur to Enforce Minimum Royalty of 0.5% on Collections*, COINCU, <https://news.coincu.com/156865-blur-to-enforce-minimum-royalty> [<https://perma.cc/MWR8-ZY9W>] (discussing how Blur, a popular NFT marketplace, imposed a minimum royalty on all transactions in response to the royalties debate).

195. See generally Robert John, *Exploring NFT Royalties: The Only Guide You Have to Read*, CRYPTOSTARS (Mar. 6, 2023), <https://blog.cryptostars.is/nft-royalties-guide-6da65e43d06d> [<https://perma.cc/4QXC-VHMY>] (noting that royalty-related provisions in NFT smart contracts are immutable, which makes it impossible to retroactively change existing smart contracts to comply with new technical requirements).

196. See, e.g., Evan, *Goblintown NFT Migration Underway amid Rug Pull Rumors*, NFT EVENING, <https://nftevening.com/goblintown-nft-migration-underway-amid-rug-pull-rumors> [<https://perma.cc/2Y3F-M4RR>] (last updated Apr. 18, 2023) (chronicling how the NFT project Goblintown migrated its NFTs to new smart contracts that complied with the technical requirements to enforce royalties on Blur and OpenSea).

197. See generally NFTstats.eth (@punk9059), X (Dec. 26, 2022, 9:35 AM), <https://twitter.com/punk9059/status/1607384656999256066> [<https://perma.cc/VY2X-66WM>] (showing total volumes compared with total royalties paid by NFT marketplace).

198. See Ghost, *Blur Announces Royalty Changes, Creator Airdrop*, LUCKY TRADER (Dec. 29, 2022), <https://luckytrader.com/news/blur-announces-royalty-changes-creator-airdrop> [<https://perma.cc/T4DJ-GXF8>] (noting the Blur’s implementation of a mandatory minimum creator royalty).

receiving creator royalties.<sup>199</sup> Of course, 0.5% is hardly the same as the median amount (5.0%) sought by the NFT projects surveyed in this Article. In 2023, Blur launched “Blend,” which allowed owners to offer loans with a specified interest rate based on their NFTs.<sup>200</sup> Users can “buy” NFTs with help from a loan offered on Blend.<sup>201</sup> This collateralized sale avoids resale royalties altogether, meaning the NFT projects receive no royalties from the sale.<sup>202</sup>

How the controversy over the collection—or circumvention—of resale royalties is resolved remains to be seen. Various solutions in coding “on-chain” enforcement of royalties into smart contracts have been developed, but in 2023, it was unclear whether they would achieve widespread adoption.<sup>203</sup> Some marketplaces, such as Art Blocks, Rarible, and Sotheby’s, have also prioritized the collection of creator royalties on their platforms.<sup>204</sup> Although the collection of resale royalties on marketplaces is uncertain, the intent of most of the Top 25 projects to receive royalties is clear.

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199. *Id.*

200. Wale, *Wale Drops #3: Blend – Benefits, Risks and the Impact on the NFT Market*, WALE DROPS (May 3, 2023), <https://waleswoosh.substack.com/p/wale-drops-3-blend-benefits-risks> [<https://perma.cc/6GML-VY9N>].

201. *Id.*

202. See NFTstats.eth (@punk9059), X (Jun. 9, 2023, 8:41 AM), <https://twitter.com/punk9059/status/1667149957143629829> [<https://perma.cc/52HX-8PGR>] (showing sharp decline in royalties paid across ETH marketplaces “as more and more sellers are using the Blend wallet”).

203. See, e.g., Owen Fernau, *Gamemaker Shakes up NFT Royalties with New Smart Contracts*, DEFIANT (Jan. 18, 2023), <https://thedefiant.io/nft-royalties-smart-contracts> [<https://perma.cc/MZ8K-PS2U>] (discussing attempt to imbed NFT royalties into smart contracts, but acknowledging the uncertainty of the future of NFT royalties); Justin Kuepper, *The Ultimate Guide to NFT Royalties*, ZENLEDGER (May 8, 2023), <https://www.zenledger.io/blog/the-ultimate-guide-to-nft-royalties> [<https://perma.cc/E8Z9-2YG5>] (surveying the methods developers have used to enforce creator royalties).

204. See, e.g., Andrew Hayward, *Art Blocks Debuts NFT Marketplace with Enforced Creator Royalties*, DECRYPT (Mar. 29, 2023), <https://decrypt.co/124848/art-blocks-nft-marketplace-enforced-creator-royalties> [<https://perma.cc/5SJJ-2NLH>] (discussing how the founders of Art Blocks created the platform with a focus on providing creators with fair compensation); Tarang Khaitan, *Sotheby’s Launches NFT Marketplace*, DEFIANT (May 3, 2023), <https://thedefiant.io/sothebys-nft-marketplace> [<https://perma.cc/GRQ5-QGF3>] (noting that Sotheby’s NFT marketplace is “committed to artist resale royalties”); Rarible *Underscores its Integrity amid Creator Royalties Furor*, NFT PLAZAS (Aug. 24, 2023), <https://nftplazas.com/rarible-creator-royalties> [<https://perma.cc/VX74-GWE7>] (discussing Rarible’s commitment to creator royalties).

### 3. *NFT creators maintain some control through restrictions*

The third major finding is that decentralized collaboration does not require the IP owner to cede all control over its IP. The NFT projects that grant commercial licenses to their buyers typically maintain some control over what the NFT buyers can do with the associated artwork or IP. This Section discusses the common restrictions, which are summarized in Figure 3. Three restrictions—no trademark use, no hate speech, and no violation of U.S. embargo law—ensure compliance with legal requirements.

#### a. *“All Trademarks Reserved” and the copyright-trademark divide*

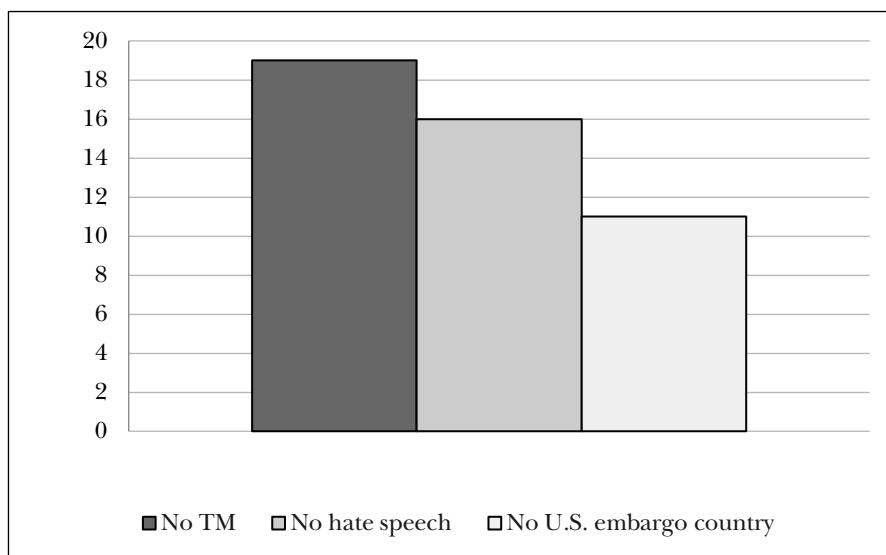
The most common restriction contained in the licenses of the Top 25 NFT collections is a prohibition against the licensee’s use of the trademarks of the NFT project, as shown in Figure 3 below. We might characterize this restriction as “All Trademarks Reserved.” This restriction is significant because, under U.S. law, trademark owners may lose or abandon their trademarks by engaging in “naked licensing,” without maintaining quality control over the use of their trademarks or by failing to police third-party uses of their marks.<sup>205</sup>

A substantial majority of licenses (76%) in our study contained specific clauses prohibiting the licensee from using the project’s trademarks. Among the projects that did not include such a trademark restriction (24%), two licenses allowed only personal, noncommercial uses of the associated artwork, which operates as a *de facto* restriction against commercial uses of the project’s trademarks. The remaining four licenses that allowed commercial uses of the artwork associated with the NFTs (two nonexclusive licenses, one exclusive license, one Creative Commons 0 license) did not expressly allow the licensee to use the project’s trademarks, so the absence of a specific clause forbidding the use of the trademarks does not mean that such trademark use was allowed.

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205. See *FreecycleSunnyvale v. Freecycle Network*, 626 F.3d 509, 516 (9th Cir. 2010) (“Consequently, where the licensor fails to exercise adequate quality control over the licensee, ‘a court may find that the trademark owner has abandoned the trademark, in which case the owner would be estopped from asserting rights to the trademark.’” (quoting *Barcamerica Int’l USA Tr. v. Tyfield Imp., Inc.*, 289 F.3d 589, 596 (9th Cir. 2002))); *Rockwell Graphic Sys., Inc. v. DEV Indus. Inc.*, 925 F.2d 174, 179 (7th Cir. 1991) (noting that a trademark owner must “take reasonable efforts to police infringements of [the] mark,” and failing to do so can result in loss or abandonment of the trademark).

Figure 3. License Restrictions and Conditions



Most NFT projects that grant commercial rights to their buyers do not include any trademark usage rights. This dichotomy between granting commercial rights to exploit copyrighted works and withholding trademark rights arises because of trademark law's different (negative) consequences: the potential loss of their trademarks through naked licensing or failure to police their marks from third-party uses.

I refer to this dichotomy as the *copyright-trademark divide*. This divide explains why NFT projects that take a permissive approach to their copyrights do not do so with respect to their trademarks.<sup>206</sup> Indeed, even the NFT projects that granted an exclusive license or outright copyright transfer or abandoned their copyright with the adoption of a CC0 license, nonetheless prohibited using their trademarks (except for CryptoToadz, which did not address the issue).

Prohibiting the use of the project's trademarks raises complications. People typically identify the characters depicted in NFT artwork by the

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206. See, e.g., Sander Lutz, *Yuga Labs Lawsuit Against Bored Ape 'Troll' May Have Just Opened a Can of Worms*, DECRYPT (Jan. 9, 2023), <https://decrypt.co/118747/yuga-labs-bored-ape-lawsuit-can-of-worms> [<https://perma.cc/Z7VP-QQBQ>] (describing Yuga Labs' strategy of suing a conceptual artist who "sold a copycat collection of 10,000 Bored Ape NFTs" under trademark law, rather than copyright).

project's name.<sup>207</sup> For example, RTFKT's CloneX project characters are called "Clones."<sup>208</sup> Under the limited commercial license, however, buyers can only create merchandise with their characters in a "De-Branded" version.<sup>209</sup> Apparently, under the license, if the licensee wants to incorporate the "De-Branded" version into derivative works sold as new NFTs, the licensee can refer to the character as "Modified Clone[#]" and sell the new NFTs but only for personal, noncommercial uses.<sup>210</sup> Most commercial licenses in our study were not as detailed as this one. If a license is silent on modifications, but prohibits the use of the project's trademarks, it is an open question whether the licensee can invoke nominative fair use to refer to its merchandise as involving a character derived from the NFT project, such as "Doodles."<sup>211</sup>

Another lurking issue is that visual characters, such as Mickey Mouse, can also operate as trademarks if used in commerce as source identifiers.<sup>212</sup> The visual characters of NFT projects can be source identifiers or trademarks, even when they are not accompanied by

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207. *E.g.*, Alyson Krueger, *How Much Real Money Can You Make from Virtual Art*, N.Y. TIMES (Mar. 12, 2022), <https://www.nytimes.com/2022/03/12/style/nft-art-profit.html> [<https://perma.cc/H4GG-6DAJ>] (discussing the popular Bored Apes project and referring to a piece as "a Bored Ape").

208. *See CloneX*, RTFKT, <https://clonex.rtfkt.com> (last visited Oct. 8, 2023) (referring to the characters as "Clones").

209. *Digital Collectible Limited Commercial Use License Terms*, RTFKT, <https://rtfkt.com/legal-2C> [<https://perma.cc/D4YB-7696>].

210. *Id.*

211. Nominative fair use is an exception to trademarks that allows people to use a trademark because it is the term by which a product is known. *New Kids on the Block v. News Am. Pub., Inc.*, 971 F.2d 302, 308 (9th Cir. 1992) ("Such *nominative use* of a mark—where the only word reasonably available to describe a particular thing is pressed into service—lies outside the strictures of trademark law: Because it does not implicate the source-identification function that is the purpose of trademark, it does not constitute unfair competition; such use is fair because it does not imply sponsorship or endorsement by the trademark holder.").

212. *See* Brooks Barnes, *Mickey's Copyright Adventure: Early Disney Creation Will Soon Be Public Property*, N.Y. TIMES (Dec. 27, 2022), <https://www.nytimes.com/2022/12/27/business/mickey-mouse-disney-public-domain.html> [<https://perma.cc/W67W-BQEA>] (examining Disney's use of Mickey Mouse as a trademark); Viva R. Moffat, *Mutant Copyrights and Backdoor Patents: The Problem of Overlapping Intellectual Property Protection*, 19 BERKELEY TECH. L.J. 1473, 1526 (2004) (noting that the combination of copyright and trademark protections on Mickey Mouse and similar characters constitutes a "mutant" copyright that circumvents the public domain process).



word marks.<sup>213</sup> In some respects, this source-identifying aspect of visual characters diminishes the need for the NFT owners to invoke the word marks for the NFT projects when commercializing the characters in merchandise. On the other hand, the source-identifying aspect of visual characters presents the same complication of potential naked licensing or abandonment if the NFT projects do not maintain quality control over the third-party uses of the visual characters.

How this plays out for a collection of 10,000 NFTs is still being determined. Take, for example, the 10,000 pastel-colored characters called the Doodles.<sup>214</sup> Whether the NFT project has used all 10,000 characters as source identifiers is debatable. However, the distinctive color scheme of the Doodles project arguably operates as a trademark for the entire project,<sup>215</sup> and the 10,000 characters, which have variations of the same color scheme, might be considered a family of trademarks (even if the project itself has not used all 10,000 visual characters as source identifiers).<sup>216</sup> In that case, each Doodles licensee that commercializes their visual character could be considered to be using part of the Doodles trademarks embodied in the distinctive color scheme and family of characters. Would the Doodles project abandon its trademarks if it did not maintain some quality control over its licensees' commercialization of the Doodles characters?

Although some NFT licenses include other contractual restrictions (e.g., no use of the artwork in hate speech), none of the licenses surveyed expressly required quality control on merchandise produced by the NFT owners under the license. In theory, the NFT licenses could include such a quality control provision, or the NFT projects could undertake actual quality control measures, including merchandise

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213. See generally Mary Kate Brennan & Soniya Shah, *Demystifying NFTs and Intellectual Property: Trademark and Copyright Concerns*, FINNEGAN (June 17, 2022), <https://www.finnegan.com/en/insights/articles/demystifying-nfts-and-intellectual-property-trademark-and-copyright-concerns.html> [https://perma.cc/3P99-9EUE] (noting pending cases before district courts involving NFT trademark rights over use of recognizable shapes and images associated with Nike and Hermés).

214. *Doodles*, supra note 150.

215. See *Qualitex Co. v. Jacobson Prods. Co.*, 514 U.S. 159, 174 (1995) (holding that color alone can be enough for the trademark use requirement if the color identifies and distinguishes the seller's goods and is not functional).

216. See *McDonald's Corp. v. McBagel's, Inc.*, 649 F. Supp. 1268, 1272 (S.D.N.Y. 1986) (holding that McDonalds' use and promotion of the family of marks denoted by the formative "Mc" was a sufficient basis for trademark protection).

monitoring.<sup>217</sup> Because most NFT projects are just startups, the general consuming public might not yet have formed any expectation about the projects' product quality. At least for now, this problem may be more theoretical.

*b. No hate speech*

The next most common restriction is a prohibition on the use of NFTs in hate speech. European Union law forbids hate speech, and the EU Commission has secured agreements with Facebook, Microsoft, Twitter, and YouTube to abide by a Code of Conduct of "countering illegal hate speech online."<sup>218</sup> More generally, like any business, NFT projects have economic and reputational interests in avoiding the use of their products in hate speech or other scandalous materials.<sup>219</sup> As noted in Figure 3 above, sixteen projects (64%) include clauses forbidding the use of the NFT in hate speech or in an offensive manner.

*c. No violation of U.S. embargo and sanctions lists*

A third form of restriction that was contained in a minority of licenses involved compliance with U.S. embargos against countries and laws against dealing with terrorists or restricted people designated by the U.S. Department of Treasury's Office of Foreign Assets Control.<sup>220</sup>

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217. See *Barcamerica Int'l USA Tr. V. Tyfield Imp., Inc.*, 289 F.3d 589, 596 (9th Cir. 2002) ("The lack of an express contract right to inspect and supervise a licensee's operations is not conclusive evidence of lack of control. . . . Indeed, '[c]ourts have upheld licensing agreements where the licensor is familiar with and relies upon the licensee's own efforts to control quality.'" (quoting *Morgan Creek Prods., Inc. v. Cap. Cities/ABC, Inc.*, 22 U.S.P.Q.2d 1881, 1884 (C.D. Cal. 1991))).

218. *The EU Code of Conduct on Countering Illegal Hate Speech Online*, EU COMM'N (June 30, 2016), [https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/combating-discrimination-0/racism-and-xenophobia/eu-code-conduct-countering-illegal-hate-speech-online\\_en](https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/combating-discrimination-0/racism-and-xenophobia/eu-code-conduct-countering-illegal-hate-speech-online_en) [<https://perma.cc/T832-PUSL>].

219. See *Lee*, *supra* note 11, at 6 (noting that "[t]raditionally, IP owners have feared the tarnishment or 'misuses' of their content").

220. See *Sanctions Program and Country Information*, U.S. DEP'T OF TREASURY, <https://home.treasury.gov/policy-issues/financial-sanctions/sanctions-programs-and-country-information> [<https://perma.cc/Q6HT-EDNW>]; *Specially Designated Nationals and Blocked Persons List (SDN) Human Readable Lists*, U.S. DEP'T OF TREASURY, <https://home.treasury.gov/policy-issues/financial-sanctions/specially-designated-nationals-and-blocked-persons-list-sdn-human-readable-lists> [<https://perma.cc/TL7Q-DM74>]; *Where Is OFAC's Country List? What Countries Do I Need to Worry About in Terms of U.S. Sanctions?*, U.S. DEP'T OF TREASURY,

As noted in Figure 3, eleven projects (44%) included specific clauses with such prohibitions. The absence of a specific clause regarding U.S. embargos is probably inconsequential. Twenty-two projects (88%) had a general clause prohibiting uses that were illegal or violated applicable laws.

*d. Unilateral modification of terms*

The majority of licenses (72%) include clauses recognizing that the NFT projects may modify the terms of the license. Azuki's clause is typical:

Updating This License. We may modify this License from time to time. If we make changes that are material, we will use reasonable efforts to attempt to notify you, such as by placing a prominent notice on the first page of our website. However, it is your sole responsibility to review this License from time to time to view any such changes. Your continued access or use of the Azuki NFTs or Azuki NFT Art after the License has been updated will be deemed your acceptance of the modified License.<sup>221</sup>

A “unilateral modification” provision is a standard provision in standard-form contracts, which has sparked great controversy regarding its validity or enforceability.<sup>222</sup> In terms of online agreements, a clause that purports to secure assent from the licensee by continued use of the website, as in the Azuki license, is called a “browserwrap” agreement: the user putatively agrees to the modification by browsing the website.<sup>223</sup> Courts have sometimes deemed such modifications unenforceable if

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programs-and-country-information/where-is-ofacs-country-list-what-countries-do-i-need-to-worry-about-in-terms-of-us-sanctions [https://perma.cc/2TD5-DHT4].

221. *Azuki NFT License Agreement*, AZUKI, <https://www.azuki.com/license> [https://perma.cc/R5BC-W9S7].

222. *See, e.g.*, Oren Bar-Gill & Kevin Davis, *Empty Promises*, 84 S. CAL. L. REV. 1, 6 (2010) (“The root of the problem is that when sellers impose modifications unilaterally there is no guarantee that the modifications will be mutually beneficial; sellers are likely to propose unilateral modifications that serve their own interests, but not necessarily those of consumers.”).

223. Robert A. Hillman & Jeffrey J. Rachlinski, *Standard-Form Contracting in the Electronic Age*, 77 N.Y.U. L. REV. 429, 431 (2002) (“Businesses’ websites also include hyperlinks to terms that they assume will be binding on [i]nternet users who visit their sites (‘browserwrap’ contracts).”). The terms “broweswrap” and “browserwrap” are interchangeable.

the licensees were not given sufficient advance notice of the change and did not assent to it.<sup>224</sup>

A major controversy erupted with one of the Top 25 projects that unilaterally made a drastic change to its IP license. After launching on April 16, 2022, with an indication on its website that buyers would receive commercial licenses,<sup>225</sup> the Moonbirds project announced on August 4, 2022, that it would be switching to the CC0 license, which abandons copyright and donates the artworks to the public domain, free for anyone to use.<sup>226</sup> The surprising announcement sparked a backlash from some Moonbirds owners who criticized the lack of input from the Moonbirds owner community in the decision and questioned the modification's legality—some even called it a “bait-and-switch.”<sup>227</sup> One owner claimed to have lost a six-figure licensing deal for a commercial use of a Moonbirds due to the CC0 switch.<sup>228</sup> The Moonbirds' project creator, Proof, relied on a unilateral modification clause in its license:

We reserve the right, at our sole discretion, to change or modify portions of these Terms at any time. If we do this, we will post the changes on this page and will indicate at the top of this page the date these Terms were last revised. We will also notify you, either through the Site user interface, in an email notification or through other reasonable means. Any such changes will become effective no earlier

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224. See *Citizens Telecomms. Co. of W. Va. v. Sheridan*, 799 S.E.2d 144, 149 (W.V. 2017) (noting that courts have been hesitant “to enforce browsewrap agreements where the terms and conditions are heavily obscured”); Nancy S. Kim, *Developments in Digital “Wrap” Contracts*, 77 BUS. LAW. 275, 275–82 (2022) (discussing how courts use a totality of the circumstances analysis to determine whether users have assented to the terms of browsewrap contracts).

225. See *Moonbirds Terms of Sale*, MOONBIRDS, <https://www.moonbirds.xyz/terms> [<https://web.archive.org/web/20220501095422/https://www.moonbirds.xyz/terms>]; nftjedi, *Moonbirds Owners Get Full Commercial Art Rights*, NOU NFT (Apr. 22, 2022), <https://nounft.com/2022/04/22/moonbirds-owners-get-full-commercial-art-rights-for-the-moonbird-they-own-apparently-similar-to-bored-ape-license> [<https://perma.cc/5F8T-MYCK>].

226. Kevin Rose (@kevinrose), X (Aug. 4, 2022, 2:39 PM), <https://twitter.com/kevinrose/status/1555262099093200896> [<https://perma.cc/JV4X-DN79>] (announcement by Moonbirds founder).

227. Yctrader, *Moonbirds' Public Flight Sparks Debate About Intellectual Property Rights*, DEFIANT (Aug. 5, 2022), <https://thedefiant.io/moonbirds-cc0-license-nfts> [<https://perma.cc/9V67-DMMT>].

228. MK Manoylov, *Moonbirds Ruffles Some Holders' Feathers with Abrupt Copyright Switch*, BLOCK (Aug. 8, 2022, 7:10 PM), <https://www.theblock.co/post/161819/moonbirds-ruffles-some-holders-feathers-with-abrupt-copyright-switch> [<https://perma.cc/WG5U-S6N5>].

than fourteen (14) days after they are posted, except that changes addressing new functions of the Site will be effective immediately. Your continued use of the Site after the date any such changes become effective constitutes your acceptance of the new Terms of Use.<sup>229</sup>

Some courts have recognized that unilateral modification clauses are subject to the duty of good faith and fair dealing in exercising the discretion to modify.<sup>230</sup> For example, a seminal California state law decision enunciated the following standard:

Where, as in this case, a party has the unilateral right to change the terms of a contract, it does not act in an “objectively reasonable” manner when it attempts to “recapture” a forgone opportunity by adding an entirely new term which has no bearing on any subject, issue, right, or obligation addressed in the original contract and which was not within the reasonable contemplation of the parties when the contract was entered into.<sup>231</sup>

Oregon law, which the Moonbirds license chose as its governing law, has recognized a similar duty of good faith in modifying contracts.<sup>232</sup> Whether the browserwrap clause effectuated a valid change to the Moonbirds license goes beyond the scope of this Article, but it at least raises an issue under the duty of good faith, i.e., whether the Moonbirds project’s switch to a CC0 license deprived the NFT owners of a major benefit indicated in the original contract terms.

*e. Handling disputes: Arbitration and choice of law*

Some of the NFT licenses contained provisions to handle disputes. Eleven projects (44%) included clauses requiring arbitration. Nineteen projects (76%) had choice-of-law provisions. The choices were varied, with nine jurisdictions chosen only once: Cayman Islands, Canada,

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229. *Moonbirds Terms of Sale*, *supra* note 225.

230. *See, e.g.*, *Badie v. Bank of Am.*, 79 Cal. Rptr. 2d 273, 284 (Cal. Ct. App. 1998) (noting that unilateral term modifications are subject to the covenant of good faith and fair dealing).

231. *Id.* (internal citations omitted) (quoting *Lazar v. Hertz Corp.*, 191 Cal. Rptr 849, 857 (Cal. Ct. App. 1983)).

232. OR. REV. STAT. ANN. § 72.2090 (West 2023) comment 2 (“[M]odifications made thereunder must meet the test of good faith imposed by this Act. The effective use of bad faith to escape performance on the original contract terms is barred, and the extortion of a ‘modification’ without legitimate commercial reason is ineffective as a violation of the duty of good faith. Nor can a mere technical consideration support a modification made in bad faith.”); *Ruble Forest Prods., Inc. v. Lancer Mobil Homes of Or., Inc.*, 524 P.2d 1204, 1206 (Or. 1974) (quoting same).

England, Hong Kong, Oregon, Switzerland, British Virgin Islands, Delaware, and Australia. New York law was the most popular choice (in 6 licenses), followed by California and France, each selected by two licenses.

4. *The licenses recognize the right to “use”*

Another major finding is recognizing a right to “use” the copyrighted works. Unlike the Patent Code,<sup>233</sup> the Copyright Act does not include a right to use within the bundle of exclusive rights granted to authors.<sup>234</sup> By contrast, twenty-two of the twenty-five licenses (88%) expressly granted the NFT owner the right to “use” the associated artworks. The three projects that did not expressly grant use rights had reasons for not doing so: two projects (Moonbirds and Cryptoadz) simply adopted the CC0 license, abandoning copyright altogether, while one project (World of Women) transferred the copyright entirely. Thus, all the projects that granted limited licenses of some kind framed at least one of the rights as a right to “use” the artwork associated with the NFT, whether non-commercially or commercially. I leave for future study the significance of this development. It does suggest another example of De-IP and how NFT creators are reconceptualizing copyright to better suit their needs. The term “use” fits well with both commercial and noncommercial use, one of the key distinctions in the licenses. Framing a person’s right as a right to “use” copyrighted content may also be a better way of understanding how people consume content online. The term “use” might be more understandable to lay people.

5. *Lurking issue: does the license run with NFT to subsequent owners?*

Another major issue that might raise complications is the transfer of a license to subsequent owners of an NFT in the secondary market. Does a subsequent buyer of an NFT automatically receive the license as a successor to the NFT, or is a specific clause for transfer of the license required?

Among the Top 25 projects, twelve (48%) included specific clauses that stated that the IP license accompanies a sale of the NFT, transferring to a subsequent buyer of the NFT. I surmise that the remaining thirteen projects that failed to include such clauses, along

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233. See 35 U.S.C. § 271(a) (“[W]hoever without authority makes, uses, offers to sell, or sells any patented invention . . . infringes the patent.”).

234. See 17 U.S.C. § 106 (providing the owner of copyright exclusive rights to reproduce, prepare derivative works, distribute, publicly perform, publicly display, and publicly perform sound recordings).

with subsequent buyers of their NFTs, also expect such transfer of the license occurs because the NFT itself does not give the buyer rights to use the associated artworks—absent an implied, nonexclusive license under copyright law.<sup>235</sup> In other words, if the license *did not* transfer with the sale of the NFT, the buyer would have practically no rights to use the artworks, which extinguishes one of the main benefits of owning an NFT. Where an NFT project fails to include a specific clause, at the very least, there would be a strong argument for an implied license to use the associated artwork in some way. As federal courts have held in other copyright cases, a nonexclusive license may be implied where the amount paid by one party is far greater in value than what would be paid without a nonexclusive license.<sup>236</sup> Here, when a subsequent buyer pays thousands of dollars for an NFT, if not more, the buyer would not receive anything close to that value if the NFT did not come with a nonexclusive license to use the associated artwork, at least in a public display online. Without a nonexclusive license, the buyer would be hard-pressed even to identify the NFT.

Of course, an implied license is not the same as an express license granted by the NFT project. An implied license is unlikely to capture the complex arrangements often contained in NFT licenses. For example, imagine that the license prohibited uses of the artwork in hate speech, but the buyer had no idea of such restriction and would not have paid as much for the NFT with that restriction. Is the sale valid? If so, is it governed by an implied license or the conditions in the express license? Arguably, subsequent buyers of an NFT on OpenSea or other secondary markets might not have sufficient notice or assent to a contract or license that does not include a specific provision on the transfer of the license, especially if the posting on the secondary marketplace does not provide a link to the license itself.<sup>237</sup>

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235. See generally *Effects Assocs., Inc. v. Cohen*, 908 F.2d 555, 559 (9th Cir. 1990) (holding that a non-exclusive license was implicitly created when the creator of special effects footage transferred the footage to a film studio).

236. *Id.* at 558–59. For greater discussion of the complexities of implied copyright licenses, see Christopher M. Newman, “What Exactly Are You Implying?”: *The Elusive Nature of the Implied Copyright License*, 32 *CARDOZO ARTS & ENT. L.J.* 501 (2014); John S. Sieman, Comment, *Using the Implied License to Inject Common Sense into Digital Copyright*, 85 *N.C. L. REV.* 885 (2007).

237. See generally *Berkson v. Gogo LLC*, 97 F. Supp. 3d 359, 386–87 (E.D.N.Y. 2015) (explaining that internet users must have an opportunity to review online contract terms and that requiring users to click “accept” is a “good practice”).

Some commentators even question the transferability of the IP license when the license includes such a clause. In a blog post on this issue, lawyers from Skadden concluded: “[T]here currently is no effective and generally accepted mechanism for legal terms to travel with an NFT.”<sup>238</sup> Moreover, because NFTs are sold internationally, the contract and property laws of different countries might apply, depending on where the NFT transactions occurred or the choice of law in the license.<sup>239</sup> Thus, it might be difficult to predict whether, under the relevant jurisdiction’s law, a specific clause is required to make the license transfer to a subsequent owner of the NFT and, if so, under what conditions it is valid.

This seemingly vexing issue might be more theoretical than real. Even assuming, as a matter of contract law of some jurisdiction, that the license does *not* transfer with the sale of the NFT, it is unclear who might raise a legal challenge to prove a subsequent NFT owner did not receive a transfer of the license. The interests of both the NFT project and the NFT owner typically align in preferring that the license runs with the NFT.<sup>240</sup> For the NFT owners, the license authorizes them to use the associated artworks—without it, the token itself is difficult to experience or use.<sup>241</sup> For the NFT projects, the license provides added value to the NFT, potentially fetching higher prices and fostering decentralized collaboration, while at the same time, it may impose some restrictions on the NFT owner.<sup>242</sup> Thus, even if, as a matter of contract law, there is a technical infirmity of some kind in the transfer of the license, as a practical matter, neither the NFT project nor the subsequent NFT owners have a financial interest in the result in which the license does not run with the NFT.<sup>243</sup> And, if this problem does surface, the NFT projects can take steps to remedy the problem (e.g., adding a specific transfer clause, adding links to the license on

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238. Levi et al., *supra* note 116.

239. See CLIFFORD CHANCE, NON-FUNGIBLE TOKENS: THE GLOBAL LEGAL IMPACT 2 (June 2021) <https://www.cliffordchance.com/content/dam/cliffordchance/briefings/2021/06/non-fungible-tokens-the-global-legal-impact.pdf> [<https://perma.cc/B2RZ-FSQG>] (discussing the global legal ramifications of the rise of NFTs).

240. See Anthony, *supra* note 9 (noting that a non-exclusive license that travels with purchasers balances the interests of purchasers and creators).

241. *Id.*

242. *Cf. id.* (discussing the value that non-exclusive licenses provide to purchasers, from which it follows that creators can charge a premium if their projects implement a non-exclusive license structure).

243. *Cf. id.* (outlining the financial incentives to both parties in maintaining a non-exclusive license structure).



secondary market listings), especially if they have included unilateral modification clauses that allow them to make changes to the original license.<sup>244</sup> Ultimately, the actual practices of the NFT projects and traders may best explain how the license for NFTs can transfer with each sale.

6. *Complexity, accessibility, and ease of finding license*

a. *Complexity of licenses: Word counts and legalese*

One consequence of relying on licensing for individual NFT projects is complexity. As with any contract or legal agreement, an IP license will contain legalese, boilerplate, and terms that lay people may not understand.<sup>245</sup> There is an inherent tradeoff between providing more coverage of the key elements (and potential issues) and making the license accessible and simple for lay people to understand.<sup>246</sup> Although not always the case, a license with greater coverage and complexity with more clauses will be more challenging for lay people to understand.

To test the complexity and accessibility of the NFT licenses, I collected word counts of the licenses and performed readability tests. Figure 4 below summarizes the number of words in the Terms and Conditions,<sup>247</sup> in the order of NFT project ranked by sales volume listed in Table 3 above. The average number of words was 4,149 words. The median number of words was 3,601. Sorare had the most words (10,099). Adopting a CC0 license, Cryptoadz had the fewest number of words, just twenty-seven words.

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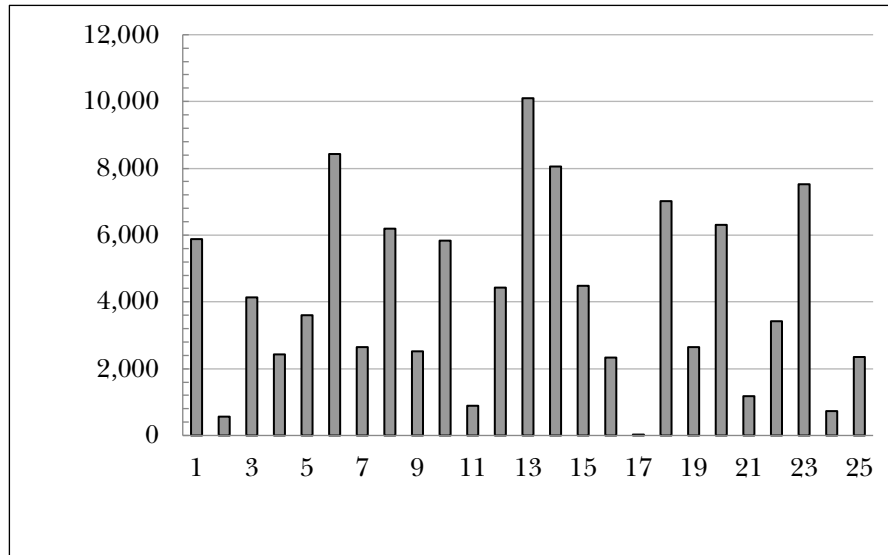
244. Another lurking issue is whether people in the EU who buy the NFTs can invoke a right to refund within fourteen days of purchase under the 1997 Distance Selling Directive. *See* Directive 97/7, art. 4.6, 1997 O.J. (L 144) (EC) (statement of the European Parliament and of the Council “on the protection of consumers in respect of distance contracts”); Christos Makridis, *Should Bored Ape Buyers be Legally Entitled to Refunds?*, COINTELEGRAPH (Jan. 30, 2023), <https://cointelegraph.com/news/opinion-should-bored-ape-buyers-be-legally-entitled-to-refunds> [https://perma.cc/L3HJ-C9LF] (speculating about how the EU’s Distance Selling Directive will apply to NFTs).

245. *See* David Gilo & Ariel Porat, *The Hidden Roles of Boilerplate and Standard-Form Contracts: Strategic Imposition of Transaction Costs, Segmentation of Consumers, and Anticompetitive Effects*, 104 MICH. L. REV. 983, 984 (2006) (noting that consumers often do not read or understand boilerplate clauses in standard-form contracts).

246. *See generally* Karen Eggleston, Eric A. Posner & Richard Zeckhauser, *The Design and Interpretation of Contracts: Why Complexity Matters*, 95 NW. U. L. REV. 91, 97–104 (2000) (discussing the role of complexity in contracts).

247. Because the relevant IP licenses were typically contained in the Terms and Conditions, which covered elements beyond the IP license, I measured the word counts for the entire Terms because that is how people would encounter the license.

Figure 4. Number of Words in Terms and Conditions



The Azuki project provided helpful comments in the margins, alongside the license provisions, to make its license more understandable.<sup>248</sup> For example, to explain the commercial license, Azuki added this comment:

Which means, you can use your Azuki NFT for Commercial Use. Yes, you can even sell the derivatives, just as long as you don't use the Azuki Trademarks. The only exception is if an Azuki NFT is a product of a collab that contains content not owned by us, then you can't use that specific Azuki NFT for Commercial Use unless we or our partner explicitly provide our consent in writing or through a public announcement.<sup>249</sup>

Azuki was the only project in the Top 25 to provide explanatory comments.

Several projects (BAYC, Doodles, and 0N1 Force) drafted their licenses under 1,000 words. But the tradeoff of brevity was coverage. They did not address some issues that other projects did: e.g., the reservation of trademarks, a prohibition against use in hate speech, a clause specifying that the license transfers with NFT sale, a prohibition

248. *Azuki NFT License Agreement*, *supra* note 221.

249. *Id.* Presumably, the side comments fall within course of dealing that is permissible to consider in interpreting a contract under U.C.C. § 2-202(a).

against use with countries designated by U.S. embargo, and a prohibition against illegal use.<sup>250</sup>

I checked the readability scores of the licenses using an online tool offered by Webfx, which includes a Flesch-Kincaid test.<sup>251</sup> Most of the licenses were suited for readers aged eighteen and above.

Figure 5 summarizes the results on readability. Because NFTs are typically sold to people eighteen years old and older,<sup>252</sup> the readability scores were arguably better than one might expect for legal agreements. On the other hand, thirteen projects were at readability levels of nineteen years and older, and two licenses, both for the CloneX project, were rated as “too complex.”<sup>253</sup>

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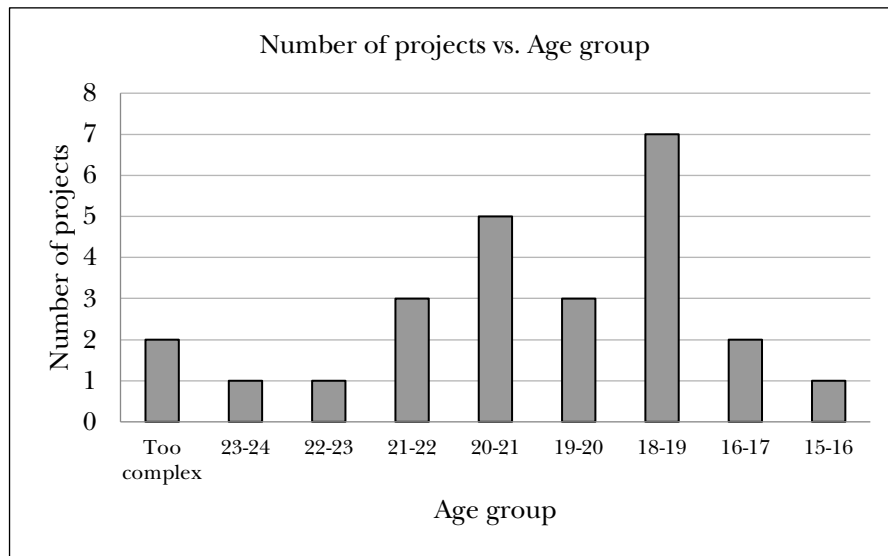
250. *Terms & Conditions*, BAYC, <https://boredapeyachtclub.com/#/terms> [<https://perma.cc/GBH8-FQGT>]; *Terms of Service*, DOODLES, <https://docs.doodles.app/terms-of-service> [<https://web.archive.org/web/20230603093624/https://docs.doodles.app/terms-of-service>]; *ON1 Force NFT Terms & Usage*, ON1 FORCE, <https://www.on1force.com/terms-use> [<https://perma.cc/CKE6-KMDF>]. After the completion of this survey, the Doodles project updated their license with a division between its terms of service and IP license, both of which included far more terms. See *Terms of Service*, *supra* note 153; *Digital Collectibles Media License Agreement*, DOODLES, <https://www.doodles.app/digitalcollectibleslicense> [<https://perma.cc/536T-Z3W3>] (last updated Aug. 17, 2023). Because the survey was intended to examine the projects' IP licenses in force at the same time, the updated Doodles' license was not a part of the study.

251. *Readability Test*, WEBFX, <https://webfx.com/tools/read-able> [<https://perma.cc/F9Q8-YHR7>]. The Flesch-Kincaid test is a test for determining the readability of a text based on the words per sentence and the syllables per word. *What is Flesch-Kincaid Readability?*, WEBFX, <https://www.webfx.com/tools/read-able/flesch-kincaid> [<https://perma.cc/6Z3D-4A2L>]. The test assigns a text two numbers. *Id.* The first is a number from 0 to 100 that determines how readable the text is: a higher score indicates that a text is more readable. *Id.* The second number is the U.S. school grade reading level required to understand the text. *Id.*

252. See Andy Storey, *How Old Do You Have to Be to Buy NFTs?*, POSTER GRIND (Jan. 31, 2022), <https://postergrind.com/how-old-do-you-have-to-be-to-buy-nfts> [<https://perma.cc/Q992-VLMW>] (noting that state and federal law, in many cases, prohibits minors from signing up for the cryptocurrency wallets required to buy an NFT).

253. I am surprised that more licenses did not receive a “too complicated” rating. Even though I am an expert in copyright law, I found the licenses difficult to understand. Perhaps that is unavoidable when dealing with copyright and other intellectual property and the new technology of non-fungible tokens.

Figure 5. Licenses Readable by Lowest Age Group



Several projects—Bored Apes, Mutant Apes, NBA Top Shot, and RTFKT CloneX—used white font on black backgrounds for their licenses. (I did not replicate this color scheme in the readability tests, so they do not reflect this color difference.) For people with astigmatism, this white-font-on-black background produces halation or fuzziness, which makes it more difficult to read.<sup>254</sup> About 33% of Americans have astigmatism.<sup>255</sup>

*b. Ease of finding the licenses for NFT projects*

Another challenge is simply finding the license. Ideally, the NFT projects should link the license to the NFT sales posting description on OpenSea and other marketplaces. Secondary sales after the initial minting of the NFTs typically occur through marketplaces, such as OpenSea, Blur, Sudoswap, x2y2, and Looksrare—not the websites of

254. See Jessica Otis, *Never Use White Text on a Black Background: Astigmatism and Conference Slides*, JESSICA OTIS (Nov. 6, 2017), <https://jessicaotis.com/academia/never-use-white-text-on-a-black-background-astigmatism-and-conference-slides> [<https://perma.cc/KWJ5-UQS9>] (noting white font-on-black is an accessibility issue).

255. *The Statistics on Eye Disease in America (2022)*, NVISION, <https://www.nvisioncenters.com/education/eye-disease-statistics> [<https://perma.cc/74J2-AQY8>] (last updated Dec. 4, 2022).

each project.<sup>256</sup> Except for RTFKT's CloneX project, none of the projects provided links on OpenSea for buyers to find their licenses for the NFTs being sold on OpenSea.<sup>257</sup> Although buyers can perform Google or Bing searches to find the project's licenses, it is possible that some buyers do not even know the licenses exist. Without such awareness, the buyers would have no reason to conduct an Internet search.

Indeed, the absence of a link to the license might cast into further doubt the validity of any putative transfer of the license to subsequent buyers due to the lack of notice about its existence, much less an indication by the buyer of the acceptance of its terms. The Ninth Circuit recognized the following test for a person's acceptance of online contracts:

Unless the website operator can show that a consumer has actual knowledge of the agreement, an enforceable contract will be found based on an inquiry notice theory only if: (1) the website provides reasonably conspicuous notice of the terms to which the consumer will be bound; and (2) the consumer takes some action, such as clicking a button or checking a box, that unambiguously manifests his or her assent to those terms.<sup>258</sup>

Even assuming a license includes a specific provision stating that the license transfers with the NFT, NFT projects would be hard-pressed to prove that secondary buyers have "reasonably conspicuous notice" of the license when the buyers do not even have the link to access the license on the listing page for the NFT on a marketplace.<sup>259</sup> Moreover, without providing such links, the projects could not show that the buyers "unambiguously manifested" assent to the terms.<sup>260</sup>

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256. *Understanding the Secondary NFT Market*, TR LAB (Mar. 4, 2023), <https://trlab.com/editorial/understanding-secondary-nft-market> [<https://perma.cc/AC4V-ZKH5>] (discussing secondary NFT markets).

257. *See, e.g.*, CloneX #2992, OPENSEA, <https://opensea.io/assets/ethereum/0x49cf6f5d44e70224e2e23fdcdd2c053f30ada28b/1129> [<https://perma.cc/M3WL-Z46T>] (link to license provided in description section).

258. *Berman v. Freedom Fin. Network, LLC*, 30 F.4th 849, 856 (9th Cir. 2022).

259. *Id.* ("[T]o be conspicuous in this context, a notice must be displayed in a font size and format such that the court can fairly assume that a reasonably prudent [i]nternet user would have seen it.").

260. *Id.*

*C. Most of the Top 25 Projects Use NFTs as De-IP*

The survey confirms the emergence of De-IP through NFTs.<sup>261</sup> Through an elaborate arrangement or private ordering effectuated through NFTs and licensing, the NFT projects are tailoring IP rights to better suit their needs. Nearly all the NFT projects adopt a right to resale royalties, thereby establishing by contract what the U.S. Copyright Act fails to recognize by statute.<sup>262</sup> A substantial majority of the Top 25 projects also grant commercial rights to their NFT owners, departing from the traditional All Rights Reserved approach of the major media.<sup>263</sup> This more permissive approach among the Top 25 NFT projects is similar in result to how pre-1870 U.S. copyright law allowed downstream decentralized collaboration by not including the right to make derivative works under copyright.<sup>264</sup> The same result is now occurring through NFTs—by the choice of the NFT projects.

The complex arrangement of De-IP that the NFT projects have adopted can be viewed as striking a delicate balance: the majority of the NFT projects grant commercial rights to their buyers, with the ability to create derivative works from the projects' artworks and keep all the profits, but also impose some conditions on the buyers, including the payment of resale royalties and the avoidance of the use of the projects' trademarks. Under this bargain, the NFT buyers get far more than they would under the All Rights Reserved approach, especially with the right to monetize the project's IP, but the buyers are expected to follow any conditions imposed by the NFT projects.

De-IP helps to explain why, after several billions of dollars in NFT sales, the legal issue of whether the IP license "runs with the NFT" has not surfaced in litigation.<sup>265</sup> Under a De-IP approach, litigation is not necessary.<sup>266</sup>

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261. See Lee, *supra* note 95, at 1087–89 (explaining how De-IP via NFTs provides a viable decentralized alternative to traditional copyright for content creators to protect their intellectual property).

262. See *supra* notes 128–35 and accompanying text.

263. See *supra* Section II.B.1.

264. See *supra* note 34–38 and accompanying text.

265. *Looking Under the Hood: Diligencing Non-Fungible Tokens, NFT Metadata and Smart Contracts*, RIMÓN INSIGHTS & ANALYSIS (Dec. 29, 2021), <https://www.rimonlaw.com/looking-under-the-hood-diligencing-non-fungible-tokens-nft-metadata-and-smart-contracts> [<https://perma.cc/AHL3-27TS>].

266. See Lee, *supra* note 95, at 1100 ("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.").

People can fashion their practices—and solutions to legal problems—without needing Congress, the courts, or administrative agencies. Although the practices of the Top 25 NFT projects may not perfectly align with—or even fail under—the formal principles of contract law, under a decentralized approach, self-help and private ordering prevail.<sup>267</sup> This is not a reason for suspicion. Indeed, the Uniform Commercial Code, drafted by the legal realist Karl Llewellyn, operates with a similar deference to private ordering and practices over the “law-on-the-books.”<sup>268</sup> Similarly, Ostrom’s approach in examining the actual practices of how different communities or sectors manage a common-pool resource shifts the focus from the law to examining private ordering.<sup>269</sup> This is not to suggest that formal copyright and contract laws are irrelevant. However, as Llewellyn’s and Ostrom’s theories both counsel, it is often more illuminating to understand how people order themselves in practice instead of obsessing over the technicalities of the law.<sup>270</sup> The proof is in the pudding.

### III. CHALLENGES TO BUSINESSES ATTEMPTING DECENTRALIZED COLLABORATION WITH NFTS

This final Part discusses several major challenges creators face when using NFTs to foster decentralized collaboration. Although the empirical study of the Top 25 NFT projects establishes the proof of concept—i.e., NFTs facilitate a new, more permissive approach of decentralized collaboration than the traditional All Rights Reserved approach—significant challenges remain to the success and viability of this approach.<sup>271</sup> These challenges stem from exogenous factors, which are not derived from decentralized collaboration.

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267. See *supra* notes 124–34 and accompanying text.

268. John P. Esser, *Institutionalizing Industry: The Changing Forms of Contract*, 21 LAW & SOC. INQUIRY 593, 596 (1996).

269. Hess & Ostrom, *Knowledge Commons*, *supra* note 146, at 5–6.

270. See generally Joshua A.T. Fairfield, *Making Virtual Things*, 64 WM. & MARY L. REV. 1057, 1059 (2023) (arguing that “virtual items are made by social narratives of value, and so the legal regulation of virtual things should center on the human social conception and human social use of those things”).

271. These are not the only challenges that NFT projects face. Others include negative sentiment about NFTs, perceptions that they are scams and do not constitute anything of real value, and illegal “rug pulls” by some bad actors, which have fed into the prior two concerns. I address these concerns at length in my book. See LEE, *supra* note 121, at 88–107, 246–57.

A. *The Economic Downturn and the Crypto Winter*

In 2023, one of the most significant challenges NFT projects faced was surviving the general economic downturn.<sup>272</sup> The boom period in NFT sales volumes in 2021 gave way to a bear market in 2022, in NFTs and other financial assets, including cryptocurrencies and stocks.<sup>273</sup> The economic downturn was global.<sup>274</sup> Big tech companies in the United States were hit hard and had massive layoffs of unprecedented levels for Silicon Valley.<sup>275</sup> In 2022, they shed \$2.5 trillion in market value.<sup>276</sup> During this time, there also was a “cryptocurrency contagion” in which a substantial drop in the value of Bitcoin precipitated a cascade of bankruptcies of various crypto companies, Three Arrows, Voyager, Celsius, FTX, Alameda Research, and BlockFi.<sup>277</sup>

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272. See Sidhartha Shukla, *NFT Trading Volumes Collapse 97% from January Peak*, BLOOMBERG (Sept. 28, 2022, 4:49 PM), <https://www.bloomberg.com/news/articles/2022-09-28/nft-volumes-tumble-97-from-2022-highs-as-frenzy-fades-chart> (stating that since late 2022, “[t]he fading NFT mania is part of a wider, \$2 trillion wipeout in the crypto sector as rapidly tightening monetary policy starves speculative assets of investment flows”).

273. See Yashu Gola, *Looks Bare: OpenSea Turns into NFT Ghost-Town After Daily Volume Plunges 99% from Peak*, COINTELEGRAPH (Aug. 29, 2022), <https://cointelegraph.com/news/looks-bare-opensea-turns-into-nft-ghost-town-after-volume-plunges-99-in-90-days> [<https://perma.cc/PHL5-GLE8>] (noting that NFT trading in U.S. dollars on OpenSea dropped to \$5 million on August 28, 2022, down 99% from its high of \$405.75 million on May 1, 2022).

274. See Sharp, *Long-Lasting Slowdown to Hit Developing Countries Hard*, WORLD BANK (Jan. 10, 2023), <https://www.worldbank.org/en/news/press-release/2023/01/10/global-economic-prospects> [<https://perma.cc/4XPR-35NE>] (explaining that “[g]lobal growth is slowing sharply in the face of elevated inflation, higher interest rates, reduced investment, and disruptions caused by Russia’s invasion of Ukraine”).

275. See Ashley Capoot & Sofia Pitt, *Google, Meta, Amazon and Other Tech Companies Have Laid off More than 104,000 Employees in the Last Year*, CNBC, <https://www.cnbc.com/2023/01/18/tech-layoffs-microsoft-amazon-meta-others-have-cut-more-than-60000.html> [<https://perma.cc/5Y8M-TH5N>] (last updated Mar. 20, 2023, 11:27 AM) (reporting that tech firms, including Google, Meta, and Amazon, among others, laid off more than 104,000 employees in 2022).

276. *The Future of Big Tech*, J.P. MORGAN RSCH. (Dec. 23, 2022), <https://www.jpmorgan.com/insights/research/future-of-big-tech> [<https://perma.cc/FTR7-H8JQ>].

277. nftjedi, *Graph on Cryptocurrency Contagion from Terra LUNA to FTX*, NOU NFT (Dec. 21, 2022), <https://nounft.com/2022/12/21/graph-on-cryptocurrency-contagion-from-terra-luna-to-ftx> [<https://perma.cc/7L8K-NY94>]; Bo Li & Nobuyasu Sugimoto, *Crypto Contagion Underscores Why Global Regulators Must Act Fast to Stem Risk*, IMF BLOG (Jan. 18, 2023), <https://www.imf.org/en/Blogs/Articles/2023/01/18/crypto-contagion-underscores-why-global-regulators-must-act-fast-to-stem-risk> [<https://perma.cc/H4NH-ZYBX>].



No business is immune from such challenging macroeconomic conditions. The challenge is especially acute for NFT projects, which typically are just startups.<sup>278</sup> Unless they have an infusion of venture capital or are acquired by a major corporation, the NFT projects must determine how to sustain themselves based on their existing funds and any resale royalties accrued from secondary sales. As discussed above, resale royalties for many existing projects, even the successful ones, evaporated by 2023 because the marketplaces Blur and OpenSea did not honor them.<sup>279</sup> On top of this circumvention of royalties, U.S.-based Venture Capital (VC) investments in startups declined significantly in the economic downturn, except for generative AI startups following ChatGPT's public launch.<sup>280</sup>

These conditions pose an uncertain future for most, if not all, NFT projects. According to one study in 2022, one-third of the 8,400 NFT projects surveyed had already expired.<sup>281</sup> By August 2023, NFT sales volume hit its lowest level since June 2021.<sup>282</sup> Similar to the dotcom bubble, the speculation in NFTs gave way to the real challenges that

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278. See Hannah Miller, *Slumping NFTs Still Have These Big-Money Fans*, BLOOMBERG (Sept. 20, 2022, 5:00 PM), <https://www.bloomberg.com/news/newsletters/2022-09-20/slumping-nfts-still-have-venture-capital-as-fans> [<https://perma.cc/7RMK-C6NP>] (discussing investing in digital asset startups and crypto trends in the NFT context).

279. See *supra* notes 186–99 and accompanying text; see also NFTstatistics.eth (@punk9059), X (Jun. 9, 2023, 8:41 AM), <https://twitter.com/punk9059/status/1667149957143629829> [<https://perma.cc/25J8-5ND4>] (showing the decline of royalties collected).

280. See Yuliya Chernova, *More Startups Throw in the Towel, Unable to Raise Money for Their Ideas*, WALL ST. J. (Jun. 9, 2023, 12:01 AM), <https://www.wsj.com/articles/more-startups-throw-in-the-towel-unable-to-raise-money-for-their-ideas-eff8305b> (showing a decline in venture investors); Jacob Robbins, *Generative AI Startups Jockey for VC Dollars*, PITCH BOOK (Apr. 14, 2023), <https://pitchbook.com/news/articles/Amazon-Bedrock-generative-ai-q1-2023-vc-deals> [<https://perma.cc/Y67Q-MTTC>] (describing the trend of venture money pouring into “generative AI startups” despite “difficult economic environment”).

281. Bloomberg, *NFT Collection Failures: For Every Bored Ape and CryptoPunk There is a Baby Baller*, HINDUSTAN TIMES: TECH, <https://tech.hindustantimes.com/tech/news/nft-collection-failures-for-every-bored-ape-and-cryptopunk-there-is-a-baby-baller-71648369026209.html> [<https://perma.cc/EH4C-8JPU>] (last updated Aug. 22, 2022, 11:10 IST) (discussing study by Nansen, a blockchain analytic firm).

282. See James Hunt, *Ethereum NFT Trading Volume Hit Two-Year Low in August*, THE BLOCK (Sept. 1, 2023, 9:09 AM), <https://www.theblock.co/post/248692/ethereum-nft-august-2023> [<https://perma.cc/SXS5-ZU2M>] (noting that August marked the lowest trading volume since June 2021).

startups typically face in developing a business.<sup>283</sup> The downturn also affects the ability of the NFT owners to commercialize their licensed content from the NFTs.<sup>284</sup> Elsewhere, I have documented the extensive decentralized collaboration by Bored Apes and Nouns owners.<sup>285</sup> However, these many examples of decentralized collaboration do not guarantee future financial success. Indeed, we can expect even these projects of NFT owners to face challenges. The business failures of the Top NFT projects during this volatile economic period may deter other businesses from embracing decentralized collaboration in the future, irrespective of the potential value or promise it has as a business model.

Nevertheless, given these unfavorable macroeconomic conditions, we should avoid making hasty judgments about decentralized collaboration. One thing is clear: NFTs did not go away. In fact, many businesses, from startups to big brands, are actively developing NFTs for various uses, from collectibles to ticketing.<sup>286</sup> For example, the Pudgy Penguins project bounced back from near failure to raise \$9 million in seed funding in 2023 and then sold out all 20,000 Pudgy Penguin toys in just two days on Amazon, earning half a million dollars.<sup>287</sup> Looking at the adorable Pudgy Penguins characters, one can

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283. See LEE, *supra* note 121, at 200–03 (discussing the highs and lows of the NFT and crypto bubbles).

284. See Shukla, *supra* note 272.

285. See LEE, *supra* note 121, at 166–84.

286. See nftjedi, *NFTs Are Dead. Why Then Did LeBron James Just Wear Nike RTFKT Sneakers?*, NOU NFT (May 3, 2023), <https://nounft.com/2023/05/03/nfts-are-dead-why-then-did-lebron-james-just-wear-nike-rtfkt-sneakers> [<https://perma.cc/34MU-GRJ3>] (listing companies using or expanding NFT technology, from established companies like Sports Illustrated and Ticketmaster to small startups, despite the broader downturn in the NFT market); Ezra Reguerra, *Lufthansa Airline Launches NFT Loyalty Program on Polygon*, COINTELEGRAPH (Aug. 31, 2023), <https://cointelegraph.com/news/polygon-nft-lufthansa-airline-launches-nft-loyalty-program-on-polygon> [<https://perma.cc/HR7X-UNUH>] (explaining how the program will operate and what rewards—such as miles and business lounge vouchers—members can redeem); Matt Medved, *Inside Sam Spratt’s Cult of Luci and the Monument Game*, NFT NOW (Aug. 22, 2023), <https://nftnow.com/features/inside-sam-spratts-cult-of-luci-and-the-monument-game> [<https://perma.cc/VLS7-JL43>] (detailing the reasoning behind the creator of the Cult of Luci and the Monument Game).

287. Andrew Hayward, *Pudgy Penguins Bucked the NFT Crash—Now It’s Raised \$9 Million*, DECRYPT (May 9, 2023), <https://decrypt.co/139470/pudgy-penguins-bucked-nft-crash-now-raised-9-million> [<https://perma.cc/P4AZ-J99L>]; see also Pedro Solimano, *Pudgy Penguins Smash Amazon Debut, Sells over 20,000 Toys*, DECRYPT (May 20, 2023), <https://decrypt.co/140825/pudgy-penguins-phygital-toys-amazon-sales>

see the potential for mainstream appeal, similar to a Disney character. The startups with the greatest financial security are: (1) Yuga Labs (owner of the Bored Apes, CryptoPunks, Mutant Apes, Otherdeeds, Kudas, Bored Ape Kennel Club, and Meebits) with its \$450 million in seed funding,<sup>288</sup> and (2) RTFKT (CloneX), which Nike acquired.<sup>289</sup> Both companies continued to develop their NFT projects during the height of the crypto winter.<sup>290</sup> We may also see greater collaborations between big brands and NFT creators, such as the one announced between Doodles and Crocs.<sup>291</sup> The dotcom failures serve as an important reminder: from them emerged Amazon and the business model for ecommerce.<sup>292</sup>

### B. Potential Classification and Regulation of NFTs as Securities

NFT projects may face another formidable challenge: the potential for the courts to adopt the SEC's recent classification of some NFTs as securities. During the NFT boom in 2020 and 2021, the SEC took no position on NFTs, but in late August 2023, the agency alleged (with two commissioners dissenting) that the NFTs sold to investors by Impact Theory, LLC, in its efforts to build a business aspiring to be a

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[<https://perma.cc/K25U-QMCF>] (describing the Ethereum project with a toy component as “phygital”).

288. Todd Spangler, *Bored Ape Yacht Club NFT Creator Yuga Labs Raises \$450 Million in Seed Round, Valuing Company at \$4 Billion*, VARIETY (Mar. 22, 2022, 12:41 PM), <https://variety.com/2022/digital/news/bored-ape-yacht-club-nft-yuga-funding-round-1235211728> [<https://perma.cc/Y5Y2-2JUX>].

289. Matthew Kish, *Nike Just Acquired a Virtual Goods Company as It Accelerates Its Metaverse Play*, BUS. INSIDER (Dec. 14, 2021, 10:32 AM), <https://www.businessinsider.com/nike-acquires-rtfkt-as-it-accelerates-metaverse-play-2021-12> [<https://perma.cc/8UGW-49PD>].

290. See, e.g., Andrew Hayward, *How Bored Ape Creator Yuga Labs Plans to Get to the 'Otherside'*, DECRYPT (Apr. 30, 2023), <https://decrypt.co/138402/bored-ape-yacht-club-yuga-labs-otherside-playtest> [<https://perma.cc/86P4-DJQF>] (discussing growth plans with Yuga executives); *Nike's SWOOSH Taps Fortnite for Epic 'Aurphoria' Web3 Gaming Debut*, NFT PLAZAS (June 19, 2023), <https://nftplazas.com/nikes-swoosh-fortnite-epic-gaming> [<https://perma.cc/X6WW-VRGF>] (surveying Nike's Web3 growth and plans); J. Clara Chan, *Nike's RTFKT Signs with CAA*, HOLLYWOOD REP. (June 6, 2023, 1:00 PM), <https://www.hollywoodreporter.com/business/digital/nike-rtfkt-caa-1235508426> [<https://perma.cc/BXU6-KCU6>] (reporting RTFKT's partnership with major talent agency).

291. Koko, *Get Your Hands on the Doodles x Crocs Collaboration Today!*, NFT EVENING (Aug. 28, 2023), <https://nftevening.com/get-your-hands-on-the-doodles-x-crocs-collaboration-today> [<https://perma.cc/AGQ8-WE4Y>].

292. LEE, *supra* note 121, at 199.

“decentralized Disney” were unregistered securities.<sup>293</sup> The company allegedly touted that the NFTs would deliver financial returns to the buyers based on the company’s development of media projects.<sup>294</sup>

Without admitting to the SEC’s charges, the company agreed to a cease-and-desist order, which includes the company’s return of investors’ money and the destruction of the NFTs in the company’s possession.<sup>295</sup>

Two weeks later, the SEC announced a second settlement of a similar enforcement against the Stoner Cats NFT project, which created an animated web series that featured Stoner Cat characters with voice over from Ashton Kutcher, Mila Kunis, and other Hollywood stars; the SEC alleged that the NFTs were securities because “the [Stoner Cats] team emphasized its expertise as Hollywood producers, its knowledge of crypto projects, and the well-known actors involved in the web series, leading investors to expect profits because a successful web series could cause the resale value of the Stoner Cats NFTs in the secondary market to rise.”<sup>296</sup> (Like Impact Theory’s license, the Stoner Cats’ license prohibited owners from commercially exploiting the artwork or content associated with their NFTs.<sup>297</sup>)

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293. Edward Lee, *Utility NFTs Aspiring to Be “Decentralized Disney” Were Unregistered Securities, Says SEC; Tom Bilyeu-Led Company Settles, Agrees to Pay \$6.1M, Destroy Its NFTs, and Disable All Creator Royalties. Which Project or Token Is Next?*, NOU NFT (Aug. 29, 2023), <https://nounft.com/2023/08/29/utility-nfts-aspiring-to-be-decentralized-disney-were-unregistered-securities-says-sec-tom-bilyeu-led-company-settles-agrees-to-pay-6-1m-destroy-its-nfts-and-disable-all-creator-royalties-w> [<https://perma.cc/D4U9-V5FB>].

294. *In re Impact Theory, LLC*, Release No. 11226 (Aug. 28, 2023), ¶¶ 6–7, <https://www.sec.gov/files/litigation/admin/2023/33-11226.pdf> [<https://perma.cc/CFU3-MKWH>]. Although not mentioned in the SEC’s action, the NFT project did not adopt decentralized collaboration as a part of its business plan. Instead, the company adopted a limited, noncommercial license, which prohibited the NFT owners from using the associated content commercially. *Impact Theory Site Terms and Terms of Sale*, FOUNDERSKEY <https://founderskey.io/termsfuse> [<https://perma.cc/F3KP-86P3>].

295. *SEC Charges LA-Based Media and Entertainment Co. Impact Theory for Unregistered Offering of NFTs*, SEC (Aug. 28, 2023), <https://www.sec.gov/news/press-release/2023-163> [<https://perma.cc/Z5ZB-EZAM>].

296. *SEC Charges Creator of Stoner Cats Web Series for Unregistered Offering of NFTs*, SEC (Sept. 13, 2023), <https://www.sec.gov/news/press-release/2023-178> [<https://perma.cc/X7AJ-2N7K>]. The same two Commissioners dissented. See Hester M. Peirce & Mark T. Uyeda, *Collecting Enforcement Actions: Statement on Stoner Cats 2, LLC*, SEC (Sept. 13, 2023), <https://www.sec.gov/news/statement/peirce-uyeda-statement-stoner-cats-091323> [<https://perma.cc/B4C3-6E54>] (voicing concern over the lack of limiting principle regarding the majority’s application of the *Howey* test).

297. *Terms of Service*, STONER CATS, ¶ 6(2), <https://www.stonercats.com/terms> [<https://perma.cc/44QE-RKHG>].

The SEC's position against Impact Theory and Stoner Cats signals that other utility NFT projects may face similar SEC enforcement actions if they touted their NFTs as ways to participate in building a business with an expectation of financial returns.

No legal issue can alter the dynamics and management of NFT projects more than this one. If NFTs are securities, projects must register them with the SEC *before* selling them to the public, and the projects will be subject to disclosure requirements and prohibitions against insider trading and material misstatements.<sup>298</sup> Securities registration will increase the overall costs of launching an NFT project by requiring securities lawyers to assist with compliance. Such costs may deter creators from launching an NFT project that attempts to develop a business through decentralized collaboration. Existing projects whose NFTs are deemed unregistered securities could be required to make a rescission offer to people who purchased their NFTs, essentially buying back the NFTs at the investment price with interest.<sup>299</sup> Given the downturn in the NFT market, many projects may not have the resources to do so.

The courts have yet to review the SEC's position that some NFTs constitute securities,<sup>300</sup> and the dissent by Commissioners Peirce and

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298. See *The Laws that Govern the Securities Industry*, SEC, <https://www.investor.gov/introduction-investing/investing-basics/role-sec/laws-govern-securities-industry> [<https://perma.cc/G2FW-Y3ZU>] (detailing the purpose of the Securities Act of 1933 and the Securities Exchange Act of 1934 and the powers vested in the SEC).

299. See *What Happens if a Startup Does Not Comply with Securities Laws?*, SEC, <https://www.sec.gov/education/capitalraising/building-blocks/noncompliance> [<https://perma.cc/YT2Y-KMVW>] (last updated June 26, 2023) (describing the purpose of federal securities regulations and potential consequences and liabilities for noncompliance); Eric J. Boelster, *Rescission Offering: A Problem with the Current Solution*, 3 WAYNE ST. U. J. BUS. L. 42, 46–47 (2020) (discussing the SEC's approach to rescission offering to cure violations); *Chris-Craft Indus., Inc. v. Piper Aircraft Corp.*, 480 F.2d 341, 391 (2d Cir. 1973) (discussing equitable relief requiring a rescission offer for securities violations).

300. The courts have recently disagreed with some of the SEC's positions on cryptocurrency. See *Grayscale Invs., LLC, v SEC*, No. 22-1142, 2023 WL 5536704, at \*9 (D.C. Cir. Aug. 29, 2023) (holding that the SEC's denial of Grayscale's proposed Bitcoin exchange-traded product (ETP) was unlawful because the SEC did not explain how it differed from two approved Bitcoin ETPs); *SEC v. Ripple Labs, Inc.*, No. 20 Civ. 10832, 2023 WL 4507900, at \*11–13 (S.D.N.Y. July 13, 2023) (programmatic sales of Ripple to public buyers did not constitute unregistered securities); see also Brady Dale, *SEC Chair Gary Gensler's Court Losses Are Piling up in Crypto*, AXIOS, <https://www.axios.com/2023/08/30/gary-gensler-crypto-court-losses> [<https://perma.cc/CJQ9-X94E>] (last updated Aug. 30, 2023) (discussing the *Grayscale* case and explaining the effect of judicial rulings on the industry).

Uyeda provides a contrary view.<sup>301</sup> Two ongoing federal lawsuits involve claims that the NBA Top Shot Moments NFTs and Yuga Labs' Bored Apes NFTs are unregistered securities violating federal law.<sup>302</sup> Under the test for an investment contract set forth in *SEC v. Howey Co.*,<sup>303</sup> an investment contract is a security if it is (1) an investment of money, (2) in a common enterprise, (3) with a reasonable expectation of profits solely derived from the efforts of others.<sup>304</sup>

Because the SEC's orders in the actions against the two NFT projects did not provide a formal analysis of the elements of the *Howey* test,<sup>305</sup> the SEC's precise reasoning is unclear. Notably, the SEC orders failed to identify, much less discuss, any instruments of the two projects that allegedly formed the investment contracts. Elsewhere, I explained why that omission suggests the SEC may have erred by apparently taking the legal view that an investment contract can exist based merely on a business's promotional statements, absent a legal entitlement or right to receive profits from the business venture.<sup>306</sup> Whether an investment

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301. *NFTs & the SEC: Statement on Impact Theory, LLC*, SEC (Aug. 28, 2023), <https://www.sec.gov/news/statement/peirce-uyeda-statement-nft-082823> [<https://perma.cc/LPU9-5HEZ>].

302. *Friel v. Dapper Labs, Inc.*, No. 21 Civ. 5837, 2023 WL 2162747, at \*1, \*22 (S.D.N.Y. Feb. 22, 2023) (denying NBA Top Shot owner's motion to dismiss); Complaint at 1–3, 78–81, *Real v. Yuga Labs, Inc.*, No. 2:22-CV-08909 (C.D. Cal. filed Dec. 8, 2022) (class action brought by purchasers of Yuga Labs NFTs alleging undisclosed celebrity endorsement of financial products, the NFTs); see Michael McCann & Jacob Feldman, *NBA Top Shot Fights NFT Securities Label in 'Moments' Case*, SPORTICO (Sept. 7, 2022), <https://www.sportico.com/law/analysis/2022/nba-top-shot-securities-lawsuit-1234687545> [<https://perma.cc/NV4Z-QDNQ>] (covering the class action lawsuit against Dapper Labs and explaining the allegations purported by Friel); 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> [<https://perma.cc/DD5R-ZV4M>] (reporting on the class action lawsuit against Justin Bieber, Madonna, Steph Curry, and Paris Hilton among others).

303. 328 U.S. 293 (1946).

304. *Id.* at 298–99.

305. See generally *In re Impact Theory, LLC*, Release No. 11226 (Aug. 28, 2023), <https://www.sec.gov/files/litigation/admin/2023/33-11226.pdf> [<https://perma.cc/N52X-BMWJ>] (finding under the *Howey* test the KeyNFTs were securities because they were sold as investment contracts); *In re Stoner Cats 2, LLC*, Release No. 11233 (Sept. 14, 2023), <https://www.sec.gov/files/litigation/admin/2023/33-11233.pdf> [<https://perma.cc/2NV8-Q2YZ>] (finding the same for Stoner Cat NFTs).

306. See Edward Lee, *Why the SEC Is Wrong: NFTs Aren't Securities* (work in progress on file with author); see also Brief of Securities Law Scholars as *Amici Curiae* in Support

contract requires such a legal entitlement is a legal issue currently before the court in *SEC v. Coinbase, Inc.*<sup>307</sup>

In any event, beyond the actions against Impact Theory and Stoner Cats, the decentralized collaboration arrangement discussed in this Article arguably falls outside of the *Howey* test for a different reason: the investors, who receive commercial IP licenses to monetize the associated artwork, can reasonably expect to receive profits from *their own efforts*. Like a franchisee, the NFT owner “independently determines his own success or failure.”<sup>308</sup> Indeed, an NFT owner’s commercialization efforts provide a more direct and immediate way to profit from the associated artwork than any future ambitions of the NFT startup company and the speculative possibility that the NFTs may appreciate in value.

One lurking issue: what happens if the investors reasonably expect profits from their own individual efforts and the separate efforts of the business venture (a mixed scenario)? The Supreme Court’s formulation of the reasonable expectations prong of the *Howey* test used the word “solely,”<sup>309</sup> not “significantly,” which suggests that the mixed scenario does not constitute an investment contract. However, the SEC and lower courts have interpreted “solely” to mean *significantly* derived from the efforts of others.<sup>310</sup> But the lower courts have also recognized that the *Howey* test is not satisfied if, under the agreement, the investor

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of Coinbase’s Motion for Judgment on the Pleadings at 2, *SEC v. Coinbase, Inc.*, Case 23-CV-04738 (filed Aug. 11, 2023) [hereinafter *Brief of Securities Law Scholars*] (arguing that, based on its origin from state blue-sky laws, “an investment contract” exists “only if the investor receives, in exchange for an investment, a contractual undertaking or right to an enterprise’s income, profits, or assets”).

307. *Brief of Securities Law Scholars*, *supra* note 306.

308. *Bitter v. Hoby’s Int’l, Inc.*, 498 F.2d 183, 185 (9th Cir. 1974) (per curiam); *see Lino v. City Investing Co.*, 487 F.2d 689, 690, 693 (3d Cir. 1973) (finding no investment contract in franchise licensing agreements that gave licensee “exclusive rights to market FI approved franchise programs within certain areas”).

309. *Howey*, 328 U.S. at 298–99 (“An investment contract [for purposes of the Securities Act] came to mean a contract or scheme for ‘the placing of capital or laying out of money in a way intended to secure income or profit from its employment.’”); *id.* at 298 (“This definition was uniformly applied by state courts to a variety of situations where individuals were led to invest money in a common enterprise with the expectation that they would earn a profit *solely* through the efforts of the promoter or of some one other than themselves.”) (emphasis added).

310. *See, e.g., SEC v. SG Ltd.*, 265 F.3d 42, 55 (1st Cir. 2001) (concluding the virtual shares offered by SG Ltd. qualified for regulation as securities based on the third element of the *Howey* test).

can engage in activities that are more than “nominal or insignificant” to derive profit from one’s own efforts.<sup>311</sup>

The Supreme Court has not reviewed whether “solely” means “significantly” under the *Howey* test, contrary to the word’s dictionary definition.<sup>312</sup> The Supreme Court expressly avoided deciding *Howey*’s application to a mixed scenario involving “both a commodity or real estate [i.e., not a security] for use and an expectation of profit.”<sup>313</sup> The Court could revisit the *Howey* test in a future case, perhaps in a case presenting a mixed scenario. For example, with decentralized collaboration through the grant of commercial IP rights, NFT owners can reasonably expect a profit from *their own* commercialization of the NFT artworks or virtual land but, at the same time, potentially have a reasonable expectation of profit significantly derived from the efforts of the NFT project itself. If “solely” in *Howey* was meant to indicate the word’s literal meaning of “only,” then such a mixed scenario in which the NFT owners receive IP rights and can expect profits from their commercialization efforts would not constitute a security under *Howey*. The expectation of profit derives from the *joint* efforts of the buyers and the NFT project.

Congress should also consider amending securities law to recognize NFTs as commodities or other assets exempted from securities regulation.<sup>314</sup> Some legal experts contend that the burdens of securities regulations might quash the innovation that NFTs enable for creators.<sup>315</sup> The dissent of Commissioners Peirce and Uyeda in the action against Impact Theory voiced similar concerns in asking whether securities law was the right fit for regulating NFTs, which are

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311. *Lino*, 487 F.2d at 693.

312. See *Meaning of Solely in English*, CAMBRIDGE DICTIONARY, <https://dictionary.cambridge.org/us/dictionary/english/solely> [<https://perma.cc/8NKM-3FVJ>] (defining “solely” as “only and not involving anyone or anything else”).

313. *United Hous. Found., Inc. v. Forman*, 421 U.S. 837, 853 n.17 (1975).

314. Thus far, Congress has focused on bills applying to cryptocurrencies and how they should be classified. See Billy Bambrough, *Congress Introduces a Game-Changing Crypto Bill amid \$350 Billion Bitcoin, Ethereum, BNB and XRP Price Pump*, FORBES: DIGITAL ASSETS (June 5, 2023, 8:53 AM), <https://www.forbes.com/sites/digital-assets/2023/06/05/congress-introduces-a-game-changing-crypto-bill-amid-bitcoin-ethereum-bnb-and-xrp-price-pump> (discussing the proposed crypto bill without mentioning NFTs).

315. See LEE, *supra* note 121, at 241–46 (arguing that regulating NFTs as traditional securities would likely have the dual effect of being ineffective and stifling innovation); Stern, *supra* note 150 (advocating for prioritizing intellectual property interests in the NFT context instead of a “one-size-fits-all approach” to IP enforcement).



especially important to digital artists to sell their creative works.<sup>316</sup> Ultimately, the public needs greater guidance on when NFTs constitute securities—and when they do not. As Commissioners Peirce and Uyeda recognized, “[r]ather than arbitrarily bringing enforcement actions against NFT projects, we ought to lay out some clear guidelines for artists and other creators who want to experiment with NFTs as a way to support their creative efforts and build their fan communities.”<sup>317</sup>

### C. *The Copyrightability of Generative Works—or Lack Thereof*

Another lurking issue is whether the artworks for the NFTs partly generated by algorithms, computer scripts, or artificial intelligence are copyrightable.<sup>318</sup> Many NFT projects involving a collection of NFTs rely on some computer generation of the artworks, which are typically randomly assigned individual traits of different rarity (e.g., facial features, clothing, and accessories) created by human creators.<sup>319</sup>

The individual traits in the artworks might be stock elements that lack originality, one of the requirements for qualifying for a copyright.<sup>320</sup>

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316. *NFTs & the SEC: Statement on Impact Theory, LLC*, *supra* note 301.

317. *Collecting Enforcement Actions*, *supra* note 296.

318. See Michael D. Murray, *Generative and AI Authored Artworks and Copyright Law*, 45 HASTINGS COMMS. & ENT. L.J. 27, 35–38 (2023) (noting that generative art will be less likely to be copyrightable as it moves away from “human conception and creation”). Even before NFTs existed, legal scholars have long debated whether AI-generated works should be eligible for copyright. See, e.g., Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 HARV. L. REV. 977, 1042–43 (1993) (noting that the discussion surrounding computer-generated works is not new and arguing that the copyright framework as constructed could be applied as if the author were human); Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 U. PITT. L. REV. 1185, 1192 (1986) (arguing that authorship should be attributed to the user, rather than the programmer, of computer-generated work).

319. See Ben Munster, *What Is a Generative Art NFT? Inside the Algorithmic Art Revolution*, DECRYPT (Oct. 8, 2022), <https://decrypt.co/resources/what-is-a-generative-art-nft-inside-the-algorithmic-art-revolution> [<https://perma.cc/92BH-TNCG>] (explaining the artist’s role in the generative art process); see, e.g., Sandra Upson, *The 10,000 Faces That Launched an NFT Revolution*, WIRED (Nov. 11, 2021, 6:00 AM), <https://www.wired.com/story/the-10000-faces-that-launched-an-nft-revolution> [<https://perma.cc/8U7Z-RPFD>] (reporting that John Watkinson, cocreator of CryptoPunks, created “basic heads, along with accessories to layer over them, and then worked away at a piece of software—the ‘generator’ in the generative art—that could compose thousands of unique but plausible faces”).

320. For an example of a copyright application refused for lack of originality, see *NBA Properties, Inc.*, U.S. Copyright Off. Rev. Bd. (U.S. Copyright Off. May 30, 2019)

Even more fundamentally, the U.S. Copyright Office has taken the position that only humans can qualify as authors.<sup>321</sup> To the extent that human contributions are deemed to be too minimal or trivial, the artworks would not be copyrightable as human creations.<sup>322</sup> The Copyright Office explains:

[T]he Office will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author. The crucial question is “whether the ‘work’ is basically one of human authorship, with the computer [or other device] merely being an assisting instrument, or whether the traditional elements of authorship in the work (literary, artistic, or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed not by man but by a machine.”<sup>323</sup>

When a human creates the individual elements for the characters that an automated program randomly assigns and potentially tweaks the results, arguably, that level of human contribution satisfies the Copyright Office’s threshold for human authorship.

But the Copyright Office has staked out a narrow or restrictive position with respect to AI-generated works. In denying the registration of images Kristina Kashtanova generated using prompts on Midjourney, a text-to-image generator, the Copyright Office ruled that Kashtanova was not the author of the images because Midjourney’s process involved too much randomness that, in the Office’s view, showed Kashtanova’s lack of control over the creation.<sup>324</sup> Afterward, the Office issued new guidance imposing a duty on all registrants to

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(final agency decision), <https://www.copyright.gov/rulings-filings/review-board/docs/d-with-ball-design.pdf> [<https://perma.cc/ASY2-RJBT>].

321. See U.S. Copyright Office, *Compendium of U.S. Copyright Office Practices* § 306 (3d ed. 2021) (“The U.S. Copyright Office will register an original work of authorship, provided that the work was created by a human being.”).

322. See *id.* (“Because copyright law is limited to ‘original intellectual conceptions of the author,’ the Office will refuse to register a claim if it determines that a human being did not create the work.” (citing *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884))).

323. *Id.* § 313.2 (quoting U.S. Copyright Office, Report to the Librarian of Congress by the Register of Copyrights 5 (1996)).

324. See Letter to Van Lindberg from Robert J. Kasunic, Assoc. Reg. of Copyrights & Dir. of the Off. of Registration Pol’y & Practice (Feb. 21, 2023) (on file with the U.S. Copyright Office) (reclassification of registration), <https://www.copyright.gov/docs/zarya-of-the-dawn.pdf> [<https://perma.cc/8ZLU-S6EY>] (“Because Midjourney starts with randomly generated noise that evolves into a final image, there is no guarantee that a particular prompt will generate any particular visual output.”).

disclose any AI-generated works and to exclude the AI-generated portion from registration expressly.<sup>325</sup> The courts have yet to review the Copyright Office's position. Elsewhere, I have explained why I believe it is wrong and too restrictive.<sup>326</sup> However, at least for copyright registration, the Office's approach is currently prevailing.

To my knowledge, most NFT projects created before 2023 did not involve AI-generated images. The more typical method for creating the NFT artworks was through the assistance of an algorithm or computer script.<sup>327</sup> Thus, the Copyright Office's ruling on AI-generated works should not impact these NFT artworks. On the other hand, the Copyright Office might extend its ruling on AI-generated works, particularly its focus on randomness in the creation process, to some algorithmically-generated artworks associated with NFTs in which the project creators added little input to the creation. But, where the NFT creators add their own drawings or alterations of the traits randomly assigned or tweak how the traits are assigned (i.e., make the selection and arrangement of traits), the NFT creators should easily fall within the Office's understanding of human authorship.<sup>328</sup>

However, if some NFT generative artworks are deemed uncopyrightable, that could disrupt the economics for the NFT projects and their owners. As discussed above, the Moonbirds project faced an analogous situation, although one of the project's choosing.<sup>329</sup> By donating the artworks to the public domain under CC0 licenses, the value of owning a Moonbirds NFT might have been adversely affected. As noted above,

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325. See Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16190 (effective Mar. 16, 2023) (to be codified at 37 C.F.R. 202).

326. See, e.g., Edward Lee, *A Terrible Decision on AI-made Images Hurts Creators*, WASH. POST (Apr. 27, 2023, 6:00 AM), <https://www.washingtonpost.com/opinions/2023/04/27/artificial-intelligence-copyright-decision-misguided> [<https://perma.cc/NWS3-B3BN>] (arguing that the decision “misunderstands authorship and ignores the copyright clause’s goal of promoting ‘progress’”); Edward Lee, *Prompting Progress: Authorship in the Age of AI* (manuscript on file with author).

327. See *Generative Art NFT: An Introduction & Examples*, SUPRA ORACLES (July 21, 2022), <https://supraoracles.com/academy/history-of-generative-art-and-how-it-applies-to-nfts> [<https://perma.cc/UJ8H-V2S5>] (noting Bored Apes as an example of algorithmically created generative art).

328. See Letter to Van Lindberg from Robert J. Kasunic, Assoc. Reg. of Copyrights & Dir. of the Off. of Registration Pol’y & Practice (Feb. 21, 2023) (on file with the U.S. Copyright Office) (reclassification of registration), <https://www.copyright.gov/docs/zarya-of-the-dawn.pdf> [<https://perma.cc/8ZLU-S6EY>] (recognizing that manual edits by Kashtanova to an AI-generated image “could provide human authorship”).

329. See *supra* notes 225–39 and accompanying text.

one owner alleged losing a commercial deal after the Moonbirds were donated to the public domain.<sup>330</sup> On the other hand, the Nouns project provides a counter example in which the lack of copyright has not foreclosed the ability of Nouns owners to monetize their Nouns.<sup>331</sup> We should not place too much stock in the Moonbirds' decline, likely due to a host of missteps beyond the sudden switch to a CC0 license.<sup>332</sup>

Scholars from business, finance, and the law have just begun to analyze the transformations to business that NFTs are effectuating.<sup>333</sup> Because NFTs are rapidly developing, with many big businesses now considering their potential uses,<sup>334</sup> it is too early to draw definitive conclusions. This Article has identified one of the most significant transformations NFTs have precipitated thus far: the emergence of a new, more innovative approach by startups in granting commercial licenses to NFT owners to build engagement and foster decentralized collaboration. The companies pursuing this innovative approach will

330. See *supra* notes 225–39 and accompanying text.

331. See 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/6XTQ-4KWL>] (Nouns DAO accumulated about \$45 million a year after launching); Erika Lee, *An NFT Every Day: A Guide to the Nouns NFT Project, DAO, and Ecosystem*, NFT NOW (Mar. 17, 2023), <https://nftnow.com/guides/an-nft-every-day-a-guide-to-the-nouns-nft-project-dao-and-ecosystem> [<https://perma.cc/JN2U-SGJL>] (reporting how Nouns generates new Nouns every day and “[t]his process ensures that the Nouns ecosystem remains dynamic and continuously evolving while providing a means for community members to acquire and trade unique NFTs”).

332. See wale.swoosh (@waleswoosh), X (May 30, 2023, 7:30 AM), <https://twitter.com/waleswoosh/status/1663508075985108992> [<https://perma.cc/AX2E-5NWK>] (discussing the reasons for Moonbirds' decline).

333. See, e.g., Dominic Chalmers, Christian Fisch, Russell Matthews, William Quinn & Jan Recker, *Beyond the Bubble: Will NFTs and Digital Proof of Ownership Empower Creative Industry Entrepreneurs?*, 17 J. BUS. VENTURING INSIGHTS 1, 4 (2022), <https://www.science.direct.com/science/article/pii/S2352673422000075> [<https://perma.cc/WQ99-WGCP>] (discussing the short-term and long-term implications for growth and positive capital flows from NFT and blockchain-based technologies); Kaczynski et al., *supra* note 15 (discussing how NFTs provide value beyond proof of ownership due to their programmability and use of blockchain technology).

334. See, e.g., Michael Bodley, *Amazon NFT Initiative Coming Soon: Exclusive*, BLOCKWORKS (Jan. 26, 2023, 3:32 PM), <https://blockworks.co/news/amazon-nft-marketplace-web3> [<https://perma.cc/Z7PQ-KFEZ>] (discussing rumors of Amazon's plans to enter the NFT and crypto marketplace); Georgia Weston, *Top 10 Companies Investing in NFT*, 101 BLOCKCHAINS (Sept. 2, 2022), <https://101blockchains.com/companies-investing-in-nft> [<https://perma.cc/TU5T-VRWQ>] (discussing how large corporate entities, such as Adidas, Samsung, and McDonald's, have begun investing in NFTs as evidence for their increasing market value).

determine whether this new business model ultimately transforms industries and creative production.

*D. The Uncertainty over Collection of Creator Royalties*

The final challenge NFT projects face is the dismal state of creator or resale royalties. As discussed above, the two market leaders in terms of sales volume, Blur and OpenSea, engaged in a race to the bottom, leading to a dramatic drop in resale royalties for creators.<sup>335</sup> The NFT platforms were competing for users by enticing them with the ability to avoid the payment of royalties—and sellers pocketing the money. According to one estimate on August 19, 2023, the amount of royalties collected per sale on Blur was close to 0%, and only 2.5% on OpenSea,<sup>336</sup> far from the median royalty of the Top 25 projects of 5%. The market hit rock bottom when OpenSea announced it planned to make all creator royalties purely optional in 2024.<sup>337</sup> In response, Daniel Alegre, the CEO of Yuga Labs, the company with the most successful NFT projects, announced that it supports creator royalties and would stop using OpenSea’s filtering tool.<sup>338</sup> Mark Cuban, an investor in OpenSea, criticized OpenSea’s decision as a “HUGE mistake,” which “hurts the industry.”<sup>339</sup> Because creator royalties help NFT projects and artists sustain themselves and develop new

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335. See Eric James Buyer, *NFT Marketplace Blur Is Beating OpenSea, but Will It Last?*, NFT Now (Feb. 28, 2023), <https://nftnow.com/features/nft-marketplace-blur-is-beating-opensea-but-will-it-last> [<https://perma.cc/4CRW-ECVH>] (explaining how OpenSea, among other things, cut royalties in response to Blur’s token launching).

336. NFTstats.eth (@punk9059), X (Aug. 19, 2023, 12:11 PM), <https://twitter.com/punk9059/status/1692947514276589909> [<https://perma.cc/25J8-5ND4>]; NFTstats.eth (@punk9059), X (Aug. 19, 2023, 12:11 PM), <https://twitter.com/punk9059/status/1692947498426347885> [<https://perma.cc/FL84-7N3K>]; see also Cam Thompson, *NFT Creator Royalty Payments Hit Two-Year Low: Nansen*, COINDESK, <https://www.coindesk.com/web3/2023/07/05/nft-creator-royalty-payments-hit-two-year-low-nansen> [<https://perma.cc/N9ET-HK2J>] (last updated July 6, 2023, 1:48 PM) (noting the difference between Blur and OpenSea royalty fee collection methods).

337. See generally Lutz, *supra* note 188 (explaining the OpenSea Operator Filter and its potential impact).

338. Brian Quarmby, *Yuga Labs to Wind Back from OpenSea over Its Axing of Royalty Enforcements*, COINTELEGRAPH (Aug. 19, 2023), <https://cointelegraph.com/news/yuga-labs-to-wind-back-use-of-opensea-over-its-axing-of-royalty-enforcements> [<https://perma.cc/27BE-G734>].

339. Mark Cuban (@mcuban), X (Aug. 18, 2023, 9:20 AM), <https://twitter.com/mcuban/status/1692541974484549925> [<https://perma.cc/QS57-QZ7F>].

projects,<sup>340</sup> the circumvention of royalties makes it far more difficult for existing NFT projects to survive.

#### CONCLUSION

This Article presents the results of an empirical study of the Top 25 NFT projects. Typically launched by startup companies, these projects have employed a new, more innovative approach to creative production. Utilizing a combination of smart contracts that create non-fungible tokens recorded on blockchain and IP licenses setting forth certain rights for the NFT owners to use the associated content, a substantial majority of the NFT projects have adopted a far more permissive approach to IP licensing that facilitates collaboration in a decentralized manner.<sup>341</sup> This decentralized collaboration turns ordinary consumers into cocreators of IP shared by the NFT projects. This innovative approach to creative production—in which startups enlist their customers to become cocreators, who receive commercial rights to monetize the content associated with their NFTs—is a dramatic change from the traditional All Rights Reserved approach of the major media companies, such as Disney, that predominated during the twentieth century.<sup>342</sup> Although this new, innovative approach offers great promise for creativity and collaboration, NFT projects face formidable challenges with the economic downturn, potential securities regulation in the United States, the risk of a court decision finding their generative artworks are not copyrightable, and the circumvention of creator royalties.<sup>343</sup> Decentralized collaboration's success depends on how well NFT projects navigate these challenges—and develop sustainable businesses. If the past is prologue, it only takes one innovative business—a Disney or an Amazon—to demonstrate the viability of a new business model.

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340. See Fran Velasquez, *Animoca Brands Co-Founder: Royalties Make It Possible for NFT Projects to Flourish*, COINDESK (Mar. 17, 2023, 3:55 PM), <https://www.coindesk.com/consensus-magazine/2023/03/17/animoca-brands-co-founder-royalties-make-it-possible-for-nft-projects-to-flourish> [https://perma.cc/W6K2-PWRJ] (reporting that royalties have fueled the growth of the NFT economy); Betty, *Greed Killed NFT Royalties. The Marketplaces that Dropped Them Could Be Next*, BLOCKWORKS (Aug. 31, 2023, 2:06 PM), <https://blockworks.co/news/nft-marketplace-royalties-greed> [https://perma.cc/NP G4-G6PD] (arguing that “[b]y removing royalties for others now a handful of people have ‘made it,’ will ‘cripple momentum and take massive steps backwards’ because it ‘remove[s] the ability for people to build outside of systems that do not serve all equally”).

341. See *supra* notes 118–29 and accompanying text.

342. See *supra* notes 265–85 and accompanying text.

343. See *supra* notes 320–26 and accompanying text.