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NON-FUNGIBLE TOKENS AND FAILED PROMISES OF
SIMPLE VIRTUAL OWNERSHIP

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This paper analyzes controversies surrounding Non-Fungible Tokens (NFTs) and tries to answer the question of how NFTs can revolutionize virtual ownership. To answer this question, part I of the paper analyzes the technical and legal nature of NFTs and the ways users utilize this technology. This part also discusses the legal ambiguity surrounding NFTs and users' misconceptions about the scope of rights they get with NFTs. Part II analyzes NFTs from the perspective of two communities: gaming and art. This perspective is noteworthy because both communities had a need to simplify ownership of intangibles. Still, while artists and art collectors have welcomed the dawn of NFTs rather warmly, gamers expressed concerns about NFTs' utility. To understand the contrast this paper investigates how NFTs are used in the art world and gaming and what needs NFTs serve to satisfy in both communities. As one of the possible explanations, this paper suggests that NFTs do not make digital ownership easy but only make transfers easy. Because of this, users who looked for easier transfers got what they needed, while users who aspired to get the real-world type of digital ownership through NFTs were discontented. Part III of the paper focuses on the rights that users (namely gamers) would want to have for digital property and discusses whether NFTs (under the current legal framework) can give these extra digital rights. Part IV suggests a list of legal reforms that can bring NFTs closer to their promises. Part V concludes the analyses by discussing the role of NFTs for virtual property.

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INTRODUCTION

In 1996, Lawrence Lessig started his article on cyberspace regulation writing “Cyberspace is a place. People live there. They experience all sorts of things that they experience in real space, there.”¹ Twenty-five years later this statement has become more real than ever before. People pay millions for the virtual “real estate”

¹ Lawrence Lessig, *The Zones of Cyberspace*, 48 STAN. L. REV. 1403, 1403 (1996), <https://doi.org/10.2307/1229391>.

in the metaverse² and buy a digital image for sixty-nine million US Dollars.³ However, cyberspace dwellers still cannot “experience all sorts of things that they experience in real space”, and they cannot fully own their digital property. To be more precise, one cannot own a digital asset the way one owns his or her property in the real world. The “curse” of cyberspace is intellectual property: whatever reaches cyberspace turns into IP *licensed* to users.

To bridge this gap between the two worlds, cyber enthusiasts and crypto natives extended the use of blockchain technology trying to make digital ownership more authentic, easier, and free from unnecessary intermediaries. Today, NFTs can represent ownership of unique items like digital collectibles, digital art, in-game items, and many more,⁴ and they are widely used by digital art collectors, gamers, and individual investors. Despite their popularity, there is no universal understanding of what changes NFTs bring to the legal landscape, where their place is in the hierarchy of ownership, and even their purpose is a highly disputable question.

Can NFTs promise dawn of new digital ownership or is it a 21st-century version of tulip mania?⁵ Users and scholars have split into two camps arguing whether NFT is a unique solution for the old digital property problems or a scam targeting vulnerable users and over-optimistic investors. For some, NFT is a “crypto phenomenon”⁶ promising to grow beyond 2021.⁷ For others, NFT is a “utopian technobabble.”⁸ This paper will try to shed light on these questions.

² See Marco Quiroz-Gutierrez, *Digital Land is Selling for Millions as People Scramble to Snatch up Virtual Real Estate in the Metaverse—And It Could be a Multitrillion-Dollar Opportunity*, FORTUNE (Dec. 3, 2021, 7:00 AM), <https://fortune.com/2021/12/03/metaverse-interest-spikes-digital-real-estate-prices/> [<https://perma.cc/V8CA-5KL5>].

³ Beeple, *Everydays: The First 5000 Days*, CHRISTIE’S, <https://onlineonly.christies.com/s/beeple-first-5000-days/beeple-b-1981-1/112924> (last visited Apr. 14, 2022).

⁴ See *generally Non-Fungible Tokens*, ETHEREUM FOUND., <https://ethereum.org/en/nft/> (last visited Apr. 14, 2022).

⁵ Clive Thompson, *The Untold Story of the NFT Boom*, N.Y. TIMES MAG. (May 12, 2021), <https://www.nytimes.com/2021/05/12/magazine/nft-art-crypto.html>.

⁶ Michael J. Casey, *NFTs Take Over NYC*, COINDESK (Nov 5, 2021, 3:15 PM), <https://www.coindesk.com/business/2021/11/05/nfts-take-over-nyc/>.

⁷ Henry Alexiades, *Where Do NFTs Actually Come From? A Short History of Non-Fungible Tokens*, ALT. PRESS (Nov. 30, 2021), <https://www.altpress.com/meta/history-of-nfts-non-funfible-tokens/>.

⁸ Ryan Cooper, *The NFT Craze Has Stopped Being Funny*, WEEK (Jan. 4, 2022), <https://theweek.com/culture/arts/1008539/the-nft-craze-has-stopped-being-funny>.

I

WHAT ARE NFTS AND WHY DO WE BUY THEM?

A. *Defining the Technology*

An NFT (a non-fungible token) is a unique digital file, or a unit of data, stored on a blockchain that serves as a certificate of authenticity for an object linked to it, and contains information about any changes in ownership verified by a worldwide network. For those who have some familiarity with crypto-currencies, NFTs can be explained as unique and distinguishable tokens. Any non-fungible token is not equal to another. While fungible tokens are widely used as a currency proxy, they are interchangeable.⁹ Non-fungibility (introduced in 2017 with the EIP-721 standard) permitted NFTs to be used for the digital property transactions because it created “verifiable digital scarcity.”¹⁰ Because tokens became unique, users gained an easy tool to combine digital assets with blockchain and create a “tokenised proof of title to a unique digital version of an underlying digital asset (such as images, videos, or other digital content) or physical asset (such as paintings, sculptures, or other tangible assets).”¹¹

As mentioned above, NFTs link a token with an asset, but they (usually) do not transfer the intellectual property rights to the underlying asset to the buyer of an NFT. Moreover, a token is publicly available, and others can access the digital asset linked to it and view it just like the owner of the NFT.¹² Professor Zittrain has provided a very catchy example of what NFTs can represent: “the value of a standard NFT is more like the value of Honus Wagner’s signature on a baseball card. Now just imagine taking away the card and leaving the signature, and you’ve got it!”¹³ But why would someone want to spend millions on a signature without

⁹ Nils Urbach, *NFTs in Practice – Non-Fungible Tokens as Core Component of a Blockchain-based Event Ticketing Application*, (Fortieth International Conference on Information Systems, Munich 2019), <https://www.fim-rc.de/Paperbibliothek/Veroeffentlicht/1045/wi-1045.pdf>.

¹⁰ See Tonya M. Evans, *Cryptokitties, Cryptography, And Copyright*, 47:2 AIPLA Q.J. 219, 220 (2019).

¹¹ See generally CLIFFORD CHANCE, *NON-FUNGIBLE TOKENS: THE GLOBAL LEGAL IMPACT* (June 2021), <https://www.cliffordchance.com/content/dam/cliffordchance/briefings/2021/06/non-fungible-tokens-the-global-legal-impact.pdf>.

¹² Ralph Lerner, *Insights into Blockchain Tokens and Crypto Art’s Effect on the Art Market*, 6 J. PLI PRESS 2, 2-3 (2022), https://marketing.withersworldwide.com/reaction/emsdocuments/PDFs/Insights_into_Blockchain_Tokens_and_Crypto_Arts_Effect_on_the_Art_Market.pdf.

¹³ Jonathan Zittrain (@zittrain), TWITTER, (Apr 7, 2021, 5:08 PM), <https://twitter.com/zittrain/status/1379903895330287619>.

a card; what is the use of an NFT? This paper will try to provide some plausible answers. Stay tuned.

B. *NFT-Timeline in Four Paragraphs*

It may sound surprising, but NFTs are out there for approximately ten years, even though, this technology has not attracted exceptional attention until 2021. The concept of a representation of real-world assets on the Bitcoin blockchain was discussed as early as in 2012.¹⁴ “Colored Coins” offered methods for representing and managing real world assets on top of the Bitcoin Blockchain.¹⁵ The first NFT was minted on May 3, 2014, by Kevin McCoy, and on November 28, 2021, the digital artist sold his NFT-artwork for over \$1.4 million in a Sotheby auction.¹⁶

NFTs’ public awareness era started in 2017 with the exceptional success of the CryptoKitties game. CryptoKitties is a blockchain-based game allowing players to adopt, breed and trade virtual cats. It was developed by a Vancouver-based company, Axiom Zen, and became hugely popular soon after its release. In CryptoKitties White Pa-purr, Axiom Zen declared its aim to promote blockchain technology and educate users about technology’s potential and long-term implications.¹⁷ And they happened to become very successful in this endeavor. The game became so popular that its transactions accounted for more than 10% of the entire Ethereum traffic in early December 2017.¹⁸ Game’s popularity did not last long, but many players made huge profits trading CryptoKitties, and complicated technology entered the masses.¹⁹

2021 became the year of an NFT boom. Art and gaming became two core industries experimenting with NFTs.²⁰ This was a breakthrough year for NFTs;

¹⁴ Alexiades, *supra* note 7.

¹⁵ *Colored Coins*, BITCOIN WIKI, https://en.bitcoin.it/wiki/Colored_Coins (last visited Apr. 14, 2022).

¹⁶ Alexiades, *supra* note 7.

¹⁷ *CryptoKitties: Collectible and Breedable Cats Empowered by Blockchain Technology*, White Pa-Purr, https://drive.google.com/file/d/1soo-eAaJHzhw_XhFGMJp3VNcQoM43byS/view (last visited Apr. 14, 2022).

¹⁸ *Cryptokitties craze slows down transactions on Ethereum*, BBC NEWS (Dec. 5, 2017), <http://www.bbc.com/news/technology-42237162>.

¹⁹ Fitz Tepper, *People have spent over \$1M buying virtual cats on the Ethereum blockchain*, TECH CRUNCH (Dec. 3, 2017, 6:48 PM), <https://techcrunch.com/2017/12/03/people-have-spent-over-1m-buying-virtual-cats-on-the-ethereum-blockchain/?guccounter=1>.

²⁰ *CryptoArt Market Data*, CRYPTOART, <https://cryptoart.io/data> (last visited Apr. 14, 2022).

artists were selling their digital works for previously unheard sums,²¹ with total sales volume hitting more than \$12 billion.²²

The next several years will be decisive for the future of NFTs. With broader expansion of NFTs, we can soon expect more regulatory frameworks forming around NFTs. While users continue to experiment with possible applications of NFTs, regulators and judiciaries worldwide will try to walk NFTs through the legal gray zone.

C. *Why Do We Buy NFTs?*

Based on NonFungible.com's 2021 NFT Yearly Report, the total number of active NFT wallets was more than 2.5 million in 2021.²³ Scrolling through this data, many of us would be haunted by the question: What motivates people to buy NFTs? A very statistically unrepresentative data of a single answer by someone called "Jared Crypto Friend" in Quora shows that an NFT buyer gets NFTs because he (i) likes art and NFTs make him laugh, (ii) likes collecting useless things, (iii) likes owning something that is in limited supply, (iv) wants to play NFT video games, and (v) wants to be a part of the NFT community.²⁴ Surprisingly, this list of reasons is very close to what is discussed by more sophisticated analytics. Last spring, Professor Zittrain welcomed the NFT boom by offering an answer to this very question: "People might buy something because they think others might want to buy it for more, later."²⁵ Some users indeed use NFTs merely as an investment tool, while others see some internal value of NFTs representing a digital version of luxury goods,²⁶ which can open the door to elite communities. Jimmy McNelis, a famous NFT collector who recently became well known for

²¹ *Id.*

²² Matthew Fox, *NFT sales hit \$293 million over the past week. These were the 5 best-selling digital art collections*, MKTS. INSIDER (Dec. 7, 2021, 1:43 PM), <https://markets.businessinsider.com/news/currencies/5-best-selling-nft-collections-sales-hit-293-million-2021-12>.

²³ *Our 2021 NFT Yearly Report is Out!*, NONFUNGIBLE (Sep. 3, 2022), <https://nonfungible.com/news/corporate/yearly-nft-market-report-2021>.

²⁴ Jared Crypto Friend, Answer to *Why do people buy NFTs?*, QUORA, <https://www.quora.com/Why-do-people-buy-NFTS-1> (last visited Apr. 14, 2022).

²⁵ Zittrain, *supra* note 13.

²⁶ U. Zurich, *NFT Explosion: Why Are People Buying Digital Art?*, FUTURITY (Dec. 15, 2021), <https://www.futurity.org/nfts-nft-art-2671602-2/>.

“packag[ing]” four of his Bored Ape NFTs into a band, Kingship,²⁷ called NFTs a “cultural phenomenon”.²⁸ By buying a Bored Ape NFT, one gets a membership card for a club.²⁹ The other function NFTs can play is as celebrity merchandise. Fans are encouraged to buy NFTs just like any celebrity merch to show loyalty.³⁰ A devoted fan can now buy not only an Eminem T-shirt, but also an NFT from the Eminem NFT collection.

Last but not least, the reason why users buy an NFT is because they want to “own” a digital piece of art or in-game item. This narrow fraction of users is the key interest of this paper. Are these people tricked into purchasing expensive tokens by misleading advertisements or do they fall prey to intellectual property misconceptions?

The unregulated and ballooning field of NFTs is full of so-called dark advertisement patterns.³¹ But, surprisingly, not that many states have acted to protect consumers against misleading promotional campaigns. The UK’s advertising regulator, Advertising Standards Authority, issued a “red alert” warning regarding NFTs advertising.³² In early April 2022, the Advertising Standards Council of India also released its Guidelines for advertising of virtual digital assets

²⁷ KC Ifeanyi, *The Bored Ape Yacht Club apes into Hollywood*, FAST COMPANY (Jan. 18, 2022), <https://www.fastcompany.com/90706534/the-bored-ape-yacht-club-apes-into-hollywood>.

²⁸ KC Ifeanyi, *The King of NFTs Explains the Future of Bored Ape Yacht Club and a Whole Lot More*, FAST COMPANY (Apr. 4, 2022), <https://www.fastcompany.com/90735768/bored-ape-yacht-club-jimmy-mcnelis-king-nft-kingship-future>.

²⁹ *Neymar Joins The Celebrity NFT Club With His Own Bored Ape*, LIFESTYLE ASIA (Jan. 26, 2022, 10:15 AM), <https://www.lifestyleasia.com/sg/gear/tech/neymar-joins-the-celebrity-nft-club-with-his-own-bored-ape/> (“In Los Angeles and Hollywood, this digital token [Bored Ape NFT] can open the doors to just about any VIP event . . .”).

³⁰ Thom Waite, *OK, Are Celebrities Getting Paid to Shill NFTs?*, DAZED (Jan. 26, 2022), <https://www.dazeddigital.com/art-photography/article/55313/1/are-celebrities-getting-paid-to-shill-nfts-paris-hilton-jimmy-fallon-post-malone>.

³¹ See generally THE EUROPEAN CONSUMER ORG., “DARK PATTERNS” AND THE EU CONSUMER LAW ACQUIS: RECOMMENDATIONS FOR BETTER ENFORCEMENT AND REFORM, https://www.beuc.eu/publications/beuc-x-2022-013_dark_patterns_paper.pdf (last visited Apr. 14, 2022).

³² DAC Beachcroft, *ASA Issues a “Red Alert” Warning Regarding NFTs and Other Crypto-Asset Advertising*, MANCHESTER DIGIT., <https://www.manchesterdigital.com/post/dac-beachcroft-llp/asa-issues-a-red-alert-warning-regarding-nfts-and-other-crypto-asset-advertising> (last visited Apr. 14, 2022).

and linked services.³³ The U.S. regulations have not yet specifically addressed consumer protection in the NFT realm. While many express concerns over legal and ethical issues surrounding advertisements and celebrities endorsing NFTs,³⁴ this has triggered neither regulation nor any chilling effect.

D. NFT Ambiguity

Very few people understand what NFTs are technologically, but probably an even smaller percent of NFT buyers have any understanding of what NFTs mean legally, and what scope of rights are conveyed with an NFT. Like any new technology or any new application of an old technology, NFTs are in a “grey zone” of legal regulation. Some find that the lack of legal definiteness might be giving more freedom to users, but legal ambiguity also triggers uncertainty and higher risks.

One of the biggest uncertainties in NFT transactions is caused by technology clashes with intellectual property. Since NFTs are creatures of contract law and intellectual property, NFT license agreements fall under the regulation of mandatory IP rules, which may conflict with agreements’ terms. The main risk is that any gap in the NFT agreement will be filled in with default IP rules which were designed for intangible digital transactions, and thus may not reflect buyers’ expectations. The other risk, or surprise, for NFT buyers can be hidden in mandatory IP rules. Parties are free in their contractual arrangements only to the extent the agreed terms do not contradict immutable rules, like statutory provisions or public policy. Considering the absence of any customary practice around NFTs, courts will play a crucial role in resolving the conflicts and filling contractual and regulatory gaps. Consequently, NFT agreements leave room for courts’ consideration in a field that has no clear regulation. For instance, how will the court apply resale royalty rights in the NFT sale agreement in the U.S., where such a right was found preempted in *Close v. Sotheby’s*?³⁵ Can an NFT

³³ See Nishad Nadkarni & Khushboo Jhunjunwala, *ASCI Releases Crypto And NFT Advertising Guidelines-Effective 1 April ‘22 Onward*, LEXOLOGY, <https://www.lexology.com/library/detail.aspx?g=0619f641-58e5-4552-8e87-a0976ffe1e93> (last visited Apr. 14, 2022).

³⁴ See Amanda Mull, *Celebrities and NFTs Are a Match Made in Hell Somehow, Star Endorsements Have Found a New Low*, ATLANTIC (Feb. 4, 2022), <https://www.theatlantic.com/technology/archive/2022/02/nft-jimmy-fallon-paris-hilton-millionaire/621486/>.

³⁵ The only state where resale right was statutorily recognized was California. See California Resale Royalties Act (CRRRA), CAL. CIV. CODE § 986(a)(3), *invalidated by Close v. Sotheby’s, Inc.*, 909 F.3d 1204

contract stipulate that resale rights should be payable even after the expiration of the copyright to the underlying artwork? In the criticized *Brulotte* case,³⁶ the court found that a private agreement extending royalty payment beyond the term of the patent is unenforceable and “unlawful *per se*,” because paying royalty after the patent’s expiration contradicts the idea to make the invention publicly available after the expiration of the monopoly rights. Therefore, extending royalty payments “beyond the life of the patent is analogous to an effort to enlarge the monopoly of the patent.”³⁷

How will courts analyze the implied rights of NFT buyers under NFT licenses? If a buyer gets the only copy of a digital art, would such a buyer have standing to sue infringers in the capacity of an exclusive licensee? Let’s imagine that I acquired my unique NFT for millions of dollars, and we agreed with an artist that only one copy will be minted as NFT. However, one day I stumble upon other NFTs just like mine but minted by some random issuer. Shall I wait for the artist to sue the infringer, or can I proceed with litigation? Can I, as an NFT owner, be considered an exclusive licensee with the same scope of rights? Since while defining an exclusive license, courts are usually guided by the scope of rights,³⁸ can we expect that the standard scope of rights under an NFT license will lead courts to conclude that an NFT owner is an exclusive licensee of an artwork? Even if an owner goes beyond the standard NFT license and stipulates in a separate agreement that his NFT is the only minted copy of the artwork, will this clause be sufficient for the court to find that this license is an exclusive one?

(9th Cir. 2018), which granted visual artists a right to receive 5% of the proceeds on any resale of their artwork under specified circumstances. But this provision granting the resale rights was found preempted by the Copyright Act in *Close v. Sotheby’s, Inc.* See *Close*, 909 F.3d.

³⁶ The economic model and the logic of the court concerning an extension of royalties after the patent expiration was criticized in *Princo Corp. v. Int’l Trade Comm’n*. See generally *Princo Corp. v. Int’l Trade Comm’n*, 616 F.3d 1318 (Fed. Cir. 2010); See also *Alvarado Orthopedic Rsch., L.P. v. Linvatec Corp.*, No. 11-CV-246-IEG RBB, 2013 WL 2351814 (S.D. Cal. May 24, 2013); See also *Astrazeneca AB v. Apotex Corp.*, 985 F. Supp. 2d 452 (S.D.N.Y. 2013), *aff’d in part, rev’d in part*, 782 F.3d 1324 (Fed. Cir. 2015).

³⁷ *Brulotte v. Thys Co.*, 379 U.S. 29, 33 (1964).

³⁸ See *Illumina Inc. v. Premaitha Health Plc* [2017] EWHC 2930 (Pat) (21 Nov. 2017). The High Court of England and Wales analyzed whether licensees have standing in an infringement case and whether they were exclusive licensees even if the same rights were granted to parties’ affiliates. See also *Oxford Nanopore Technologies Ltd. v. Pacific Biosciences of California Inc.*, [2017] EWHC 3190 (Pat) (14 Dec. 2017), where the High Court of England and Wales discussed whether the existence of an option to license the patent to the third party makes the license non-exclusive.

What can a rights holder do if his work was infringed by an NFT seller (e.g., a digital artwork was minted without a rights holder's permission)³⁹? Would a rights holder be able to prohibit further downstream sales of infringing NFTs? What remedies will be available to the artist whose work was minted in violation of his copyright - transfer of the NFT to the rights holder, deletion of the NFT from the wallet of the buyer and/or blocking further NFT transfers?

The other legal question is how NFT securities will work for shared ownership of digital art. Many platforms offer buyers the option to purchase security interest in an NFT art. Can we expect courts to recognize this security interest? Clashing with IP and security regulations, shared interest in art NFTs can be a risky venture. As Katya Fisher noted, there might be a problem recognizing an interest in a registered work of art. For instance, how the rules on the perfection of the security interest affect the transactions with works of art minted as NFTs.⁴⁰

All these questions create ambiguity around NFT transactions and leave consumers at the mercy of a complicated license-based solution in a market with no established customary practices. These problems reinforced by brief and very general terms offered by NFT marketplaces make the NFT trade a risky and sophisticated craft.

E. Did Users Get it All Wrong?

The legal uncertainty discussed above is only exacerbated by the fog of users' misunderstanding. Recently, a crypto group called Spice DAO bought a rare copy of "Dune" book hoping to produce an animated series based on the book and mint them as NFTs. Happy with their purchase, Spice DAO tweeted : "[w]e won the auction for €2.66M. Now our mission is to: 1. Make the book public (to the extent permitted by law). 2. Produce an original animated limited series inspired by the book and sell it to a streaming service. 3. Support derivative projects from the

³⁹ Infringing use can be less straightforward than just minting without a license to use the asset. Very often, the initial rights holder permits creation of a derivative work only in one defined medium. If this is the case, then the copyright owner of the derivative work cannot use the derivative work in a new medium. See M. Nimmer, NIMMER ON COPYRIGHT § 45.3.

⁴⁰ Katya Fisher, *Once upon a Time in NFT: Blockchain, Copyright, and the Right of First Sale Doctrine*, 37 CARDOZO J. ARTS & ENT. L. J. 629, 632 (2019).

community.”⁴¹ It is likely Spice DAO thought that owning a copy of the book will automatically transfer IP rights in its contents to them. This story is not specifically about NFTs, rather it shows that some crypto natives (and even crypto trailblazers) have a very vague understanding of copyright law. If Spice DAO believed that a book for two million euros should have conveyed some extra rights (probably because it was so expensive and sold by Christie’s), one can hardly imagine what their conceptions about NFT rights might be. Likewise, we can only guess how many NFT buyers hope to get something more than just a copy of the digital file when they pay an unbelievably high price for the image that is publicly available and can easily be copied by anyone.

Many users perceive NFTs as a tool to “own” a digital asset. By “own”, people usually mean to be able to sell an item freely or otherwise transfer it to other buyers. This need was especially acute for communities like that of gamers or art collectors. Gamers have never fully enjoyed ownership of their virtual assets, and historically any property transaction beyond the game world operated in a gray area. If a player’s account gets blocked or a game is taken down, then a player loses all his in-game currency and items.⁴² Art collectors were also those looking for easier ways to convey the title and expand the market for digital art. Both communities became active users of NFTs, but when the art community overall reacted very positively to NFTs, attempts to implement NFTs by major game publishers triggered ardent criticism. Did art collectors get it all wrong just like Spice DAO, or do these users simply have different needs?

II

TWO VIEWS ON NFTs: ART AND GAMING

A. *NFTs in Art*

To understand what makes art collectors happy about NFTs, one can investigate what legal tools were used by the art community before NFTs. Purchasing an oil painting, a buyer traditionally got personal property rights to the

⁴¹ Spice DAO (@TheSpiceDAO), TWITTER, (Jan. 15, 2022, 12:28 PM), <https://web.archive.org/web/20220116200947/https://twitter.com/TheSpiceDAO>.

⁴² Everest Ventures Group, *How Can we Implement True Ownership in Video Games?*, MEDIUM (Jul. 22, 2019), <https://medium.com/evg-virtual/how-can-we-implement-true-ownership-in-video-games-c6de735ea266>.

physical object, namely canvas, and only limited rights to the underlying work. The owner got the right to publicly display the painting without the artist's permission, resell it, and make copies in very rare circumstances. To make it clear, the display right was limited to the display of the original work, not its copies (with some exceptions that apply to advertising the sale of the artwork). The owner of the copy did not get the right of reproduction (i.e., making copies). Based on the first sale doctrine, codified in the Copyright Act,⁴³ the owner of a painting can “sell or otherwise dispose of the possession of that copy” and “display that copy publicly” without the authorization of the rightsholder.⁴⁴ The default rule is that copyright is retained by the artist unless there is a contract assigning intellectual property rights to the buyer.⁴⁵

This brief sketch of the legal landscape in the art world makes it easier to draw a parallel with NFTs. Art collectors have long ago embraced the concept of duality between the physical object and the copyrighted work itself and do not expect that purchasing a copy of Warhol will give them the right to reproduce this artwork. More than that, art collectors have even accepted the idea of getting nothing tangible but a diagram instructing how to draw the painting.⁴⁶ Digital artists did not expect NFTs to replace canvas because many of them have long ago given up on the idea of an art tangibility. Conceptual artists, like Bill Viola, have “minted” their own NFTs by selling plasma screens and speakers with a copy of his video artwork “The Last Angel.”⁴⁷ But, even though the conceptual artist embraced the immateriality of art, a lack of tangible form imposed a list of risks for the owners. Peter Karol has highlighted the core legal challenges of

⁴³ See Copyright Act, 17 U.S.C. § 109. “Limitations on exclusive rights: Effect of transfer of particular copy or phonorecord. (c) Notwithstanding the provisions of section 106(5), the owner of a particular copy lawfully made under this title, or any person authorized by such owner, is entitled, without the authority of the copyright owner, to display that copy publicly, either directly or by the projection of no more than one image at a time, to viewers present at the place where the copy is located.”

⁴⁴ US. COPYRIGHT OFFICE, RESALE ROYALTY RIGHT, <https://www.copyright.gov/docs/resaleroyalty/> (last visited Apr. 14, 2022).

⁴⁵ See Copyright Act, 17 U.S.C. § 201. (Copyright vests initially in the author or authors of the work, unless the work was commissioned as a work made for hire).

⁴⁶ See Peter Karol, *The Threat of J. Copyright Soc. U.S. Termination in a Dematerialized Art Market*, 64 J. COPYRIGHT SOC. U.S. 187 (17-01 Boston Legal Studies Rsch. Paper Series) (2016) (discussing the copyright risks for conceptual art via illustrative example of Sotheby's auction bid for Sol LeWitt's work Wall Drawing No. 515. The winner paid \$167,000 for a diagram describing how to paint the work and a certificate of authenticity).

⁴⁷ See *id.*

“non-object-based art” in works of conceptual artists: (i) conceptual art requires a copyright license to be publicly shown; (ii) intellectual property rights to the art object can be terminated under Section 203 of the US Copyright Act.⁴⁸ Even though these problems seem more acute, for digital artists, NFTs became famous for the following solutions: NFTs helped artists gain recognition, get income from the previously unexplored market, track royalties, simplify sales, avoid middleman and fight IP infringements (the last one is true only to the extent NFTs help to track the use of NFTs).⁴⁹

In the age of mechanical reproduction, the lack of uniqueness became one of the main threats imposed on art by new digital mediums. Unlike rivalrous goods, IP assets can be used multiple times by many users and do not lose their value. Thus, even high demand can be easily met, which will naturally drag the price down. To create an artificial scarcity, authors traditionally exercised their exclusive rights limiting users’ ability to copy the work and make it available to others. All copies of the work had identical value to the users unless something makes them unique, and for a long time, it was a challenge to make a unique digital copy of a work. When so-called “computer art” was at its dawn in 1991, Tad Crawford asked a question about what art collectors would get from a purchase of a “computer art” if there is no copy and they get no intellectual property rights.⁵⁰ Crawford questioned what would incentivize collectors to purchase art which can be reproduced and sold by the artist *ad infinitum*, and predicted that art collectors would want to own intellectual property rights to the digital art.⁵¹ However, expansion of conceptual art proved empirically that many collectors are fine with just a certificate of authenticity.⁵² Even for conceptual art, rarity still matters. An interesting solution for this problem was suggested then by Jonathan C. Jackson. He proposed that a contractual arrangement between the parties can

⁴⁸ See *id.* at 197.

⁴⁹ NFT or any other blockchain technology can assist with the fight against counterfeit products by providing an easy way to demonstrate and prove the existence and uniqueness of a product. It can also enable enforcement authorities easily to detect counterfeit products. See Gonenc Gurkaynak et al., *Intellectual Property Law and Practice in the Blockchain Realm*, 34:4 COMPUT. L. & SEC. REV., 847-862, 854 (August 1, 2018).

⁵⁰ See Jonathan C. Jackson, *Legal Aspects of Computer Art*, 19 RUTGERS COMPUT. & TECH. L. J. 495, 504-05 (1993) (citing Tad Crawford, *Protecting Artists: An Attorney Speaks Out on Computers, Fine Art, and the Law* 112, COMPUTER GRAPHICS WORLD (1991)).

⁵¹ See *id.* at 504.

⁵² See Karol, *supra* note 46, at 212.

potentially solve the problem of digital uniqueness. He suggested an arrangement where an artist and a buyer enter a contract under which the artist promises not to generate more than one copy of the work.⁵³ Remarkably, NFTs are not exactly tackling this problem. Nothing prevents an author from minting more and more NFTs, even though the “value” of the first copy or edition is deemed to be higher. When Amir Soleymani submitted this bid for Beeple’s NFT Abundance, he hoped to get the first edition of the work, and he was shocked to find out that other “less successful” bidders could also pay for the other editions of the work.⁵⁴

NFTs still somehow limit the number of copies by creating visible distinction between editions and creating the possibility “to separate the “owner” of a digital artwork from someone who just saved a copy to their desktop”.⁵⁵ The fact that Soleymani could differentiate between the versions enabled easier monetization of digital art through new channels.⁵⁶ To be precise, it was possible to create tangible versions even before NFT-era; in the example provided by Karol, Viola created tangibility for his video works by selling the copies with plasma screen and speakers.⁵⁷ Compared to a plasma screen, NFTs look like a more handy way to solve the problem of uniqueness.

NFTs also revived the aura of an *objet d’art*, which Walter Benjamin feared could be erased in the Age of Mechanical Reproduction.⁵⁸ Beyond rarity, NFTs gave a more profound sense of authenticity. Buyers have tools to check the publicly available record of transactions and see whether it is indeed a work minted by Beeple. The difference between NFT and an ordinary copy is very subtle, while it is a different experience looking at the original Mona Lisa and its digital copy. It is true; however, the similarity was never a concern in the art world. One can make an ideal replica of the Mona Lisa (though not as close as a completely identical copy of a digital artwork), but no one will pay the same price for the reproduction as they are

⁵³ See Jackson, *supra* note 50, at 505.

⁵⁴ See Riah Pryor, *Art collector sues NFT platform Nifty Gateway over Beeple auction*, ART NEWSPAPER (Oct. 1, 2021), <https://www.theartnewspaper.com/2021/10/01/art-collector-sues-nft-platform-over-beeple-auction>.

⁵⁵ See Steve Kaczynski & Scott Duke Kominers, *How NFTs Create Value*, HARV. BUS. REV. (Nov. 10, 2021), <https://hbr.org/2021/11/how-nfts-create-value>.

⁵⁶ See generally Clifford Chance, *supra* note 11.

⁵⁷ See Karol, *supra* note 46, at 187.

⁵⁸ See generally WALTER BENJAMIN, *THE WORK OF ART IN THE AGE OF MECHANICAL REPRODUCTION* (1935).

paying for the original. The authenticity of the work is what matters, and it matters to the extent that people are ready to buy invisible art.⁵⁹ NFTs give this sense of authenticity by keeping all transactions and the original creator information in its “NFT contract”.

Beyond opening a new market, NFTs promise recognition to previously unknown or amateur artists. Before NFTs, many digital artists were in the shade. They predominantly worked with B2B transactions either as employees of a company developing a product, e.g., a video game, or as independent entrepreneurs. In both cases, they usually signed a work for hire agreement and transferred all rights to the created art. Their works were part of a final product and rarely got any separate recognition or credit. Very few artists were able to make a name and become famous as stand-alone digital artists. Amateur content, like popular memes, also went viral without bringing recognition to its original creator. Once digital work was released online, its original creator was hard to trace back. But with NFTs, the original author can always be found and verified. As Noah Davis, head of digital sales at Christie’s, commented: NFTs opened many opportunities for young artists to create a “space that values community and the identity of the artists behind the project.”⁶⁰ Many artists, including those beyond the US, recognize this “democratizing function behind NFTs” making art more available for not just traditional collectors.⁶¹

NFTs give digital artists one more valuable tool: an ability to control the use of their work and benefit from its success. In a pre-NFT world, an artist either gave away rights to their works in B2B framework or struggled to monetize their works and benefit from their success on the art scene. NFTs, namely smart contracts and the new EIP-2981 standard, enabled embedded resale rights.⁶² The percentage of resale rights usually depends on the platform (for instance, Zora offers creators to

⁵⁹ See Taylor Dafoe, *An Italian Artist Auctioned Off an ‘Invisible Sculpture’ for \$18,300. It’s Made Literally of Nothing*, ARTNET (June 3, 2021), <https://news.artnet.com/art-world/italian-artist-auctioned-off-invisible-sculpture-18300-literally-made-nothing-1976181>.

⁶⁰ See Raisa Bruner, *Teen Artists Are Making Millions on NFTs. How Are They Doing It?*, TIME (Sept. 7, 2021), <https://time.com/6093982/nft-art-teens-money/>.

⁶¹ See The NFT Agency, *The NFT Agency Adds World-Renowned French Artist — Tom Fabia — to its All-Star List of Creators*, MEDIUM (Sept. 17, 2021), <https://thenftagency.medium.com/the-nft-agency-adds-world-renowned-french-artist-tom-fabia-to-its-all-star-list-of-creators-816181f102d3>.

⁶² See Zach Burks et al., *EIP-2981: NFT Royalty Standard*, ETHEREUM IMPROVEMENT PROPOSALS (Sept. 15, 2020), <https://eips.ethereum.org/EIPS/eip-2981>.

set a perpetual ownership stake in their work to get a share of the sale every time ownership changes hands),⁶³ but the fact that this mechanism exists makes it much easier to set up and receive resale royalties.

These core possibilities offered by NFTs explain why digital artists are welcoming NFTs. They indeed opened a new market for them and made transactions in digital art much easier.

Collector's perspective of NFTs is slightly different: for collectors the core value of an NFT is about easy transfers of the work. Easy transfer in a physical meaning rather than legal. Blockchain entrepreneur and Beeple's 69 million-dollar NFT buyer Vingaresh Sundaresan, says that NFTs are "ten times better than traditional art" because NFTs are easily transferable, they have no storage costs, and buyers can easily share ownership in the artwork.⁶⁴

Indeed, NFTs offer relatively easy transfers. Unlike physical artworks, NFTs and digital art, in general, are not subject to any territorial restrictions on art export. In many countries buyers need to get a license to export the work of art.⁶⁵ Due to these logistic difficulties and tax reasons many art collectors keep their artworks in so-called freeports, which are storage facilities not falling under the territorial jurisdiction of any country.⁶⁶ Art collections are subject to taxation only after the painting leaves the facilities of such storage.⁶⁷ To this extent, NFTs are used as an effective and easy way to invest in art, helping to save money on storage and ownership transfers.

Moreover, if the artwork is too expensive, it can be tokenized into NFT, and the buyer can only get part of the work. Consequently, every such NFT holder can

⁶³ See ZORA: *Universal Media Protocol Whitepaper*, GITBOOK, <https://ourzora.gitbook.io/zoraos/dev/smart-contracts/whitepaper> (last visited Apr. 14, 2022).

⁶⁴ See Marco Castrovilli, *NFTs 'Ten Times Better' Than Traditional Art, says Beeple's \$69m NFT Buyer*, COINTELEGRAPH (Apr. 3, 2021), <https://cointelegraph.com/news/nfts-ten-times-better-than-traditional-art-says-beeple-s-69m-nft-buyer>.

⁶⁵ See ALBERT E. ELSÉN & JOHN H. MERRYMAN, *LAW, ETHICS, AND THE VISUAL ARTS* (3d ed., 1998).

⁶⁶ See Samuel McIlhagga, *The Role of Freeports in the Global Art Market*, ARTSY (July 14, 2017) <https://www.artsy.net/article/artsy-editorial-freeports-operate-margins-global-art-market>.

⁶⁷ Talia Berniker, *Behind Closed Doors: A Look at Freeports*, CTR. ART L. (Nov. 3, 2020), <https://itsartlaw.org/2020/11/03/behind-closed-doors-a-look-at-freeports/>.

resell her part. This will “fractionalize artworks and create equity instruments.”⁶⁸ In 2018, Masterworks, an investment platform, offered fractionalized art ownership as an investment tool. Masterworks purchased Andy Warhol’s “1 Colored Marilyn” and resold the artwork as joint ownership to more than 1,300 investors.⁶⁹ This sounds like a fascinating new opportunity, but joint art ownership mechanisms existed far before NFTs appeared on the art landscape. Art Share and similar investors offered partial ownership in art by purchasing art and allowing investors to purchase their desired number of shares. After Art Share sells the work, they distribute the profits according to the shares owned by each investor.⁷⁰ From this perspective, NFTs do not create any unique mechanism for investment, but rather facilitate and simplify already existing fractionalized art ownership.

Even though NFTs generally meet collectors’ expectations, this fact alone does not safeguard the art industry from some NFT-missteps. On the one hand, NFTs opened a new market for digital artists and partially removed intermediaries, on the other hand, NFTs triggered an inflow of inexperienced investors. Meanwhile, in contrast to the traditional art, NFTs create more ambiguity. There is no standard market practice for NFTs; NFT trading platforms offer varying terms, and many buyers still do not fully understand how IP rights correlate with the copy of the work.

To some extent NFT euphoria in the collectors’ community still can be explained by the misunderstanding of the relevant IP questions. NFTs “went public” and attracted many inexperienced buyers who had no idea what rights NFT conveyed. One can expect an experienced buyer to be accustomed to getting nothing after paying \$167,000 and walking away with a diagram showing how to paint the work from scratch,⁷¹ but many new investors might have very different expectations about what they got. Yet, despite some scandalous misunderstandings, the art world

⁶⁸ Quinlyn Manfull, *Understanding Fractional Art Investing*, MASTERWORKS (August 26, 2022), <https://insights.masterworks.com/alternative-investments/art-investing/understanding-fractional-art/>.

⁶⁹ *Masterworks Launches First Blockchain Platform for Public to Invest in Iconic Works of Art*, PR NEWswire (May 10, 2018), <https://www.prnewswire.com/news-releases/masterworks-launches-first-blockchain-platform-for-public-to-invest-in-iconic-works-of-art-300646721.html>.

⁷⁰ *How It Works*, ART SHARE, <https://www.artsharesales.com/en/how-it-works/> (last visited Apr. 15, 2022).

⁷¹ See Karol, *supra* note 46, at 187.

is overall content with NFTs because it gives them what they need: easy transfers. While communities which look for ownership are not happy.

B. *NFTs in Video Games*

In the video game community, NFTs were accepted much less positively. This can be explained from two perspectives. First, gamers are not art collectors, they need ownership rather than a “warm feeling” of sponsoring a young artist.⁷² Second, video game publishing companies are not digital artists who need recognition and financing. These two core differences frame the perception of NFTs in gaming and explain why many players were expecting from NFTs more rights than they were able to convey.

Digital in-game assets are closer to physical assets than digital art. Gamers have a long history of struggles with publishing companies to get more rights to their digital content.⁷³ Gamers want to control their digital assets, freely sell them and, ideally, use them outside of the game world. Players need assets to explore and interact with virtual environments and develop their avatars. Virtual assets show social status, as well as physical goods, and exclusivity of the owned assets is valued as an indicator of skills, seniority in game or money spent. Because many social factors are not visible in games, observable in-game items play a social role.⁷⁴ But unlike members of the Bored Ape club, many gamers want not just entrée into clubs, or a social media avatar, instead, many need more than just social signals. Gamers also need a kind of possession that you may have over real-world property.

Gamers need broader ownership. They had “easy transfers” before NFTs. The only problem was that those “easy transfers” violated game license terms.

⁷² See Jonathan Zittrain & Will Marks, *What Critics Don't Understand About NFTs*, ATLANTIC (Apr. 7, 2021), <https://www.theatlantic.com/ideas/archive/2021/04/nfts-show-value-owning-unownable/618525/> (Professor Zittrain commented that NFT buyer “gets three things: the warm feeling that may accompany financing an artist; the pride that comes with claiming a relationship to a digital artifact and its creator; and perhaps most tangibly, an asset that can be traded at a later date”).

⁷³ See Christopher J. Cifrino, *Virtual Property, Virtual Rights: Why Contract Law, Not Property Law, Must be the Governing Paradigm in the Law of Virtual Worlds*, 55 B.C. L. REV. 235, 261 (2014) Users invest so much time, effort, and money into their virtual property that they expect a scope of rights and protections equal to the real-world property.

⁷⁴ See J. Cleghorn and M. Griffiths, *Why do Gamers Buy 'Virtual Assets'? An Insight Into the Psychology Behind Purchase Behaviour*, 27 DIGIT. EDUC. REV. 85, 91 (June 2015).

Traditional in-game assets management is a contract-based system where users license in-game assets. A player does not own or fully control the item. Most game licenses do not permit transfers of assets or accounts between players, and a user can be banned for the license violation and lose access to his account, as well as any owned asset. So, when users dream about the “Ready Player One” type of virtual reality, they do not see a world where they still license all their virtual possessions, and they do not own their game account to the extent that access to it can be revoked at any time. Due to these restrictions, in-game assets have no intrinsic value outside the game since players cannot trade these assets in secondary markets and get real money selling their digital assets.⁷⁵

Implementation of NFTs in gaming and so called “play to earn games” was an effort to make in-game assets transferable and externally tradable. But when NFTs “came” with licensing terms, many gamers were not accepting them as gladly as art collectors. Not surprisingly, users were outraged to see that Ubisoft Quartz’s Terms of Use for NFTs stipulated that IP rights to the underlying asset were not transferred.⁷⁶ Players own only the “Digit”, while the “Visual Representation”, which is the underlying asset, is only licensed to users for personal, non-commercial use, and as part of the game experience. Users can transfer Digits (NFTs) through Rarible or Objkt marketplaces.⁷⁷ Ubisoft was not alone in their attempt to license NFT. One of the most popular NFT games, Axie Infinity, offering trading or breeding monsters, functions very similar to Ubisoft’s model. Users get only the license to use the asset, and if Axie NFT generates more than USD 10,000 in revenue, then the NFT owner must sign an additional official license agreement.⁷⁸ Similarly, the well known CryptoKitties limited the rights of the NFT owner to sell Kitties on the platform or third-party application, which can verify each Kitty owner’s rights.⁷⁹ These terms are far from ownership rights, and it seems misleading to say that a player owns a NFT, while he is limited by the license to certain types of use and platforms. Compared to the traditional art world, it is

⁷⁵ See Vincenzo Giuffr , *How to market publishers’ rights for NFT in gaming and gambling*, GAMING TECH. L. (Dec. 24, 2021), <https://www.gamingtechlaw.com/2021/12/nft-gaming-gambling.html>.

⁷⁶ See *Ubisoft Quartz Terms of Use. Art. 5.1: You own the NFT*, UBISOFT QUARTZ, <https://legal.ubi.com/ubisoftquartzterms/en-US> (last visited Apr. 15, 2022).

⁷⁷ *Id.* at Art. 4.2: Transfer your digits.

⁷⁸ See *Terms of Use*, AXIE INFINITY, <https://axieinfinity.com/terms/> (last visited Apr. 15, 2022).

⁷⁹ See *Terms of Use*, CRYPTOKITTIES, <https://www.cryptokitties.co/terms-of-use> (last visited Apr. 15, 2022).

like imposing a limitation to display the canvas only inside one museum, or limit resales only to Christie's.

NFT licensing restrictions and the pretense of “new ownership” divided the gaming community. Some companies were eager to reshape the game economy to accommodate NFTs, while others remained skeptical. Phil Spencer, a head of gaming in Microsoft, had named active implementation of NFTs in games as “exploitive.”⁸⁰ Valve banned the use of NFTs in games and NFT-based games from Steam allegedly over concerns about fraud and volatility.⁸¹ Players are also very skeptical of new monetization mechanisms, perceiving NFTs as a part of the play-to-win and play-to-own model. Recently, Ukrainian game development studio GSC Game World, a producer of the famous Stalker franchise, renounced their plans to integrate NFTs in their new shooter.⁸² The change of production plans was triggered by the players' pushback.

But NFTs' critique in the gaming world does not translate into rejection. Some companies still see their NFT policy as a competitive advantage. Epic CEO Tim Sweeney has said “the NFT space is filled with scams,” but once Valve banned NFTs, Epic announced that they are open to blockchain games and NFTs on their platform.⁸³ Zynga, a market leader in mobile game development, has recently announced its cooperation with Forte aimed to “create more economic opportunities for players in blockchain gaming”⁸⁴ and EA calls NFTs and the blockchain “the future of our industry.”⁸⁵ Technologically, blockchain can offer

⁸⁰ Stephen Totilo, *Xbox chief wary of “exploitive” NFT gaming projects*, AXIOS (Nov. 16, 2021), <https://www.axios.com/xbox-exploitive-nft-gaming-projects-cb3d885f-694c-462d-bcb1-a24c892db32f.html>.

⁸¹ Joseph Knoop, *Steam Bans All Games with NFTs or Cryptocurrency*, PC GAMER (Oct. 15, 2021), <https://www.pcgamer.com/steam-bans-nfts-cryptocurrencies-blockchain/>.

⁸² S.T.A.L.K.E.R. OFFICIAL (@stalker.thegame), TWITTER (Dec. 16, 2021, 6:16 PM), https://twitter.com/stalker_thegame/status/1471620399997886472.

⁸³ Mitchell Clark, *Epic says it's ‘open’ to blockchain games after Steam bans them*, VERGE (Oct. 15, 2021), <https://www.theverge.com/2021/10/15/22729050/epic-game-store-open-to-blockchain-cryptocurrency-nft-games>.

⁸⁴ *Zynga and Forte Announce Strategic Partnership to Drive Rapid Development, Create More Economic Opportunities for Players in Blockchain Gaming*, ZYNGA (Dec. 21, 2021), <https://www.zynga.com/blog/zynga-and-forte-announce-strategic-partnership-to-drive-rapid-development-create-more-economic-opportunities-for-players-in-blockchain-gaming/>.

⁸⁵ See Wesley Leblanc, *EA CEO Says NFTs and Blockchain Games Are The Future Of Our Industry” And That He’s Unsure Of How That’s Going to*

unique advantages over traditional online games by safely storing gaming data⁸⁶ and creating secondary markets for asset sales. While NFTs are still far from giving “true ownership” to players, having this possibility to trade in-game assets is already a big change because very few gaming companies offered the possibility to trade in-game assets before.⁸⁷

Another problem is that NFTs are perceived by many players as a way to generate additional profits for game companies instead of a tool for giving gamers more rights. If companies wanted to give gamers true ownership, they could remove contract restrictions to sell in-game items. In-game assets sales are limited by many game EULAs imposing risks of account bans and termination of license in case users violate EULA and sell their digital assets. Despite promises, for the gaming industry, NFTs have not created a “Ready Player One” type of virtual reality. The dream of owning one’s own avatar like he or she could own a physical car has yet to come true. When Cointelegraph advertises NFTs as enabling gamers to have digital property rights, it fails to mention the scope of these “digital property rights”.⁸⁸ Players still cannot own their avatar like a tangible item and transfer it from one game to another because it is not technically possible (for now) to incorporate in-game assets from one game to another. The concept of ‘items traveling between games’ is still science fiction. Game engines do not permit importing and exporting assets from game to game. Moreover, the game-asset as seen inside the game is enabled by game-engine tools and plugins, which cannot be imported together with the game asset. To incorporate them in the game one would need to “rebuild the behaviors in equivalent modules”⁸⁹

Work, GAME INFORMER (Nov. 5, 2021), <https://www.gameinformer.com/2021/11/05/ea-ceo-says-nfts-and-blockchain-games-are-the-future-of-our-industry-and-that-hes-unsure>.

⁸⁶ Min T. et al., *Blockchain Games: A Survey*, (IEEE Conference on Games 2019), <https://ieeexplore.ieee.org/document/8848111>.

⁸⁷ Almost all video games limit transfers and sales of in-game assets and contain provisions such as “You may not transfer, sell, gift, exchange, trade, lease, sublicense, or rent Game Currency or Content except within the Software and as expressly permitted by Epic.” See *Fortnite End User License Agreement*, FORTNITE, <https://www.epicgames.com/fortnite/en-US/eula>.

⁸⁸ See Yat Siu, *NFTs make it possible for gamers to have digital property rights*, COINTELEGRAPH (July 4, 2021), <https://cointelegraph.com/news/nfts-make-it-possible-for-gamers-to-have-digital-property-rights>.

⁸⁹ See Christinna Pollock, *NFT Fantasy: Why Items-as-NFTs Does Not Enable Transfer Of Assets Between Games As usual, everything is more complicated than it looks*, SUBSTACK: LOAD-BEARING TOMATO (Dec. 23, 2021), <https://chhopsky.substack.com/p/nft-fantasy-why-items-as-nfts-does?s=r>; see also Rami Ismail (@the_rami), TWITTER (Jan. 10, 2022, 12:01 AM), https://twitter.com/tha_rami/status/1480404401688883201.

NFTs have highlighted once again that the copyright-based digital ownership model needs to be changed to trigger real evolution of digital ownership. Trying to marry IP and personal property rights in digital space will not result in a physical analogue of tangible property ownership, but more discussions about what NFTs can do for digital ownership will follow.

III

VIRTUAL OWNERSHIP AND SOLUTIONS OFFERED BY TOKENS

A. *What Does it Mean to Own Virtually?*

Twenty years ago, in the *Crypto Anarchist Manifesto*, Tim May predicted that the new era of the internet would “dismantle the barbed wire around the intellectual property”.⁹⁰ However, instead, cyberspace became governed by intellectual property. Nowadays, intellectual property law is the basis for any type of digital ownership. But even decades after Napster, users still cannot fully embrace the new power of intellectual property and refuse to accept that whatever they “own” online, starting from their music album to personalized avatar, is not actually theirs.

Not everything owned by users in digital space is intellectual property *per se*. Some assets were traditionally regulated by intellectual property rights, such as books or images, but there are assets that would have been regulated by personal property rights in a physical world, such as in-game goods, personal accounts, personal copies of books, etc. However, due to the nature of cyberspace, anything done within it constitutes copying, as nothing is embedded in a physical form to constitute a personal copy. Initially, Web 3.0. technology enabled unlimited copying and created fertile ground for copyright infringements, but in twenty years, Web 3.0. became the world of IP rightsholders. Now, almost all assets in cyberspace are intellectual property. It turned out that ease of copying made users less free instead of giving them complete freedom, and it became a blessing for copyright owners.⁹¹

⁹⁰ Timothy C. May, *The Crypto Anarchist Manifesto*, ACTIVISM (Nov. 22, 1992, 12:11 PM), <https://www.activism.net/cypherpunk/crypto-anarchy.html>.

⁹¹ See Evans, *supra* note 10, at 227; see also Mark A. Lemley & R. Anthony Reese, *Reducing Digital Copyright Infringement Without Restricting Innovation*, 56 STAN. L. REV. 1345, 1374-75 (2004).

If the digital world is a realm of intellectual property, then what is virtual property? The role of virtual property is questionable. This is an area of high uncertainty and heated legal debates. Even though intellectual property is not the best regime to fit virtual property it seems that the lack of tangibility strongly fixes virtual property in the realm of intellectual property.⁹² Today, we live in the era of IP and contract-regulated Internet. Digital assets are controlled by EULAs, and terms of use strictly limit what a user can do with his or her account or digital assets. In this reality, digital assets “are not a form of the property but rather a creature of contract” reflecting company interests.⁹³ Therefore, virtual property is not a property as such, unless it has tangibility. Yet, the requirement of tangibility is not essential to justify the existence of the virtual property, the lack of tangibility seems to be one of the main reasons why the notion of digital goods still orbits around intellectual property.

Professor Fairfield suggests that virtual property should be treated like real-world property because it shares three legally relevant characteristics with real-world property: rivalrousness, persistence, and interconnectivity.⁹⁴ Digital goods are non-rivalrous, but digital property (e.g., in-game assets, domain names) is usually rivalrous. Only one entity can register and use a domain name, even though there can be a potentially infinite number of domain names (one who faced a cyber squatter knows how much you may need that specific domain name). In-game assets are also unique in some sense. A game may allow thousands of copies of digital assets for all users, but usually game economy limits the number of rare assets, e.g., any valuable shield, and one needs to play for hours or spend money to get the one. So rivalrousness is not necessarily the same limiting factor as it is in the real world. Even though the virtual property is based on code, it incorporates the properties of the real-world property and thus should be regulated by the property law.⁹⁵ Property on the Internet is also persistent because it exists at the server and can be accessed through different devices, and this is also why the digital property is interconnected and we all perceive it identically. Whether tangibility,

⁹² Wian Erlank, *Property in Virtual Worlds*, 258-59 (Dec. 2012) (J.S.D. dissertation, Stellenbosch University), <http://dx.doi.org/10.2139/ssrn.2216481>.

⁹³ Natalie M. Banta, *Property Interests in Digital Assets: The Rise of Digital Feudalism*, 38 *CARDOZO L. REV.* 1099 (2017).

⁹⁴ See Joshua Fairfield, *Virtual Property*, 85 *B.U. L. REV.* 1047, 1053 (2005), <https://www.repository.law.indiana.edu/facpub/1787>.

⁹⁵ See *id.* at 1054.

rivalrousness, persistence, and interconnectivity, are the core characteristics that justify the classification of virtual property as the property is questionable,⁹⁶ but we can use these characteristics as a guide to understand whether the legal regime of property will fit digital property.

Discussion about the place of the digital property matters not only from the theoretical standpoint; it directly correlates with the scope of rights and protection a digital owner has. The scope of ownership rights for digital goods is usually much smaller.⁹⁷ Tangible property can be freely transferred, inherited, and its owner can enjoy a range of legal protections unavailable for digital goods (e.g., theft of digital assets inside the game world). In the real world, a buyer can get her copy of a book and resell it. In digital space, even functional copies constitute copying under the Copyright Act, and users can be shielded from the infringement only by licensing or under the fair use doctrine, with an exception to “archival” copy under section 117 of the Copyright Act.⁹⁸ In digital space, where all ownership is regulated by intellectual property and contracts, copyright holders impose all kinds of restrictions that they could not have imposed on physical copies. Once we buy a copy of a book, we can hold it forever, and rights holders cannot restrict our right to sell the used book,⁹⁹ nor can they “delete” our bookshelf with dozens of legally purchased copies just because we infringed copyright on one of the books, let’s say, by making unauthorized copies. However, in digital space, our virtual bookshelf can be easily deleted if we violate the contract terms. Some buyers got used to this reality of constant dependency on contracts and accepted that a collection of

⁹⁶ See Charles Blazer, *The Five Indicia of Virtual Property*, 5 PIERCE L. REV. 137, 142 (2006), http://scholars.unh.edu/unh_lr/vol5/iss1/8. Different authors suggest alternative or additional characteristics. Charles Blazer offers two additional characteristics: (i) availability of secondary markets; and (ii) value-added-by-users.

⁹⁷ Theoretically a broad and user-friendly EULA can grant scope of rights equivalent to those we can get owing to tangible property. But even in this case, the fact that your ownership is license-dependent already provides less certainty and fewer protections.

⁹⁸ See *Copyright and Digital Files*, COPYRIGHT.GOV, <https://www.copyright.gov/help/faq/faq-digital.html> (last visited Apr. 15, 2022).

⁹⁹ Based on the first sale doctrine, codified at 17 U.S.C. 109, a buyer who gets a copy of a copyrighted work from the copyright holder receives the right to sell, display or otherwise dispose of that copy. The first sale doctrine does not give the right to produce unauthorized copies of the work, so the buyer is not free to multiply the purchased book by millions of copies, but one can use and sell the copy that he or she has legally purchased.

Kindle books can be taken away anytime¹⁰⁰ some may not have even realized this risk of “erasal” and have not fully embraced that they do not own their e-books and have only the right to use this content.¹⁰¹

One group of users was notoriously unhappy with the IP-contract-based universe of digital ownership and longed for a “true possession.” Since the dawn of the virtual world, tangible property has been a certain standard of what we can dream to have in cyberspace. The dream was that one day you may own a digital car in GTA just like you own your real-world car. You will not be able to touch it, but you shall have the right to sell it, store it, inherit it, or get some legal recourse in case of theft.

The reality, however, was very different. Just like readers of e-books, video game players could not own their virtual property. Some video game publishing companies permit a broader scope of ownership rights, but those are a minority. The market is dominated by games, which do not allow players to freely buy, trade and sell virtual property.¹⁰² Because digital ownership and virtual property were built on top of intellectual property rights, they remain a legal fiction. Your rights to the in-game avatar exist only in the contract-based matrix where whatever you can do with your avatar is defined by EULA, and this dependency of the copyright holder creates many clashes between the desired scope of ownership rights and the licensed rights.

One may wonder whether the digital ownership problem is a problem at all. Beyond unhappy videogame players and inattentive e-book licensees, what is the risk of the status quo? Among myriad possible explanations varying from the natural right to own to the utilitarian justifications, I find Fairfield’s argument of “balancing rights” sufficiently persuasive to trigger further discussion about a solution to digital property problems. Fairfield argued that extending property law

¹⁰⁰ See *Kindle Store Terms of Use*, AMAZON, <https://www.amazon.com/gp/help/customer/display.html?nodeId=201014950> (last visited Apr. 15, 2022) (explaining that Kindle offers only “a non-exclusive right to view, use, and display such Kindle Content”).

¹⁰¹ See Aaron Perzanowski & Chris J. Hoofnagle, *What We Buy When We 'Buy Now'*, 165 UNIV. PA. L. REV. 5 (2017), (explaining that license terms are lengthy and complicated, and many online shoppers ignore or simply cannot comprehend these terms).

¹⁰² See Sonia Elks, *Virtual goldmine: In-game goods fuel debate over digital ownership*, THOMSON REUTERS FOUND. (Nov. 26, 2019), <https://news.trust.org/item/20191126003008-18tot/>.

to Internet relations is crucial for the future development of the Internet¹⁰³ and putting this in a more modern context, property rights online are indispensable for the expansion of Meta.

Digital space is governed solely by contract law and IP; but, where traditionally the law of contract and the law of property balance each other, in digital space, contract law has no limits.¹⁰⁴ Property law is not here to carve out unreasonably burdensome contractual clauses, while intellectual property law has a very limited scope of tools capable of restricting contractual freedom. Providing examples of how property law restrains contracts, Fairfield refers to Merrill and Smith. He mentions three examples: property law eliminates unreasonable restraints on alienation, it limits the fragmentary effects of dead-hand control, and does not enforce novel contractual burdens on property.¹⁰⁵ If we leave virtual property to the mercy of contract and IP law, then the existent imbalance between rightsholders and users will most likely only grow, slowing down the development of virtual worlds.

B. *Pain Points of Digital Ownership*

Despite the obvious disproportionate tilt to creators' rights and multiple attempts by consumer protection law to correct this imbalance, American users still cannot fully own their virtual property. Users cannot resell software¹⁰⁶ or digital music,¹⁰⁷ they cannot get implied warranties otherwise available for tangible property, nor can they hope to own their digital goods in perpetuity.¹⁰⁸ The three areas outlined below indicate core pain points for virtual goods' users and are provided in this part of the paper to guide further discussion on what role NFTs play in addressing these problems.

¹⁰³ See Fairfield, *Virtual Property*, *supra* note 94, at 1051.

¹⁰⁴ See *id.*

¹⁰⁵ See Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 26-34, 27-29 (2000); see also Fairfield, *Virtual Property*, *supra* note 94, at 1051-52, 1052 n.18.

¹⁰⁶ See *Vernor v. Autodesk, Inc.*, 621 F.3d 1102, 1111 (9th Cir. 2010).

¹⁰⁷ See *Capitol Recs., LLC v. ReDigi Inc.*, 934 F. Supp. 2d 640 (S.D.N.Y. 2013), *aff'd*, 910 F.3d 649 (2d Cir. 2018).

¹⁰⁸ See U.C.C. § 2-314 (Am. L. Inst. & Unif. L. Comm'n 1977).

1. *Limited or No Rights to Resell and Control the Asset*

There is no digital resale right in the U.S. Thus, to transfer a legally purchased copy of the work, this copy must physically exist and have a tangible form. Any transfer of a digital copy is considered unlawful reproduction (unless it can be shielded by an affirmative defense, such as fair use).¹⁰⁹ In *Capitol Records*, the court held that “the first sale doctrine was enacted in a world where the ease and speed of data transfer could not have been imagined” and noted that “physical limitations may be desirable” to slow down the ease of copying.¹¹⁰ The U.S. Copyright Office espouses similar views: it commented that a “digital first sale doctrine” is not acceptable because “[t]he tangible nature of a copy is a defining element of the first sale doctrine”¹¹¹ and the natural degradation of works (e.g., scratches, fading, etc.) act as “a natural brake on the effect of resales on the copyright owner’s market.”¹¹² So, currently, the only solution to sell digital assets is to resell them together with their hardware to avoid copying, which sounds like a mediocre solution for the 21st century.

Moreover, owners of digital property are not free to dispose of their digital assets because they cannot transfer their assets from one platform to another.¹¹³ This is especially acute for video game users. Players spend significant time and money collecting so-called “valuables” which exist only inside the game universe.¹¹⁴

2. *Terms of Use*

Users cannot be sure that they own what they use in digital space. Meaning that after their death, they do not know whether their children will be able to inherit

¹⁰⁹ See *Disney Enters., Inc. v. Redbox Automated Retail, LLC*, 336 F. Supp. 3d 1146 (C.D. Cal. 2018).

¹¹⁰ The appellate court has not made any ruling on the resale right established by § 109(a). See *ReDigi Inc.*, 934 F. Supp. 2d at 656.

¹¹¹ U.S. Copyright Off., Executive Summary Digital Millennium Copyright Act, DMCA Section 104 Report (2001).

¹¹² *Id.*

¹¹³ Due to the compatibility issues and licensing restrictions most digital assets like in-game property or user-generated content is not transferable from one game/platform to the other.

¹¹⁴ In-game content, including any purchased or otherwise acquired in-game assets are typically not transferable or tradable outside the game (except for Play-to-Own blockchain games). See e.g., *Wargaming End User License Agreement*, WARGAMING, <https://legal.na.wargaming.net/en/end-user-licence-agreement/>. (“[W]argaming grants you a personal, non-exclusive, revocable, non-transferable, limited right to access the Content”).

any digital assets. Contracts for digital assets are usually drafted in a way that terminates user accounts at death, and they do not stipulate the option to transfer digital assets to the user's heirs.¹¹⁵

3. *No Property Guarantees*

The property right is a human right,¹¹⁶ which entails a list of broad guarantees for owners. The Fifth Amendment protects the right to private property by requiring that no person can be deprived of property without due process of law and just compensation.¹¹⁷ Virtual goods lack these property guarantees, and many players' accounts are deleted without full transparency about the reasons for termination.¹¹⁸ Many game publishing companies ban accounts for the use of "cheats" in games, and usually, they do not disclose how the company detected the use of the cheats.¹¹⁹ For continuous use of cheats, companies may delete users' accounts with all virtual goods, sometimes without any reimbursement for such deletion.¹²⁰ Moreover, licensees of virtual property get no implied warranties available for real-world property (e.g., implied warranty of merchantability available under the UCC).¹²¹ The only limitation for EULAs is consumer protection law, but intellectual property is usually beyond the scope of consumer protection regimes.¹²²

¹¹⁵ See Banta, *supra* note 93, at 1102.

¹¹⁶ Right to property as well as a prohibition of arbitrary deprivation of property without just compensation is a human right enshrined in the American Convention on Human Rights at Article 21 and Article 1 of the first Protocol to the ECHR: protection of property.

¹¹⁷ U.S. CONST. amend. V.

¹¹⁸ See e.g., *Huuuge Terms of Use*, HUUUGE, <https://huuugegames.com/terms-of-use/#:~:text=HUUUGE%20retains%20all%20right%2C%20title,objects%2C%20characters%20and%20character%20likenesses%2C>. (We reserve the right to discontinue offering the Service or any part thereof (such as any particular Game) or to suspend, remove, modify or disable access to the Service at any time in our sole discretion and without notice.)

¹¹⁹ See e.g., *supra* note 114. (We may take appropriate disciplinary measures, including account termination and deletion, for inappropriate behavior including, but not limited to: [. . .] 2.1.10 using any unauthorized third party programs, including hacks, cheats, [. . .]).

¹²⁰ Almost every video game end user license agreement contains provisions enabling a publisher to delete any use account for use of cheating software without any compensation for the purchased in-game goods or currency. See, e.g., *Fortnite End User License Agreement*, FORTNITE, <https://www.epicgames.com/fortnite/en-US/eula>. (Except to the extent required by law, all payments and fees are non-refundable under all circumstances, regardless of whether or not this Agreement has been terminated.)

¹²¹ U.C.C. § 2-314 (Am. L. Inst. & Unif. L. Comm'n 1977).

¹²² See Edina Harbinja, *Virtual Worlds Players – Consumers or Citizens?*, 3 INTERNET POL'Y REV., 1, 5 (2014).

Analyzing these three areas, can we say that users still can “own” in cyberspace if they cannot resell their assets, their family cannot inherit digital valuables, and users can be deprived of any assets?

C. Do NFTs Bridge the Gap Between Digital and Physical Ownership?

There are two main solutions offered by NFTs: (1) NFTs create scarcity for otherwise easily replicated digital assets and create demand for the previously absent market; and (2) NFTs can simplify transfers of assets. NFTs can functionally facilitate P2P asset transfers because they offer ownership tracing (serving as a certificate of authenticity) and remove the middleman. These solutions offered by NFT can potentially revolutionize the virtual assets’ market, but they are surrounded by the fog of misunderstanding and confusion. Very generally, the sources of misunderstanding emanate from, first, confusion between assets’ scarcity with tangibility, and second, confusion between easy ownership and easy transfer.

1. Scarcity and Tangibility

As discussed in the previous part, one of the core differences between digital and physical ownership is the lack of a tangible object to own. To some extent, NFTs are an attempt to create a tangible copy for the digital object and to make the object of digital ownership closer to the physical one. However, it still is a source of discussion whether linking an image with blockchain can convert a digital asset into a tangible one.

When Steve Kaczynski and Scott Duke Kominers wrote that NFTs help people sell “products that could never be sold before,” they meant that before NFTs’ boom no one was willing to purchase a copy of a digital asset that can be copied an unlimited number of times and accessed online for free. For two decades from the advent of the participative web, technology and law failed to develop an effective way to create the market for digital assets. But NFTs cured the lack of intrinsic scarcity inherent to digital goods by linking digital assets to unique tokens.¹²³ But this hardly changed the nature of the underlying asset. In fact, only the token is unique, the image, music, or any other digital asset linked to an NFT does not differ from any other copy. Many other tools could have created the same uniqueness.

¹²³ See Evans, *supra* note 10, at 226.

Thus, it seems that the uniqueness of NFT plays mainly a psychological role in giving people something they can own and probably adds more arguments in favor of changing the legal regime for NFT assets from IP to property.

Returning to the tangibility, NFTs do not convert a digital asset into a physical one. However, by linking an easily reproducible digital asset to the unique blockchain, NFTs offer a certain “tangibility substitute”. This sounds like a potentially revolutionary tool because the lack of tangibility is one of the core impediments to legally recognizing digital assets as property.¹²⁴ But, it is questionable whether this “artificially reproduce[d] creativity” will surface for legal purposes (e.g., to regulate NFT transactions under UCC Article 2).

2. *Easy to Transfer v. Easy to Own*

NFTs opened new frontiers for digital art collectors and gamers offering easy and quick transfers. Now, one can go online and buy a unique copy of a digital work almost in one click. Getting an NFT is not as easy as shopping on Amazon, but it is rather straightforward. One would need to get an Ethereum-compatible crypto wallet, go to any NFT marketplace, connect your wallet to the platform and browse to get an NFT via a “buy now” or, if your NFT is not a “fixed price”, submit your bid in an auction. Even if the NFT is free or cheap, you’ll still have to pay fees to make the transaction happen. If a platform offers NFTs on the Ethereum blockchain, then you would also need to pay a “gas” fee for transactions like NFT sales.¹²⁵ “Gas prices” depend on how busy the network is, but they are significantly lower than an art dealer or gallery fees which can range between 33 and 100 percent.¹²⁶ This seems like an easy transfer, and this is probably the only promise that NFTs actually fulfill.

Many users, however, hope to get more. They believe that NFTs can give them easy digital ownership without intermediaries. Partially NFTs make ownership easy. NFT gives more transparency. NFTs can track and display the ownership of a digital asset securely and transparently because anyone can view the NFT

¹²⁴ See Erlank, *supra* note 92, at 254.

¹²⁵ See *How Do You Buy an NFT?*, COINBASE, <https://www.coinbase.com/learn/crypto-basics/how-to-buy-nft> (last visited Apr. 15, 2022).

¹²⁶ See Alexis Flynn, *What Percentage Commission do Art Galleries Take?*, GREEDHEAD (Mar. 5, 2019), <https://greedhead.net/what-percentage-commission-do-art-galleries-take/>.

token's metadata to verify the ownership and transactional history. Each NFT-buyer can see from which address an NFT was minted, but still, this is not sufficient to remove intermediaries. Major NFT artists like Beeple sell their works on Christie's and Sotheby's. Christie's market is only growing: "[s]eventy-two percent of the NFT bidders and buyers this year are new to Christie's," says Neda Whitney, Christie's head of marketing for the Americas.¹²⁷ Non-blue-chip artists are also trading through platforms like OpenSea or SuperRare.

This dependency on platforms can be partly attributable to the need to use the benefits of a popular platform to advertise NFTs and make them available to the broader audience, but it may also be caused by the need to verify the seller. Most users may feel uncomfortable spending thousands of dollars without some intermediary shielding them from possible fraud.

Yet few NFT marketplaces are "shields" for buyers. Not many NFT marketplaces verify whether the asset is infringing any third-party rights. Even though curated and proprietary marketplaces usually approve assets to be minted,¹²⁸ they do not guarantee anything to the buyer. For instance, Super Rare sells NFTs only by whitelisted artists,¹²⁹ but the platform still takes no responsibility for the content.¹³⁰ Very similar terms are offered by other popular

¹²⁷ See Alexandra Bruell, *How Christies Is Pitching Its Expansion From Picassos to NFTs*, WALL ST. J. (Nov. 23, 2021, 3:47 PM), <https://www.wsj.com/articles/how-christies-is-pitching-its-expansion-from-picassos-to-nfts-11637700438> [https://perma.cc/AZ9K-MSJ5].

¹²⁸ See James G. Gatto, *NFT License Breakdown: Exploring Different Marketplaces and Associated License Issues*, NAT'L L. REV. (Sept. 21, 2021), <https://www.natlawreview.com/article/nft-license-breakdown-exploring-different-marketplaces-and-associated-license-issues>.

¹²⁹ See *Super Rare Terms of Service*, NOTION, <https://www.notion.so/SuperRare-Terms-of-Service-075a82773af34aab99dde323f5aa044e> (last visited Apr. 15, 2022).

¹³⁰ See *id.* ("Artists are prohibited from Minting Works consisting of unlicensed or unauthorized copyrighted content," but "SuperRare Labs makes no representations or warranties, . . . including any representations or warranties of title, non-infringement, . . . of any SuperRare Item.").

marketplaces, like Know Origin¹³¹ and Nifty Gateway.¹³² None of the platforms exercise due diligence checking regardless of whether the work minted as an NFT is clear from any third-party claims. It appears that by buying an NFT on a platform, users receive no guarantees that the NFT does not infringe third-party rights.

The other problem is that this “easy transfer” does not usually enable the transfer of IP rights to the underlying assets. Even if a platform or an NFT issuer promises to transfer IP rights, such transfer might not be legally possible. When the Bored Ape Yacht Club Terms & Conditions promise that buyers will own NFTs and get the full scope of rights to the artworks,¹³³ does it mean that IP rights will be assigned to the first buyer as well as any following buyers? Describing copyright vulnerabilities of NFTs, James Grimmelman, Yan Ji, and Tyler Kell argue that IP rights cannot be transferred solely by the sale of NFTs due to statutorily required formalities.¹³⁴ According to the U.S. Copyright Act, an instrument of the rights conveyance of the right, or a note or memorandum of the transfer, should be in writing and signed by the owner of the rights conveyed or such owner’s duly authorized agent.¹³⁵ The Terms of Service of the Bored Ape Yacht Club are not “signed” by the copyright owner, and absent such signature no IP rights can be transferred to the buyer. But even if the “signature problem” is solved for the initial transaction, this problem becomes unwieldy for any further resales because NFTs are transferred without any written agreement being executed.¹³⁶ If the problem of

¹³¹ See David Moore, *Terms of Service for KnownOrigin Labs*, MEDIUM (Apr. 23, 2021), <https://medium.com/knownorigin/terms-of-service-3efae6d0c20f> (statement from Terms of Service) (“To enjoy the full benefits of owning a Token, you must make every effort to verify the original artist of the Content. While we take all reasonable efforts to ensure that all Content created on the App is done so by the original artist, we shall not be held liable if someone, in breach of these Terms, creates Tokens [that] includes Content of which they are not the original artist.”).

¹³² See *Nifty Gateway Terms of Use*, NIFTY GATEWAY, <https://niftygateway.com/termsfuse> (last visited Apr. 15, 2022) (statement from Terms of Use) (“Content . . . [is] provided on an ‘as is’ [basis] . . . [without any warranties].”).

¹³³ See *Terms & Conditions*, BORED APE YACHT CLUB, <https://boredapeyachtclub.com/#/terms> (statement from Terms & Conditions) (“You Own the NFT. Each Bored Ape is an NFT on the Ethereum blockchain. When you purchase an NFT, you own the underlying Bored Ape, the Art, completely.”).

¹³⁴ James Grimmelman, Yan Ji & Tyler Kell, *Copyright Vulnerabilities in NFTs*, MEDIUM (Mar. 21, 2022), <https://medium.com/initc3org/copyright-vulnerabilities-in-nfts-317e02d8ae26> [<https://perma.cc/Z8QP-B7QX>].

¹³⁵ See 17 U.S.C. § 204(a).

¹³⁶ See Moore, *supra* note 131.

downstream sales cannot be solved, any attempts to marry current copyright law with NFTs will not produce an “easy transfer” of IP rights.

Overall, NFTs indeed made the process of getting digital assets easier, but this simplicity has a price. First, this simple transfer may trigger further problems with the ownership title. Second, reducing transactional costs, NFTs shifted the risk of fraud to the buyer. Interestingly, NFTs have not replaced middlemen, as discussed above, and these middlemen do not serve as real shields for buyers. OpenSea, one of the largest NFT marketplaces, does not guarantee that NFTs do not infringe IP rights, nor does the company regulate the terms of sale for NFTs. Each NFT can be regulated by a separate agreement and the buyer is responsible for checking and complying with such terms.¹³⁷ Rarible, the other major platform used for NFT collectibles also offers “no guarantee or assurance of the uniqueness, originality or quality” for NFTs.¹³⁸ The platform also refers users to the express agreement with the NFT issuer.¹³⁹ SuperRare whitelists artists selling NFTs on their marketplace but makes no representations or warranties in connection with the non-infringement of NFTs. In addition, SuperRare makes users agree to and acknowledge the risk of used technologies by accepting that non-fungible tokens, cryptocurrencies, consensus algorithms, and decentralized or peer-to-peer networks and systems are “experimental, speculative, and inherently risky.”¹⁴⁰ Neither does SuperRare take any responsibility for the smart contracts functioning.¹⁴¹ KnownOring, despite the misleading name, suggests users to “make every effort to verify the original artist of the Content.”¹⁴² These terms show that the buyer bears all associated risks, and the platform only technically facilitates transactions. Even if these terms can mean easy transfer, can one say that they permit easy ownership?

In a Harvard Business Review article, Steve Kaczynski and Scott Duke Kominers explained to the stunned observers of the NFT boom how NFTs create value. They argued that NFTs give parties “something they can agree represents

¹³⁷ *Terms of Service*, OPENSEA, <https://opensea.io/tos> (last visited Apr. 15, 2022).

¹³⁸ *Terms and Conditions*, RAREABLE, <https://static.rarible.com/terms.pdf> (last visited Apr. 15, 2022).

¹³⁹ *Id.*

¹⁴⁰ *See Super Rare Terms of Service*, *supra* note 129.

¹⁴¹ *Id.*

¹⁴² *See Moore*, *supra* note 131.

ownership”, and this “simple ownership” enabled by NFTs helps people sell “products that could never be sold before.”¹⁴³

But what is ownership, and how do NFTs make it simple? Reverting to our discussion of virtual ownership, ownership in a legal sense represents a set of rights that varies depending on the object,¹⁴⁴ and the scope of these rights is defined by law. Ownership is a legal fiction which requires recognition. For instance, the UK High Court has recently recognized that NFTs were digital assets and were property “able to have access to legal protections”.¹⁴⁵ Alternatively, one can expect a legislative definition of the digital assets placing them in the realm of property. Otherwise, one cannot own an NFT digital sword as a tangible good unless a law extends legal rights of tangible property to such digital sword. Following this line of thought, NFTs are not offering a new type of ownership for digital assets; they are a new vehicle to convey approximately the same scope rights as any other traditional tool to transfer rights to digital assets. Even if NFTs imitate tangibility and scarcity, these characteristics are not enough to place a digital good in a realm of tangible property. The buyer of an NFT will not get the full scope of rights available for the owners of the physical assets only because this digital asset obtained more tangibility through blockchain. But it is not completely impossible that US courts may use this “artificial tangibility” as an argument to justify why digital goods sold as NFTs should enjoy property protections.

So, what do users get when they purchase an NFT linked to a digital asset like a photo or a video file? Technically, users pay for a unit of data stored on the Ethereum blockchain and any scope of rights to an associated digital file while the scope of rights they get depends on the smart contract they accept by purchasing NFT.¹⁴⁶ NFTs cannot make anyone own associated digital artwork automatically unless the contract stipulates full intellectual property rights transfer.

¹⁴³ See Kaczynski & Kominers, *supra* note 55.

¹⁴⁴ LAURA S. UNDERKUFFLER, *THE IDEA OF PROPERTY: ITS MEANING AND POWER* 17 (Oxford 2003), <https://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780199254187.001.0001/acprof-9780199254187>.

¹⁴⁵ See Richa Bhagat, *UK High Court Recognizes NFTs as ‘Legal Property’*, CRYPTO TIMES (Apr. 30, 2022, updated on May 9, 2022), <https://www.cryptotimes.io/uk-high-court-recognizes-nfts-as-legal-property/> [<https://perma.cc/5ZUQ-Q3Y8>].

¹⁴⁶ NFTs can be linked to any type of asset, including real-world objects like a plot of land, a copy of the artwork, or a tungsten cube. But this paper analyzes only the role of NFTs representing digital assets.

As Professor Rebecca Tushnet commented for Harvard Law Today: “[f]rom an IP perspective, NFTs don’t change anything. If you didn’t have the rights to distribute a work before, you don’t have them now”.¹⁴⁷ Yet NFTs can convey an implied license to the linked digital asset, but the scope of such implied license would most likely be limited.

Typically, in NFT transactions, intellectual property rights are retained by the issuer, and the buyer gets the right to display the underlying asset. The buyer of an NFT doesn’t own the image or any other digital assets; instead, he owns the token itself, which is a “record of ownership of the unique digital version of the underlying work.”¹⁴⁸ However, many users hope to receive a scope of rights equivalent to the IP assignment. The most popular user misconception is that NFTs convey some standard and default scope of rights in every transaction, and they offer “ownership.” An NFT can make buyers own, but only as far as the contract with the initial rightsholder lets buyers own the copy, transfer it, or keep it forever. Despite the fact the NFTs are advertised as a path to ownership, no ownership rights are usually transferred. NFT contracts remain as license contracts, and they do not give ownership rights equal to the real-world ownership.

Reverting to the main deficiencies of digital ownership that we discussed above, can NFTs alone solve these problems? Can NFTs alone give traditional property qualities and guarantees?

- *Rights to freely resell goods.* The technology itself does not make downstream transfer legal *a priori*. The scope of rights to NFTs depends on the contract, but the right to control assets is not presumed because NFTs are still functioning in the realm of IP. This leads to user dissatisfaction in such industries as gaming, where game-NFTs can be traded only on a certain type of platform, which does not sound like a real-world ownership freedom to control and resell the asset. Part IV below analyzes this aspect in more detail.
- *Term of use.* NFT transactions do not limit the duration of use, and once an NFT is purchased, it remains on the buyer’s account in perpetuity . . . unless

¹⁴⁷ See Courtney Majocho, *Memes for Sale? Making sense of NFTs*, HARV. L. TODAY (May 19, 2021), <https://hls.harvard.edu/today/memes-for-sale-making-sense-of-nfts/> [<https://perma.cc/P4PN-P96Y>].

¹⁴⁸ See Clifford, *supra* note 11, at 6.

his account is blocked. The art collector Amir Soleymani was suing platform Nifty Gateway in the UK over the auction terms. Due to the ongoing dispute, he refused to pay for the artwork, and Nifty has frozen his account and blocked access to around 100 NFTs.¹⁴⁹ Moreover, while many platforms like KnownOrigin declare that the buyer gets ownership similar to the physical,¹⁵⁰ the same platforms insert terms permitting the platform to impede or limit users' ability to access digital assets,¹⁵¹ something that cannot happen to the owner of the physical copy of the artwork. Of course, not all platforms require a custodial wallet. Some platforms allow buyers to store NFTs in a non-custodial wallet, but this may sometimes mean a lower level of security.¹⁵²

- *No property guarantees.* NFTs do not convey any warranties or guarantees by default unless otherwise stipulated in a platform's terms of use or in a separate license agreement with a seller. Most platforms, as discussed above, provide no warranties to the buyers.

Consequently, even though NFTs provide certain levels of tangibility and scarcity to digital property, NFTs ultimately do not grant ownership over a digital sword the way one owns a physical weapon. Ownership is not just about matching characteristics with real-world property, but also about having the same scope of rights. Because of this, NFTs cannot emulate ownership unless supported by reforms that help digital property have the same rights and legal protections that real property does.

¹⁴⁹ See Pryor, *supra* note 54; see also John Groom, *NFTs: Contractual and Consumer Risks Come to the Fore as Art Collector Brings Legal Action Against NFT Marketplace*, BAKER MCKENZIE (Dec. 22, 2021), <https://viewpoints.bakermckenzie.com/post/102hew6/nfts-contractual-and-consumer-risks-come-to-the-fore-as-art-collector-brings-leg>.

¹⁵⁰ See Moore, *supra* note 131, at § 8 (“Ownership of the Tokens”).

¹⁵¹ See *id.* at § 11 (“Risks associated with cryptography”).

¹⁵² See generally Henrique Centieiro, *All You Need to Know: NFT Wallets — Custodial vs. Non-Custodial*, LEVEL UP CODING (Sept. 30, 2021), <https://levelup.gitconnected.com/all-you-need-to-know-nft-wallets-custodial-vs-non-custodial-e4bdb0c50889> (NFT ownership is linked to a public wallet key, so to own an NFT one must create a wallet first. Wallets differ based on the levels of security they provide, and platforms usually offer two types. The first are so-called custodial wallets, where a third-party provides security and storage services and a user has login access to their wallet. Platforms offering custodial wallets include Binance, Blockchain.com, and Coinbase. The second type are non-custodial wallets, which give users full control over the wallet, but can be more expensive. Users are responsible for security themselves, so it is more difficult to recover access to these wallets if lost.).

IV

LEGAL CHALLENGES

A. *NFTs as Personal Property*

Professor Fairfield suggested that NFTs can provide sufficient tangibility to satisfy UCC Article 2, and thus can be sold as personal property. Legal norms regulating digital property have been drafted to regulate the license-based exchanges of digital assets rather than sales of digital goods, and users thus need a new solution for digital assets management: a personal property model under the UCC.¹⁵³ Intellectual property regulations do not work for NFT-like transactions,¹⁵⁴ and the IP framework overcomplicates online transactions; sales law, on the other hand, can make online ownership simpler.¹⁵⁵ Moreover, the law should adjust to reflect the actual intentions of the stakeholders. If “buyers believe that they are buying personal property, and sellers claim they are selling it,” then the law of digital transactions should be “rebalance[d]” to meet these expectations and make digital property possible.¹⁵⁶

A possible problem with the existing license-based model is that NFT sellers exercise a level of control that is not usual for standard sale transactions like buying a car or a jug of milk. A buyer of a car does not expect the factory or seller to limit their rights of ownership, like preventing the buyer from changing the color of their car.¹⁵⁷ Moreover, an NFT buyer does not even have guarantees that their asset will remain available since an NFT link can go offline.¹⁵⁸ If NFT technology can offer

¹⁵³ See Joshua Fairfield, *Tokenized: The Law of Non-Fungible Tokens and Unique Digital Property*, 97 IND. L. J. 1260, 1300-1301 (2022), <https://www.repository.law.indiana.edu/ilj/vol97/iss4/4/> [hereinafter Fairfield, *Tokenized*].

¹⁵⁴ See *id.* at 1290-91.

¹⁵⁵ See *id.* at 1291-92.

¹⁵⁶ See *id.* at 1291.

¹⁵⁷ *Id.* at 1291-92 (If NFT is characterized as a property and is supposed to grant the same amount of rights as an ownership of a car, than the original author of the artwork should not be able to control any downstream uses or changes of the work).

¹⁵⁸ See Jonty Wareing (@jonty), TWITTER (Mar. 17, 2021, 8:30 AM), <https://twitter.com/jonty/status/1372163423446917122>; see also Ben Gilbert, *Here's What Happens to Digital Artwork — Like the \$69 Million Beeple Collage — if the Site it's Bought From Goes Offline*, INSIDER (Mar. 19, 2021, 8:49 AM), <https://www.businessinsider.com/what-happens-to-digital-art-nft-servers-shut-down-2021-3>. NFT art has no canvas, and there is no gallery where the 70 million dollar “Everydays: The First 5000 Days” of Beeple is stored. An NFT simply links to the digital file stored on a server, so what happens if this server goes down

equivalent freedom of ownership, and if neither the buyer nor the seller wants to be limited by the existing default licensing rules for internet content, then the law should adjust to match the way this technology is understood by users.¹⁵⁹

However, the economic reality surrounding NFT sales is not that simple. Based on current market transactions, buyers and sellers seem to have a different perception of the scope of rights transferred by NFT sales. Often, buyers want to get personal property by purchasing NFTs, while sellers support the license-based system and appreciate more control over the asset. So, should NFT regulations limit or extend the seller's control over the asset? The answer depends on the type of NFT. Even in physical space, depending on the object, the relationship between the creator's IP rights and the buyer's ownership rights can differ. When purchasing a car one does not expect to share any resale royalties, but not all NFT ownership can be compared with car ownership.

One way to satisfy buyers is to limit the application of mandatory IP rules to digital sales. Fairfield argues that changing the sales model from licensing to UCC-type sales would meet the expectations of both sides. NFTs are sold "on the premise that they may be resold and that upstream sellers cannot interfere with downstream purchasers' rights,"¹⁶⁰ so buyers get what they are promised.

However, even UCC-type sales would not give video game players what they want. If gamers got an NFT under the UCC, they would not get a full pack of "rights" because the use of their in-game assets is limited to certain platforms, and game companies cannot guarantee that an NFT will be permanently available because of the technical limitations. Guaranteeing that one's asset would be permanently available and playable within the game means running the game servers forever, and no developer would feel comfortable guaranteeing this.¹⁶¹

and an NFT links to the non-existent file? This is a question that has no simple answer so far. No one can share the blockchain recorded transaction and amend an NFT. But does the "dead link" mean that the NFT will lose value? At the end of the day, Bepple's Everydays are copied by millions of people, and its digital versions are stored in multiple places.

¹⁵⁹ See JOSHUA FAIRFIELD, *RUNAWAY TECHNOLOGY: CAN LAW KEEP UP?* 75 (Cambridge Univ. Press 2021).

¹⁶⁰ See Fairfield, *Tokenized*, *supra* note 153, at 1304-05.

¹⁶¹ One of possible solutions can be an open source game. Unlike a video game publishing company open source community can technically support servers of the game in perpetuity.

Moreover, under the current legal framework nothing prevents authors from selling their NFTs under the UCC. Sarah Howard Jenkins, in her article discussing the applicability of the UCC to digital assets, argues that tangibility of goods is not a requirement of Section 2-105 (1).¹⁶² The UCC is flexible enough to work for the transfers of digital art and other virtual assets, and applying the UCC would be beneficial for both parties leading to more reasonable, predictable, and uniform results.¹⁶³ Indeed, selling NFTs as goods would provide more guarantees for buyers. By purchasing an NFT under the UCC, a buyer receives a warranty that the goods are not infringing (i.e., warranty of title and against infringement)¹⁶⁴ unless, of course, these warranties are directly disclaimed. Currently, purchasing an NFT based on the license does not imply these warranties.¹⁶⁵ Shifting to the rules of personal property transactions can remove the barrier for NFTs to deliver on their promise to buyers.¹⁶⁶

However, even if NFTs can be sold under UCC Article 2, this alone is unlikely to help NFTs convey the scope of rights and protections equivalent to physical property. As mentioned above, nothing explicitly prevents NFTs issuers from using the UCC for current NFT transactions. But issuers have preferred using a licensing model. This can be due to different reasons: for some, selling digital assets under UCC terms is not market practice, while others may simply want to avoid additional warranties filling in contractual gaps.¹⁶⁷ Analyzing problems of digital property, Fairfield stressed that IP holders “have been systematically eliminating emerging virtual property rights by the use of contracts,” namely EULAs.¹⁶⁸ Why would these IP holders want to change their practice and start selling their NFTs under the UCC?

¹⁶² See Sarah Howard Jenkins, *Application of the U.C.C. to Nonpayment Virtual Assets or Digital Art*, 11 DUQ. BUS. L.J. 245, 246 (2009).

¹⁶³ See *id.* at 253.

¹⁶⁴ U.C.C. § 2-312 (Am. L. Inst. & Unif. L. Comm’n 2002).

¹⁶⁵ Jenkins, *supra* note 162, at 262.

¹⁶⁶ See Fairfield, *Tokenized*, *supra* note 153, at 1291-92.

¹⁶⁷ See e.g., *Terms of Service, ZORA*, <https://support.zora.co/en/articles/6383293-terms-of-service> (last visited Apr. 15, 2022) (excluding the applicability of the United Nations Convention on Contracts for the International Sale of Goods and the Uniform Computer Information Transaction Act (UCITA) in its Terms of Service).

¹⁶⁸ Fairfield, *Virtual Property*, *supra* note 94, at 1050.

B. Consumer Protection and NFT Market

If sellers intentionally avoid the applicability of UCC, then there are two possible paths to protect users: (i) apply UCC Article 2 by default for NFT transactions or (ii) impose an obligation on sellers to make obligatory disclosures about the rights conveyed. The first solution will make the lives of NFT sellers more complicated, but it will protect buyers much better. Where a transaction is viewed as a sale under Article 2 of the UCC rather than a license, sellers' obligations will go beyond those listed in a license contract.¹⁶⁹

Courts would disrupt the license-based digital assets universe if they took the UCC Article 2 approach. Right now, though, courts cannot apply UCC if the parties have structured the transaction as a license.¹⁷⁰ Therefore, legislative change is necessary to implement UCC protections in the sale of digital assets. However, the strength of the business lobby in Congress makes this change unrealistic. Using consumer protection laws to protect NFT buyers is one of the best options, but it will face the same problem when confronting the freedom of contract principle. Both in Europe and in the US, the freedom of contract is strongly enforced and courts make exceptions only in very rare cases.¹⁷¹ Courts are reluctant to interfere with contractual relations and recognize their unconscionably.¹⁷² While U.S. courts

¹⁶⁹ Nancy S. Kim, *The Software Licensing Dilemma*, *BYU L. REV.* 1103, 1139 (2008).

¹⁷⁰ Cf. Kim, *supra* note 169 at 1119 (noting the debate over whether software licenses constitute goods under Article 2 of the UCC). Some have argued that it is consistent with the policies of the UCC and intellectual property law to interpret Article 2 of the UCC to include license agreements. See Maureen A. O'Rourke, *Rethinking Remedies at the Intersection of Intellectual Property and Contract: Toward a Unified Body of Law*, 82 *IOWA L. REV.* 1137, 1142 (1997). It is also possible that Article 9 of the UCC could provide protection to licensees. UCC § 9-321 (Unif. Law Comm'n 2010). Of course, Article 2 pay provide better protection for consumers or licensees. See Kim, *supra* note 169 (noting the superiority of UCC Article 2 protections).

¹⁷¹ See generally Ellen Frankel Paul, *Freedom of Contract and the "Political Economy" of Lochner v. New York*, 1 *N.Y.U J. L. & LIBERTY* 515, 516-518 (2005). In the US the right to freely contract without state intervention is not explicitly mentioned in the US Constitution, but there was a long history of case law interpreting freedom to contract like the one resulting from the Due Process Clause of the Fourteenth Amendment. See e.g., *Lochner v. N.Y.*, 198 U.S. 45 (1905); *Allgeyer v. La.*, 165 U.S. 578 (1897). This changed after *W. Coast Hotel v. Parrish*, 300 U.S. 379 (1937).

¹⁷² See Andreas Maurer, *Consumer Protection and Social Methods of Continental and Anglo-American Contract Law and the Transnational Outlook*, 14 *IND. J. OF GLOB. LEGAL STUD.*, 353, 371 (2007). Even though there is also a strong opposition of "welfarists" scholars who argue that the freedom of contract should be balanced against or replaced with a concept of justice of contract aimed to account for the bargaining power inequalities and protect weaker parties.

may refuse to enforce the contract based on the unconscionability of the transaction, the standard is high. Courts will not enforce the unconscionability doctrine unless both procedural and substantial unconscionability is present.¹⁷³ Unconscionability is usually found only in cases when non-negotiated terms in an adhesion contract are not within reasonable expectations of non-drafting party¹⁷⁴ and when there is an overall imbalance between the parties or when one of the parties engages in unfair commercial practices.¹⁷⁵

There is a possibility that US courts will find that some NFT licenses are unconscionable or misleading, but this is only possible in cases where information on the website misled users by believing that they can own NFTs while the actual terms of use stipulated a license. That being said, NFTs would not be unique if they misled consumers. The digital domain was for a long time an area of consumer deceit. In describing misleading techniques and the “Buy Now” lie, Aaron Perzanowski and Jason Schultz analyzed loose use of terms in advertisements and on websites that did not correspond with license terms. If Amazon allows you to “buy” an e-book or you get an advertisement saying that “you can now own the digital comics you buy,” this implies that you are owning, and not being licensed, the material. You are misled by the seller or the advertiser and should find recourse under the false and deceptive advertising framework.¹⁷⁶

It is hard to predict whether courts will find that a description of the business model on the “About Us” page is misleading. For instance, one of the biggest NFT platforms OpenSea describes NFTs as “[j]ust like physical goods, you can do whatever you want with them!”¹⁷⁷ In their Terms of Service, OpenSea stipulates that “NFTs may be subject to terms directly between buyers and sellers” and such additional “Purchase Terms” govern the use of the NFT that the buyer must

¹⁷³ Both procedural and substantive unconscionability is used as a framework for analyzing contractual unconscionability. *See* *Fi-Tampa, LLC v. Kelly-Hall*, 135 So. 3d 563 (Fla. Dist. Ct. App. 2014) (requires evidence of both elements, procedural and substantive); *see also* *McCaffrey Grp., Inc. v. Superior Court*, 224 Cal. App. 4th 1330, 169 Cal. Rptr. 3d 766 (Cal. Ct. App. 2014).

¹⁷⁴ *See e.g.*, *C & J Fertilizer, Inc. v. Allied Mut. Ins. Co.*, 227 N.W.2d 169 (Iowa 1975); *see also* Restatement (Second) of Contracts § 237, cmt. f (Am. L. Inst. 1981).

¹⁷⁵ *See* *Williams v. Walker-Thomas Furniture Co.*, 350 F.2d 445, 449 (D.C. Cir. 1965) (outlining the applicability of the unconscionability doctrine).

¹⁷⁶ Perzanowski & Hoofnagle, *supra* note 101, at 84-87.

¹⁷⁷ OpenSea, *supra* note 137 (*About*).

comply with.¹⁷⁸ Also, OpenSea guarantees “that any NFTs visible on OpenSea will always remain visible and/or available to be bought, sold, or transferred.”¹⁷⁹ These terms might be seen as contradicting OpenSea’s prior statement that NFTs are “just like goods.” Will courts deem the advertisement false or misleading from the perspective of a reasonable consumer?¹⁸⁰

The other problem contributing to the uncertainty around NFTs is the unresolved legal nature of digital goods. Consumer protection law’s applicability, for example, is influenced by whether a digital asset is considered a form of intellectual property, a service, a good, or a hybrid of all of these. While it seems fair to protect consumers irrespective of the nature of the asset, very often consumer protection statutes apply only to tangible goods or services.¹⁸¹ Additionally, the uncertain legal nature of NFTs will also make it more complicated for courts to define whether to apply common law or the UCC to NFT sales. Even before NFTs had emerged as a more complicated type of digital asset, courts were not well-versed in applying the predominant purpose test to the sales of digital goods.¹⁸² This history stems from the court wrestling with how to classify software.¹⁸³ Because software did not fit ideally into Article 2 of the UCC, the American Law Institute published the Principles of the Law of Software Contracts; these principles, however, cannot apply to the digital assets like NFTs, which are closer in concept to a CD-ROM than to a software license and thus clearly fall out of the scope of Article 1.06.¹⁸⁴

¹⁷⁸ *Id.* at *Terms of Service*.

¹⁷⁹ *Id.*

¹⁸⁰ See *Lavie v. Procter & Gamble Co.*, 105 Cal. App. 4th 496, 507 (2003) (“A claim based on false or misleading advertising and unfair business practices ‘must be evaluated from the vantage of a reasonable consumer.’”).

¹⁸¹ See Stacy-Ann Elvy, *Hybrid Transactions and the INTERNET of Things: Goods, Services, Or Software?*, 74 WASH. & LEE L. REV. 77, 127 (2017) (“State unfair or deceptive practices statutes may be limited to tangible goods or services.”).

¹⁸² See Spencer Gottlieb, *Installation Failure: How the Predominant Purpose Test Has Perpetuated Software’s Uncertain Legal Status Under the Uniform Commercial Code*, 113 MICH. L. REV. 739, 743 (2015) (“Determining whether the UCC or common law applies to a software lawsuit theoretically should be simple under the binary predominant purpose test, but courts have been unable to use this test uniformly to classify software transactions as involving either goods or services”).

¹⁸³ See OpenSea, *supra* note 137.

¹⁸⁴ See Am. L. Inst., *Principles of the Law of Software Contracts* (2010), § 1.06(b)(1).

The court will face an old problem aggravated by new technology: what law should govern the NFT agreement? It is possible that linking an asset with a blockchain will make the applicability of the UCC more persuasive. Following the logic of Lorin Brennan, an intangible IP asset can become tangible by merging with the floppy disc.¹⁸⁵ However, it seems more likely that courts will be guided by the intentions of the parties, particularly the seller. If the seller frames an agreement as a license, then the court likely will not convert this agreement into a sale of the asset under the UCC. As Raymond T. Nimmer noted concerning software licenses, naming an agreement a “license” relates to the restrictions or permissions established by the seller, rather than the legal nature of the asset.¹⁸⁶ This logic is also in line with *Vernor v. Autodesk, Inc.*, where the court found that a software transaction is a license if an agreement specifies that the user is granted a license; significantly restricts the user’s ability to transfer the software; and imposes notable use restrictions.¹⁸⁷ When faced with NFT agreements, the court can be expected to follow the same path as in *Vernor* and analyze whether the restrictions imposed by the platform terms of use can be perceived as a “sale” rather than a “license”.

Finally, as an alternative to courts, professional communities can step in to reshape relations in the field of NFT sales. At least in the gaming realm, user feedback and authorities like the UK Advertising Standards Authority (ASA) can bring misleading practices surrounding NFTs to an end. Even though ASA has a very limited arsenal of penalties, it can still influence the marketing practices of major players. Recently, ASA issued a ruling banning advertisements of two mobile games developed by Playrix because the advertisements were not representative of the actual gameplay.¹⁸⁸ Even though ASA’s ruling only banned the advertisements in their initial form, many mobile game companies were alarmed by the ruling.

¹⁸⁵ See Lorin Brennan, *Why Article 2 Cannot Apply to Software Transactions*, 38 DUQ. L. REV. 459, 466 (2000) (“In other words, a computer program may start off as intangible intellectual property, but once it is copied onto a floppy disc it merges into the disc and becomes a tangible, physical ‘good.’”).

¹⁸⁶ See Raymond T. Nimmer, *An Essay on Article 2’s Irrelevance to Licensing Agreements*, 40 LOY. L. REV. 235, 249 (2006) (“The use of a “license,” however, does not depend on a property-rights base. Rather, it depends on how parties handle valuable information by contract and what restrictions or permissions are established with respect to that information.”).

¹⁸⁷ See *Vernor v. Autodesk, Inc.*, 621 F.3d 1102, 1110-11 (9th Cir. 2010).

¹⁸⁸ See *ASA Ruling on PLR Worldwide Sales Ltd t/a Playrix*, ADVERT. STANDARDS AUTH. (30 Sept. 2020), <https://www.asa.org.uk/rulings/plr-worldwide-sales-ltd-g20-1061644-plr-worldwide-sales-ltd.html>.

ASA's rulings by themselves have rather low deterring effect, but those regularly picked up by the press, and the reputational harm can be significant.¹⁸⁹

C. *Digital First-Sale Doctrine and the Right to Display*

1. *Digital First-Sale Doctrine*

Many exclusive rights retained by authors make NFT transactions subject to limitations not anticipated by the typical NFT agreement. When are these rights limited? Regarding copyrighted works under the first-sale doctrine, contracts cannot limit a buyer's right to dispose of physical assets as they see fit.¹⁹⁰ However, digital assets allow for increased control by the rights holder through contracts and licensing.¹⁹¹ There is no digital assets first-sale right in the US, which means that once digital products like ebooks are restrained by the contract terms of the licensing agreement.¹⁹²

The absence of a digital asset first-sale right is not what the parties want or imagine when they enter NFT agreements.¹⁹³ The courts have already expressed that they are not ready to extend the first sale doctrine to digital assets, and it is up to Congress to decide.¹⁹⁴ If Congress does not decide to extend the first-sale doctrine to digital assets, not only NFT sales, but the concept of easy digital asset redistribution by first buyers will not be possible in the US.

¹⁸⁹ See *Gaming the System: Advertising and Video Games*, TAYLOR WESSING (Feb. 2022), <https://www.taylorwessing.com/en/insights-and-events/insights/2022/02/dl-gaming-the-system-advertising-and-video-games>.

¹⁹⁰ COPYRIGHT ACT OF 1976, 17 U.S.C. § 109 (2012). (Once a person obtains ownership of a lawfully-made copy of a copyrighted work, the person may sell or otherwise dispose of that lawful copy without the authority of the copyright owner.) See, e.g., *Kirtsaeng v. John Wiley & Sons, Inc.*, 568 U.S. 519, 538–39 (2013).

¹⁹¹ Unlike a physical painting, video game or other digital work licensed rather than sold, licensing terms for a digital work usually restrict any further resales. See *Adobe Sys. Inc. v. One Stop Micro, Inc.*, 84 F. Supp. 2d 1086, 1091 (N.D. Cal. 2000) (“[V]irtually all end users do not buy—but rather receive a license for—software. The industry uses terms such as ‘purchase,’ ‘sell,’ ‘buy,’ ... because they are convenient and familiar, but the industry is aware that all software ... is distributed under license.”).

¹⁹² COPYRIGHT ACT OF 1976, 17 U.S.C. § 204(a) (2018). The “digital first sale” doctrine was rejected in *Capitol Records LLC v. ReDigi Inc.*, 910 F.3d 649, 657 (2d Cir. 2018)), *Redbox Automated Retail LLC v. Buena Vista Home Entertainment Inc.*, 399 F. Supp. 3d 1018, 1032–33 (C.D. Cal. 2019)).

¹⁹³ One of the main benefits of NFT are that they are resalable like a physical CD. See Jordan Parker, *New Kids On The Blockchain: How Nfts Might Bring About A Digital First Sale Doctrine*, 60 HOUS. L. REV. 467 (2022).

¹⁹⁴ See *Capitol Records*, 910 F. Supp. 3d, and *Redbox*, 399 F. Supp. 3d, *supra* note 192.

2. *The Right to Display*

When a buyer of an oil artwork acquires their painting, they presume that the purchased work can be displayed in museums and private exhibitions. This right stems from the first sale doctrine permitting “the owner of a particular copy [. . .] without the authority of the copyright owner, to display that copy publicly, either directly or by the projection of no more than one image at a time, to viewers present at the place where the copy is located.”¹⁹⁵

In the digital space, there is no possibility to publicly display an image without making a copy of it. Any use in digital space is making a copy,¹⁹⁶ and thus there is no exception to display the purchased NFT artwork without an author’s permission unless the NFT license agreement stipulates otherwise. Though under the Ninth Circuit “server test,”¹⁹⁷ displaying an embedded image or video stored on the third-party server (which is the case for NFTs) might not be an infringement.¹⁹⁸ This display of embedded content can be more questionable in other formats.

Unless the legal framework changes, NFTs can potentially convey the same rights close to the ownership of the physical object but only if the parties contractually stipulate all transferred rights and navigate through mandatory IP rules. However, platform rules are not exhaustive and not clear. Most of the collectible NFTs are purchased on platforms like Nifty Gateway, which can technically permit the display of NFTs¹⁹⁹ but do not stipulate a license to the artwork.²⁰⁰ Notably, NFT platforms never contain a license to the NFT (probably

¹⁹⁵ COPYRIGHT ACT OF 1976, 17 U.S.C. § 109.

¹⁹⁶ See Fairfield, *Tokenized*, *supra* note 153, at 1304-05.

¹⁹⁷ See *Perfect 10, Inc. v. Amazon.com, Inc.*, 487 F.3d 701 (9th Cir.), *amended by*, 508 F.3d 1146 (9th Cir. 2007) (under the Ninth Circuit’s “server test” adopted in 2007 in *Perfect 10*, the infringer of the public display right is the one who actually stores the photo on a server and physically sends ones and zeroes over the Internet to the user’s browser, and not the one who displays an embedded image).

¹⁹⁸ See *Nicklen v. Sinclair Broadcast Group, Inc.*, 551 F. Supp. 3d 188 (S.D.N.Y. 2021) No. 20-10300. (Southern District of New York ruled finding that an “embed” photo may constitute copyright infringement, namely the right to exclusive reproduction, distribution, and display rights in violation of 17 U.S.C. §§ 106(1), (3), and (5)).

¹⁹⁹ *How Can I Display my NFT’s?*, NIFTY, <https://help.niftygateway.com/hc/en-us/articles/360061942474-How-can-I-display-my-NFT-s-> (last visited Apr. 15, 2022).

²⁰⁰ See Moore, *supra* note 131.

because they advertise NFT for sale); instead, they contain Terms of Use, which do not have detailed terms regulating the use of NFTs.²⁰¹

V

WERE NFTS A FAILED ATTEMPT TO UPGRADE OWNERSHIP?

NFTs revealed that there is a market demand for a new type of digital ownership. The question is whether NFTs are a good medium to create a legislative framework around. It does not seem like the creation of NFTs arose to address solutions for digital asset ownership.²⁰² Considering a broad range of factors, from morality to ecological impact, NFTs should not serve as the model for which legislators should model digital asset ownership-based regulation around.

First, NFTs have significant technical limitations. CryptoKitties point to the reason why NFTs do not help solve digital ownership challenges. One reason is the limitation of blockchain systems. The volatile price of cryptocurrencies makes it difficult to control the cost of performing operations on a public blockchain system. In CryptoKitties, an Ethereum-based game, the cost of playing and trading kitties depended on the Ether price, which caused the game's decline when the "gas prices" increased.²⁰³ NFTs are sold on Ethereum and the value continually depends on the crypto coin used.²⁰⁴ Moreover, Blockchain technology is not as "unhackable" as many believe. Its security has recently been called into question by several successful breaches.²⁰⁵

Second, NFTs are an environmentally taxing solution for the digital property problem. Blockchain energy consumption is an increasing concern. Recently, a French artist Joanie Lemercier made news by selling NFT in 10 seconds for

²⁰¹ See e.g., *OpenSea Terms of Service*, OPENSEA, <https://opensea.io/tos>. (OpenSea Term of Service do not even refer to the possible license terms, instead they refer to the "purchase terms and " stipulate that "NFTs may be subject to terms directly between buyers and sellers with respect to the use of the NFT content and benefits associated with a given NFT").

²⁰² As discussed above, NFTs do not solve the problems inherent to digital assets ownership, despite the fact that NFTs are sometimes advertised as a revolutionary solution for digital ownership.

²⁰³ Jiang Xin-Jian & Liu Xiao Fan, *CryptoKitties Transaction Network Analysis: The Rise and Fall of the First Blockchain Game Mania*, 9 FRONTIERS PHYSICS 1, 9 (2021).

²⁰⁴ See Elena Fitzsimons, *NFT Art: What Is It, How It Works and What It Means for the Creative Industry*, 99 DESIGNS, <https://99designs.com/blog/web-digital/nft-art/> (2021).

²⁰⁵ See generally Birgit Clark, *Crypto-Pie in the Sky? How Blockchain Technology is Impacting Intellectual Property Law*, 2.2 STAN. J. BLOCKCHAIN L. & POL'Y 252, 261 (2019).

thousands of dollars. That transaction consumed the equivalent of how much energy his studio uses over a full 2-year period, which is 8.7 megawatt-hours of energy.²⁰⁶ A new architecture for blockchains, so-called “proof-of-stake,” may reduce the amount of electricity consumed,²⁰⁷ but for now many platforms continue to use Ethereum. This raises concerns about whether the NFTs are an optimal solution to resolve a problem which can be fixed through adjusting legal frameworks.

Finally, and most importantly, NFTs do not offer a revolutionary solution for digital ownership. NFTs can make digital transactions easier by recording ownership and tracking transactions, but these are all solutions offered by the blockchain²⁰⁸ and not specifically by NFTs. The other core problem is that NFTs cannot provide solutions for the virtual property unless followed by legislative reforms. These reforms could resolve many virtual ownership problems even without NFTs.

This however does not mean that virtual property cannot prosper without legal reforms. Market competition and economic pressures can ensure that videogame developers and other rights holders can grant more usage rights to the owners of virtual goods, bridging this gap between two types of ownership.²⁰⁹ As Lawrence Lessig notes, the law is only one of four forces regulating online behavior.²¹⁰ Law is not the most flexible nor the most effective and fast way to regulate online behavior. Market, crypto societal norms and system architecture can make NFT technology meet the expectations of NFT buyers.

The role of NFTs in the history of virtual property will also depend on the judiciary. Considering the novelty of the technology and the absence of

²⁰⁶ See Gregory Barber, *NFTs Are Hot. So Is Their Effect on the Earth's Climate*, WIRED, <https://www.wired.com/story/nfts-hot-effect-earth-climate/> (last updated Mar. 6, 2021, 7:00 AM).

²⁰⁷ See Daniel Saraga, *How NFTs Disrupted the Art Market in Less Than a Year*, SWISSNEX BOS. & N.Y. (Dec. 16, 2021), <https://swissnexboston.medium.com/how-nfts-disrupted-the-art-market-in-less-than-a-year-d4367791eb52>.

²⁰⁸ With regard to the possible uses of blockchain technology for IP see Gönenç Gürkaynak et al., *Intellectual Property Law and Practice in the Blockchain Realm*, 34:4 COMPUT. L. & SEC. REV. 847, 854 (August 2018), <https://www.gurkaynak.av.tr/docs/8c65a-ip-law-and-practice-in-the-blockchain-realm.pdf>.

²⁰⁹ See Cifrino, *supra* note 73, at 262.

²¹⁰ See generally LAWRENCE LESSIG, *CODE AND OTHER LAWS OF CYBERSPACE* 86-89 (1999) (discussing forces regulating behavior).

case law testing NFT licenses, trading NFTs is a risky venture. Coupled with a myriad of misconceptions about the scope of transferred rights and complicated technology, NFTs represent an explosive mixture of legal uncertainty and user misunderstanding, potentially triggering litigation. If courts manage to get NFTs out of the gray zone, then NFTs may have a longer life as a tool to facilitate online digital transactions. Just one year after the boom, we already see litigation caused by this new technology. In a recent complaint by Miramax against Quentin Tarantino, the production company asserted that Tarantino cannot sell NFTs with “exclusive scenes” from ‘Pulp Fiction’ because he transferred all rights to Miramax.²¹¹ The other recent dispute in the NFT sphere arose from the release of the “Art Wars” NFT series minted by art curator Ben Moore. “Art Wars” was originally a collection of life-sized Stormtrooper helmets designed by famous artists. Moore worked with Anish Kapoor, Damien Hirst, David Bailey, and many others to develop the artworks for the project. Then, Moore made photos of the helmets and minted them into NFTs, after which the NFTs were offered for sale on OpenSea without Moore allegedly ever securing the IP rights to the works.²¹² These legal disputes were triggered by the legal ambiguity and uncertainty around NFTs, as well as basic misunderstanding of copyright. Unless courts, legislators, or the market corrects these problems, NFTs will most likely end up as a niche curiosity for digital art collectors

CONCLUSION

If the only role of NFTs was to offer a real-world-like type of ownership, then it failed. That said, while they have not made digital ownership easy or comprehensive, NFTs have met certain needs for facilitating transfers of digital assets.

The technology itself is not to blame for failing to deliver on its promises. The current legal framework is still hostile to the solutions trying to bridge the gap between digital and physical ownership. NFTs highlight the long existing problems of digital asset regulation and the need to create a framework suitable for digital

²¹¹ *Complaint* at 1, Miramax, LLC. v. Quentin Tarantino; Visiona Romantica, Inc., No. 2:21-cv-08979 (C.D. Cal. 2021).

²¹² See Groom, *supra* note 149; see also Eileen Kinsella, *A Curator Allegedly Minted Unauthorized NFTs of Art by Anish Kapoor and Others. Now, He May Get Slapped with Lawsuits*, ARTNET (Nov. 23, 2021), <https://news.artnet.com/art-world/art-wars-unauthorized-nft-sales-2039341>.

transactions, as any other solution that follow NFTs will face the same regulatory impediments.

The other problem that NFTs expose is the conflict between intellectual property and virtual property. One of the main reasons that NFTs have not miraculously created “new and simple ownership” is that NFTs remain strongly rooted in IP. As long as NFTs and other virtual property remains IP-controlled, then the benefits that real-world ownership grants will remain a dream. Even if the IP regime is not the best for virtual goods, it does not mean that users cannot obtain property-esque rights through licenses. The market can give users their long-awaited goal of simple virtual ownership. But for now, “preventing false promises of ownership” and not misleading users by making them believe that they own what they only have a license to use will be a partial solution in the digital property ownership problem.²¹³

Beyond the analysis of NFTs’ efficiency as a tool for revolutionizing virtual property or facilitating online transactions, this boom is clearly a sign of a change: it is a manifestation of the desire for new ownership. If NFTs do not stand up as a good solution for digital ownership, then the market will continue looking for a new solution as long as there is a demand for easier digital ownership.

²¹³ Perzanowski & Hoofnagle, *supra* note 101, at 174.