

Are CryptoPunks Copyrightable?

Brian L. Frye¹

tl;dr: It's unclear, and that might be a problem for Larva Labs, but might also be an opportunity.

Larva Labs's CryptoPunks NFTs are iconic. Created in 2017, they were among the first NFTs on the Ethereum blockchain. Four years later, they are among the most valuable, selling for anywhere from \$200,000 to millions of dollars.

The CryptoPunks collection consists of 10,000 NFTs, each of which is associated with a unique CryptoPunks image. Everyone knows who owns each CryptoPunks NFT. The Ethereum blockchain provides indelible proof. But people disagree about who owns - and who should own - the copyright in the CryptoPunks images. Most CryptoPunks NFT owners believe they should own the copyright in the image associated with their NFT, or at least have the right to use it. Larva Labs believes it owns the copyright in all of the images, and entered a licensing deal with United Talent Agency based on its ownership of the CryptoPunks brand and copyrights.

Color me skeptical. I'm not sure anyone owns the copyright in the CryptoPunks images, because I'm not sure they're copyrightable in the first place. And I suspect Larva Labs is also worried about the copyrightability of the CryptoPunks images. After all, they complain about copyright infringement, but don't file infringement actions.

In this essay, I explain how copyright works, what it protects, and why. I analyze the copyrightability of the CryptoPunks images. And I reflect on what it means for the CryptoPhunks and V1 Punks NFTs, as well as the NFT market in general.



What are CryptoPunks?

In a nutshell, CryptoPunks is a collection of 10,000 non-fungible tokens or "NFTs" on the Ethereum blockchain, which was created in June 2017 by Matt Hall and John Watkinson of Larva Labs LLC. And it was a game changer. Arguably the first "true" NFT collection, CryptoPunks helped inspire not only the creation of the term NFT, but also the ERC-721

¹ Spears-Gilbert Professor of Law, University of Kentucky College of Law. Thanks to JuliusCrypto for comments and suggestions.

standard commonly used to create NFTs on the Ethereum blockchain.² But even more importantly, it was the first NFT collection to really take off. While others had created NFTs, Larva Labs created a real market for NFTs.

CryptoPunks has a retro vibe, inspired by the style of both the 70s London punk scene and 90s cyberpunk, as well as 80s video games.³ Each CryptoPunks NFT is numbered and associated with an image of an 8-bit sprite on a 24x24 matrix, which was automatically generated by an algorithm. All of the images consist of an abstracted face in right three-quarter profile. There are 11 different “types” of images: male or female in four skin tones, as well as alien, ape, or zombie. Each image also has from zero to seven additional attributes or “traits,” from a library of 87 possible traits, including a beanie, a mohawk, or 3D glasses. The CryptoPunks algorithm created 10,000 unique CryptoPunks images, by assigning each image a unique set of type and traits. It assigned different types and traits at different rates, making some combinations more common and others more rare.⁴ Then, Larva Labs assigned each image to an NFT.⁵

Punk Types

Attribute	#	Avail	Avg Sale 	Cheapest 	More Examples
Alien	9	3	0	 23KΞ	
Ape	24	2	2.5KΞ	 4.46KΞ	
Zombie	88	5	1.04KΞ	 1.3KΞ	
Female	3840	478	76.34Ξ	 72Ξ	
Male	6039	852	85.19Ξ	 68.95Ξ	

A Brief History of CryptoPunks

When Larva Labs released CryptoPunks on June 12, 2017, anyone could claim a CryptoPunks NFT for free by paying the transaction cost or “gas fee” to mint it on the Ethereum blockchain, which at the time was about 11 cents. Initially, no one was interested, and only a few dozen

² See William Entriken, Dieter Shirley, Jacob Evans & Nastassia Sachs, *EIP-721: Non-Fungible Token Standard, Ethereum Improvement Proposals*, January 24, 2018, at <https://eips.ethereum.org/EIPS/eip-721>.

³ See *10 things to know about CryptoPunks, the original NFTs*, Christie’s, April 8, 2021, at https://www.christies.com/features/10-things-to-know-about-CryptoPunks-11569-1.aspx?sc_lang=en#FID-11569.

⁴ A complete list of CryptoPunks types and traits and their frequency is available on the Larva Labs website. <https://www.larvalabs.com/cryptopunks/attributes#>.

⁵ Initially, the CryptoPunks images were only stored off-chain, but in 2021, Larva Labs recorded the CryptoPunks images on the Ethereum blockchain. Larva Labs, *On Chain CryptoPunks*, at <https://www.larvalabs.com/blog/2021-8-18-18-0/on-chain-cryptopunks>.

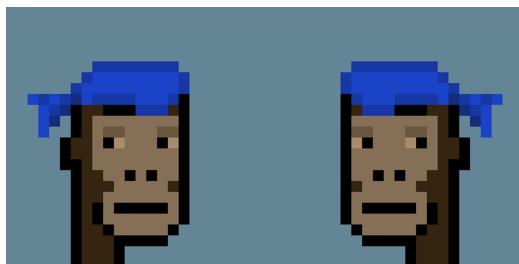
NFTs were claimed. But when Mashable published an article about CryptoPunks on June 16, suddenly everyone wanted one, and the entire collection was claimed in only a few hours.⁶

A secondary market in CryptoPunks NFTs emerged almost immediately. The day after the CryptoPunks collection was fully claimed, one CryptoPunks NFT sold for about \$3,500, and by a year later, an unusual alien CryptoPunk NFT had sold for about \$16,000.⁷ For a time, the market for CryptoPunks NFTs was volatile, but gradually trending upward. Then, in early 2021, the market exploded, and the price of a typical CryptoPunks NFT shot up to about \$30,000. That's when auction houses like Sotheby's and Christie's really got interested.⁸ On May 11, 2021, Christie's auctioned a lot of nine rare CryptoPunks NFTs for almost \$17 million.⁹ Suddenly, CryptoPunks were fine art.

As of February 2022, the lowest price CryptoPunks NFT was listed at about \$200,000. There were about \$120 million in CryptoPunks NFT transactions per month. And total CryptoPunks NFT sales were over \$2 billion. It's a huge market, predicated on nominal "ownership" of an 8-bit sprite.

CryptoPunks & Their Discontents

Many CryptoPunks NFT owners used their punk as their profile picture on various social media platforms, especially Twitter and Discord. The phenomenal success of the CryptoPunks NFTs encouraged a slew of other NFT artists to create profile picture or "pfp" projects. The most successful of those CryptoPunks competitors is Yuga Labs's Bored Apes Yacht Club, a collection of 10,000 NFTs associated with images of cartoon apes drawn in a graffiti-style, with an assortment of types and traits of varying degrees of rarity, much like CryptoPunks.¹⁰



L: Larva Labs, CryptoPunk 4156 (2017)
R: Not Larva Labs, CryptoPhunk 4156 (2021)

⁶ Apparently, Hall and Watkinson of LarvaLabs minted about 1,000 CryptoPunks NFTs for themselves.

⁷ Chloe Cornish, CryptoKitties, CryptoPunks and the birth of a cottage industry, Financial Times, June 5, 2018, at <https://www.ft.com/content/f9c1422a-47c9-11e8-8c77-ff51caedcde6>.

⁸ Lucas Matney, The Cult of CryptoPunks, TechCrunch, April 8, 2021, at <https://techcrunch.com/2021/04/08/the-cult-of-cryptopunks/>.

⁹ Larva Labs, 9 Cryptopunks: 2, 532, 58, 30, 635, 602, 768, 603 and 757 (2017), Christie's (2021), at <https://www.christies.com/lot/lot--6316969/>. See also 10 things to know about CryptoPunks, the original NFTs, Christie's, April 8, 2021, at

<https://www.christies.com/features/10-things-to-know-about-CryptoPunks-11569-1.aspx>.

¹⁰ See Bored Ape Yacht Club (2021), at <https://opensea.io/BoredApeYachtClub>.

Not Larva Labs & CryptoPhunks NFTs

CryptoPunks NFTs have attracted many imitators. The funniest of these is the CryptoPhunks NFT collection, created by Not Larva Labs in July 2021.¹¹ The CryptoPhunks collection consists of 10,000 NFTs, each of which is associated with a CryptoPunks image facing left, rather than right. Yes, Not Larva Labs copied the entire collection of 10,000 CryptoPunks images, flipped them, and sold NFTs associated with those flipped images. Currently, the lowest price CryptoPhunk NFT is listed at about \$2,000.

Unsurprisingly, Larva Labs is unhappy about the CryptoPhunks NFTs. Not Larva Labs started selling CryptoPhunks NFTs on June 14, 2021 from its own website. But most secondary sales of NFTs occur on OpenSea, and on June 21, OpenSea delisted all CryptoPhunks NFTs. After briefly relisting the NFTs, OpenSea delisted them again on June 29, and Larva Labs filed a DMCA notice with OpenSea on June 30. Oddly, OpenSea briefly relisted the CryptoPhunks NFTs on July 3, despite the DMCA notice, then delisted them for good on July 13.¹² CryptoPhunks NFTs are still traded on the Not Larva Labs website and other NFT marketplaces. While Larva Labs obviously thinks the CryptoPhunks NFTs are infringing, it hasn't filed an infringement action.



Larva Labs, V1 Punk 8745 (2017)

V1 CryptoPunks NFTs

One of the reasons CryptoPunks NFTs are especially popular among NFT collectors is that CryptoPunks was one of the first NFT collections on the Ethereum blockchain. Many NFT collectors highly value “historical” NFTs that represent “firsts” in the NFT marketplace. Accordingly, “NFT archeologists” are always looking for forgotten NFT projects they can rescue from oblivion and sell.

¹¹ Not Larva Labs, CryptoPhunks (2021), at <https://notlarvalabs.com/cryptophunks>.

¹² See BowTied SizeLord, Let's Get Phunkey: CryptoPhunks and Web3 Censorship, Bowtied Island, December 27, 2021, at <https://bowtiedisland.com/lets-get-phunkey-cryptophunks-and-web3-censorship/>.

Before Larva Labs created the CryptoPunks NFT collection it released on June 12, 2017, it released a collection of 10,000 CryptoPunks NFTs with a defective contract that allowed the buyer of the NFT to withdraw the funds deposited in the contract, but not the seller. When Larva Labs realized there was a defect in the contract, they created a new collection of 10,000 CryptoPunks NFTs, and disowned the original, defective NFTs.¹³

Eventually, NFT archeologists discovered the original collection of CryptoPunks NFTs and devised a way to transact in them despite the defective contract, by “wrapping” them in a new ERC-721 smart contract.¹⁴ These wrapped NFTs from the original CryptoPunks NFT release became known as “V1 Punks,” and were associated with CryptoPunks images on a purple background, to distinguish them from so-called “V2 Punks.”¹⁵

Unfortunately, Larva Labs continued to disown the V1 Punks, and objected to their sale.¹⁶ In response to Larva Labs’s objections, OpenSea, the largest NFT marketplace, prohibited the sale of wrapped V1 CryptoPunks NFTs. However, LooksRare, a smaller NFT marketplace, welcomed the sale of the V1 Punks NFTs, which were quite popular with NFT collectors.¹⁷

On January 25, 2022, Larva Labs made the controversial decision to both reiterate its disapproval of the V1 Punks NFTs and announce its intention to sell some or all of the 1,000 V1 Punks NFTs it still owned.¹⁸ NFT collectors were understandably confused and upset by this announcement. Soon afterward, Larva Labs explained that it regretted the decision to sell its V1 Punks NFTs and suggested that it might pursue legal action against future sales.¹⁹ V1 Punk NFT owners were left wondering, not only about the authenticity of their NFTs, but also about whether Larva Labs would sue them for copyright infringement if they tried to sell their NFTs.

¹³ See Jon Torrey, *Breaking Down V1 CryptoPunks: The First CryptoPunks Release*, Start With NFTs, January 15, 2022, at <https://www.startwithnfts.com/posts/breaking-down-v1-cryptopunks-the-first-cryptopunks-release>.

¹⁴ See Andrew Hayward, *CryptoPunks Controversy: Creators Apologize for 'V1' Ethereum NFT Sales*, Decrypt, February 24, 2022, at <https://decrypt.co/92155/cryptopunks-controversy-creators-apologize-v1-ethereum-nft>.

¹⁵ See V1 Punks, at <https://www.v1punks.io/about/>.

¹⁶ See Andrew Hayward, *CryptoPunks Controversy: Creators Apologize for 'V1' Ethereum NFT Sales*, Decrypt, February 24, 2022, at <https://decrypt.co/92155/cryptopunks-controversy-creators-apologize-v1-ethereum-nft>.

¹⁷ Eduardo Próspero, *What Are The CryptoPunks V1? And, How Can They Disrupt The Market?*, NewsBTC, February 3, 2022, at <https://www.newsbtc.com/news/ethereum/what-are-the-cryptopunks-v1-and-how-can-they-disrupt-the-market/>.

¹⁸ @larva labs, Twitter, January 25, 2022, at <https://twitter.com/larvalabs/status/1486092138534387712?s=20&t=dVrM0eRLarzOmGgEMdGGcw>.

¹⁹ See Andrew Hayward, *CryptoPunks Controversy: Creators Apologize for 'V1' Ethereum NFT Sales*, Decrypt, February 24, 2022, at <https://decrypt.co/92155/cryptopunks-controversy-creators-apologize-v1-ethereum-nft> and Eduardo Próspero, *What Are The CryptoPunks V1? And, How Can They Disrupt The Market?*, NewsBTC, February 3, 2022, at <https://www.newsbtc.com/news/ethereum/what-are-the-cryptopunks-v1-and-how-can-they-disrupt-the-market/>.

CryptoPunks & the Law

Does Larva Labs have any legal rights to object to Not Larva Labs selling CryptoPhunks NFTs or NFT archeologists selling V1 CryptoPunks? As always, it depends. But it depends primarily on whether Larva Labs owns a copyright in the CryptoPunks images, what kind of license it gives NFT owners to use CryptoPunks images, and whether the CryptoPhunks and V1 CryptoPunks are using copyrighted images in an infringing way. The answers to all of these questions are complicated and uncertain. And in order to understand those answers, you need to understand certain things about copyright law and how it works.

Copyrightable Subject Matter

Copyright automatically protects “original works of authorship” as soon as they are “fixed in any tangible medium of expression.”²⁰ These requirements for copyright protection are vanishingly low. According to the Supreme Court, “originality requires independent creation plus a modicum of creativity.”²¹ A work is “independently created” so long as it isn’t actually copied from another work, and sufficiently “creative” so long as anything distinguishes it from other, similar works.²² And fixation simply requires the creation of a copy of a work in a form that enables perception or reproduction of the work, including a digital file.²³

So, if you create a digital image without copying another digital image, then you own a copyright in the digital image you created. It’s that simple. You own a copyright because you created an original pictorial work fixed in the tangible medium of a digital file. You don’t have to do anything else to be a copyright owner. In fact, you even own a copyright in every version of the digital image you created.

Of course, copyright owners can register their works with the United States Copyright Office for a fee. Registration gives copyright owners certain benefits, including the right to sue for copyright infringement. But registration isn’t necessary for copyright ownership, which vests in the author at the moment of fixation.²⁴

²⁰ 17 U.S.C. § 102(a).

²¹ Feist Publications, Inc. v. Rural Telephone Service Co., 499 U.S. 340, 346 (1991).

²² Feist Publications, Inc. v. Rural Telephone Service Co., 499 U.S. 340, 345 (1991) (“Original, as the term is used in copyright, means only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity. To be sure, the requisite level of creativity is extremely low; even a slight amount will suffice. The vast majority of works make the grade quite easily, as they possess some creative spark, ‘no matter how crude, humble or obvious’ it might be.”) (cleaned up).

²³ 17 U.S.C. § 102 (“A work is ‘fixed’ in a tangible medium of expression when its embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration.”).

²⁴ See generally Nicole E. Pottinger & Brian L. Frye, *Registration is Fundamental*, 8 IP Theory 1 (2018) (describing the copyright registration process)..

Copyright doesn't just protect original works of authorship, it also protects all of the original elements of a work of authorship. Any part of a work that independently satisfies the originality requirement is independently protected by copyright. So, copyright can and does protect the parts of a literary or pictorial work, just as much as it protects the work as a whole, and copyright can and does protect the relationships among those parts, so long as they are also original.

Copyright & Digital Images

Copyright protects original works of authorship, irrespective of the medium in which a copy of the work is reproduced.²⁵ So, copyright can protect a pictorial work whether it's fixed in the form of a painting, a drawing, a print, a photograph, a video, or a digital file. But it has to be original. In other words, it can't be a copy of another work, and it has to have enough "creativity" to qualify for copyright protection.

Typically, a pictorial work easily qualifies for copyright protection, unless it's a copy of another work. Almost every independently created pictorial work contains enough "creativity" to make it "original." But there are some exceptions, typically works that consist of minimal visual elements. For example, in *Star Athletica, LLC v. Varsity Brands*, the Supreme Court held that copyright can protect the pattern printed on a cheerleading uniform, but declined to determine whether the patterns at issue were sufficiently original for copyright protection.²⁶ Similarly, many works of minimal and conceptual art probably lack any original elements that qualify for copyright protection.²⁷ Copyright probably cannot protect works that consist of a single color or a simple pattern of colors and lines.

Why not? There are many ways of conceptualizing the problem, but they all boil down to the idea-expression dichotomy, which provides that copyright can only protect particular expressions, not abstract ideas.²⁸ Usually, the idea-expression dichotomy isn't an issue for pictorial works, because they are particular expressions by their very nature. For better or worse, the hand of the artist is always apparent. But very simple pictorial works can become indistinguishable from abstract ideas.

An illustration might be helpful. In 2020, the artist and lawyer Alfred Steiner created the work of conceptual art *How Much is Enough?*, which consists of a copyright registration application for a series of 10 digital images.²⁹ The first image is a blank white square and each subsequent image adds a visual element. The Copyright Office responded to Steiner's application by

²⁵ 17 U.S.C. § 102(a).

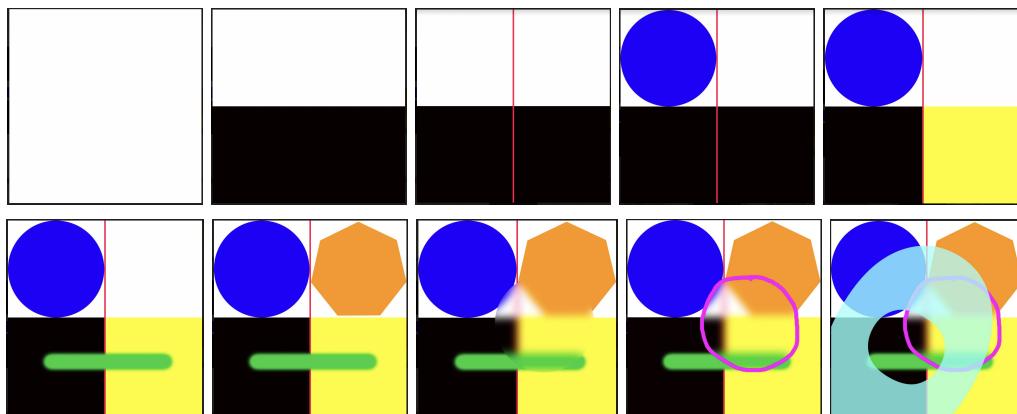
²⁶ 137 S. Ct. 1002, 1012 n.1 (2017) ("We do not today hold that the surface decorations are copyrightable. We express no opinion on whether these works are sufficiently original to qualify for copyright protection.").

²⁷ See generally, Guy A. Rub, *Owning Nothingness: Between the Legal and the Social Norms of the Art World*, 2019 BYU L. Rev. 1147 (2020) (observing that many works of minimal and conceptual art seem to lack any copyrightable elements).

²⁸ 17 U.S.C. § 102(a).

²⁹ See generally, Alfred Steiner, at <https://alfredsteiner.com/>.

registering images 8 to 10, but refusing to register images 1 to 7, because they “do not possess the requisite creative authorship to sustain a copyright registration.”³⁰



Alfred Steiner, *How Much is Enough? 1.1-1.10* (2020)

In other words, the Copyright Office found that images 1 to 7 lacked sufficient creativity for copyright protection, but images 8 to 10 had sufficient originality for copyright protection. How did the Copyright Office make that determination? It didn't explain, so we can't know. But we can infer that the Copyright Office found a combination of simple geometric forms ineligible for copyright protection.³¹

This is a problem for pictorial works that consist of simple digital images like 8-bit sprites. Obviously, copyright cannot protect a digital image that consists of a single pixel. And the same is surely true of a digital image that consists of a small number of pixels. The question is how many pixels a digital image needs to qualify for copyright protection.

Unfortunately, the answer is unclear. While courts have decided many cases involving 8-bit video games, all of those cases have depended on the overall appearance and play of the games in question, rather than the similarity of particular sprites.³² In other words, while copyright can definitely protect 8-bit video games, it's unclear whether and when copyright can protect particular 8-bit sprites. Presumably, the copyrightability of an 8-bit sprite depends on its complexity. But what is complexity and how much is required?

The copyrightability of an 8-bit sprite can't depend only on its size. After all, copyright can't protect an 8-bit sprite that consists of a uniformly colored square, no matter how many pixels it includes. But at the same time, copyrightability can't depend only on appearance. Especially for

³⁰ Letter from US Copyright Office to Alfred Steiner.

³¹ See generally Nicole E. Pottinger & Brian L. Frye, *Registration is Fundamental*, 8 IP Theory 1 (2018) (surveying Copyright Office Review Board opinion letters).

³² See, e.g., *Atari, Inc. v. Amusement World, Inc.*, 547 F. Supp. 222 (D.Md 1981) (no infringement); *Atari, Inc. v. North American Philips Consumer Electronics Corp.*, 672 F.2d 607 (7th Cir. 1982) (infringement); *Data East USA, Inc. v. Epyx, Inc.* 862 F.2d 204 (9th Cir. 1988) (no infringement); *Capcom U.S.A. Inc. v. Data East Corp.*, 1994 WL 1751482 (N.D. Cal, 1994) (no infringement); *Tetris Holding, LLC v. Xio Interactive, Inc.*, 863 F.Supp.2d 394 (D.N.J. 2012) (infringement).

small images, there's a limited number of appealing and expressive shapes. It's got to be a judgment call, and it's got to depend on the circumstances.

The benchmark is obvious. Authors should be able to claim copyright ownership of an 8-bit sprite only if and when it doesn't limit the ability of other authors to create their own 8-bit sprites. After all, the purpose of copyright is to protect original works of authorship, not to enable authors to monopolize a medium. That means copyright in 8-bit sprites should be quite narrow indeed. The more limited the palette, the more others need and deserve access to it. As Locke observed, one should be able to claim ownership only "where there is enough, and as good, left in common for others."³³

Copyright in NFTs

Copyright doesn't and can't protect NFTs. Why not? An NFT is just encrypted data on a blockchain, typically consisting of a URL pointing to a digital image file. Copyright can't protect a URL, which is the digital equivalent of an entry in a white pages telephone directory.³⁴ And copyright can't protect a URL minted on a blockchain. There's no original element for copyright to protect.

What copyright can protect is any original element associated with an NFT. If an NFT includes any data other than an URL, copyright can protect any original elements of the data. If an NFT consists of a URL pointing to a digital image file, copyright can protect any original elements of the digital image. And if a computer program is used to create the digital images associated with an NFT, then copyright can protect any original element of the computer program.

CryptoPunks & Copyright

Does Larva Labs own a copyright in CryptoPunks? It depends what you mean. Copyright can't protect the CryptoPunks NFTs, does protect the CryptoPunks algorithm, and may or may not protect the CryptoPunks images. Why?

Copyright can't protect the CryptoPunks NFTs because they don't include any copyrightable elements. Originally, the Cryptopunks NFTs consisted of a URL pointing to a CryptoPunks image stored off-chain. Obviously, that isn't copyrightable. Now, the CryptoPunks images are also stored on the Ethereum blockchain. But that is just to say the CryptoPunks NFTs point to a CryptoPunks image stored on-chain. Copyright doesn't care where an NFT points, it cares what an NFT contains. The CryptoPunks NFTs didn't and can't change. They didn't include any copyrightable elements when they were created, and they don't include any copyrightable elements now.

³³ John Locke, Second Treatise of Government (1689).

³⁴ See generally Feist Publications, Inc. v. Rural Telephone Service Co., 499 U.S. 340 (1991) (holding that copyright cannot protect an entry in a white pages telephone directory).

Copyright can protect the CryptoPunks algorithm, because copyright protects computer programs as literary works. Obviously, copyright can't protect the concept of an algorithm that generates digital images, because it can't protect abstract ideas. It probably can't even protect the idea of an algorithm that generates digital images of 8-bit sprites with a punk aesthetic. But it can and does protect a particular computer program that generates particular images in a particular way. In other words, copyright can't protect the concept of a generative art algorithm, but it can protect a particular algorithm.

Copyright in the CryptoPunks Images

The hard question is whether copyright can and does protect the CryptoPunks images. The answer is probably yes on both counts, but there's a reasonable argument that it doesn't and shouldn't. After all, the CryptoPunks images are 8-bit sprites, and Larva Labs is claiming copyright ownership of at least 10,000 images, maybe a lot more, depending on how you interpret their copyright claim.

What has Larva Labs told us about its copyright claim? Not much. Larva Labs registered CryptoPunks with the United States Copyright Office on March 4, 2018 as a "2-D artwork" in an electronic file.³⁵ Presumably, it registered a digital image consisting of the images associated with all 10,000 CryptoPunk NFTs. That's understandable, because it enabled Larva Labs to register all of the CryptoPunks images in a single application. While the Copyright Office does accept group registrations, it won't accept 10,000 separate images in a single application, so registering all of the CryptoPunks images individually would have required many separate applications. The copyright registration process is non-public, with the exception of Copyright Office Review Board opinion letters, but the Copyright Office's decision to grant the CryptoPunks registration application is unsurprising. An image consisting of 10,000 8-bit sprites easily contains enough originality to qualify for copyright protection.

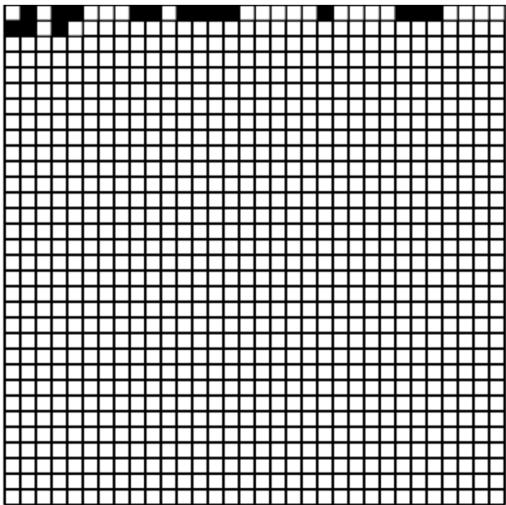
But the image Larva Labs registered isn't all it claims to own. Larva Labs clearly believes it owns a copyright in all 10,000 CryptoPunks images individually, not merely as one of 10,000 elements in a digital image. That's a broader claim, and one the Copyright Office hasn't endorsed. After all, Larva Labs submitted and the Copyright Office registered a single image containing all 10,000 CryptoPunks images. That single image is what the Copyright Office evaluated for registrability. It didn't consider and didn't decide whether individual CryptoPunks images are registrable. Which leaves an open question: What should copyright protect, and should copyright owners be able to claim so many similar images?

Let's break it down. CryptoPunks images use a 24x24 matrix of 576 pixels. That's a lot of potential images! As John F. Simon, Jr.'s digital artwork *Every Icon* (1997) memorably demonstrates, the number of possible combinations of pixels in a 36x36 matrix is effectively

³⁵ Larva Labs LLC, CryptoPunks, United States Copyright Office, Registration Number VA0002116706, March 4.

infinite.³⁶ The same is true of a 24x24 matrix. So, copyright should protect the CryptoPunks images?

Every Icon



Given:

An icon described by a 32 X 32 grid.

Allowed:

Any element of the grid to be colored black or white.

Shown:

Every icon.

Owner:

John F Simon Jr

Edition Number:

Artist's Proof

Starting Date:

January 14, 1997, 9:00:00 pm

Not so fast. Combinations of pixels don't all have the same visual effect. The vast majority are meaningless. Only a tiny fraction are sufficiently semiotically loaded to resemble something and convey information. Those are the combinations people actually want to use and own. There are still a lot of them, but not nearly as many as the raw numbers suggest.

What's more, copyright can only protect original works of authorship. That means copyright can't protect elements of 8-bit sprites that represent abstract ideas, rather than particular expressions. It can't protect elements of 8-bit sprites copied from other 8-bit sprites. And it can't protect elements of 8-bit sprites unless they have enough creativity to be original. So, copyright in 8-bit sprites has got to be pretty narrow. Only a limited number of desirable images are possible, many of them are too abstract, many others have already been created, and many of the remaining images are too simple.

Still, copyright surely protects at least some 8-bit sprites. There are so many possible images, and it's amazing how little visual information is required to convey meaning. Small changes make a big difference. Digital artists have created innumerable 8-bit sprites. Most of them are forgettable, but some of them are iconic, and everyone knows the difference.

If Larva Labs had created one CryptoPunks image, it would almost certainly own a valid copyright. Hell, if it had created dozens of CryptoPunks images, it would still almost certainly own valid copyrights in all of them.

³⁶ See John F. Simon, Jr., *Every Icon* (1997), at <http://www.numeral.com/appletsoftware/eicon.html>. In 2021, *Every Icon* was reimagined as an NFT project. <https://www.eatworks.xyz/>

But Larva Labs didn't just create and claim copyright ownership of a few images. Instead, it created 98 graphic elements (11 types and 87 traits), algorithmically generated 10,000 images consisting of different combinations of those elements, and claimed copyright ownership of all of the images it created. That's a lot of copyrighted images.

Now, copyright scholars pretty uniformly agree that copyright can protect works generated by a computer.³⁷ And it stands to reason. Computers do what they are told, and someone has to tell them what to do. If a computer creates a work, then someone told the computer to create it, so the person who instructed the computer is the author and owns the copyright. Easy.

And yet, if you instruct a computer to create works, it can create an awful lot of them. Apes with typewriters will take awhile to write John Keats's *Ode on a Grecian Urn*, but if you call the apes computers, everything they bang out is an original work of authorship protected by copyright. Give them a decent algorithm and they'll generate more content than anyone could possibly consume, if they cared to try. These days, the internet is full of it.³⁸

Is that all Larva Labs is claiming? While Larva Labs used the 98 graphic elements it created to generate 10,000 unique CryptoPunk images, it could have used those same elements to automatically generate an impossibly large number of unique images, the set of all possible combinations of types and traits. As far as I know, it didn't actually create those potential images, but does it matter? They exist in theory, and I know exactly how each one would look, based on its type and traits.

Surely, Larva Labs also claims copyright ownership of all of those potential CryptoPunk images, even though it hasn't actually created them. But how? You can't own the copyright in a pictorial work until you fix a copy of it in a tangible medium. If you haven't actually created a potential CryptoPunk image, you haven't fixed a copy of it in a tangible medium, so you can't own a copyright in it.

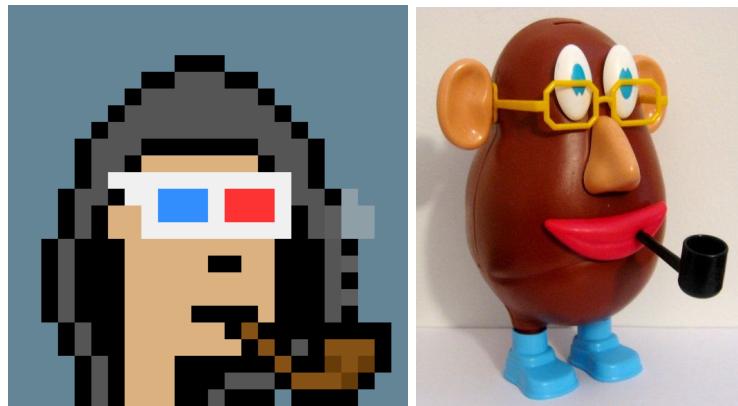
³⁷ See, e.g., Pamela Samuelson, Allocating Ownership Rights in Computer-Generated Works, 47 U. Pitt. L. Rev. 1185 91986); James Grimmelmann, There's No Such Thing as a Computer-Authored Work – And It's a Good Thing, Too, 39 Columbia Journal of Law & the Arts 403 (2016); Annemarie Bridy, Coding Creativity: Copyright and the Artificially Intelligent Author, 5 Stanford Technology Law Review 1 (2012); Annemarie Bridy, The Evolution of Authorship: Work Made by Code, 39 Columbia Journal of Law & the Arts 395 (2016).

³⁸ Cf. Brian L. Frye, The Plagiarism Trilogy, 111 Banja Luka Criminal Law Review 125 (2021) (presenting three essays on the theme "the illegitimacy of plagiarism norms" commissioned from essay mills).



So, if I create a CryptoPunks image using a combination of type and traits that LarvaLabs hasn't actually used, do I own a copyright in the image I created? After all, I independently created the image, without copying it from any existing CryptoPunks image. And it is just as "creative" as any other combination of type and traits. Maybe I've created an original work of authorship and fixed it in a tangible medium.

Of course not. As Larva Labs would be sure to observe, the copyrightability of a CryptoPunks image doesn't depend on its particular combination of type and traits, but on the originality of the elements used to create it. You can't become the copyright owner of a particular CryptoPunks image simply by creating a combination of type and traits, any more than you become the copyright owner of a particular Mr. Potato Head by adding eyes, a nose, and a mouth.

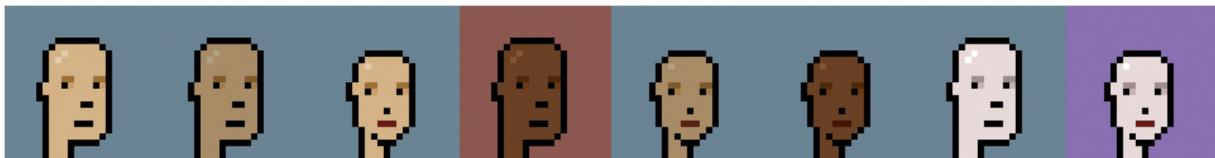


In other words, Larva Labs isn't really claiming copyright ownership of particular CryptoPunks images. It's implicitly claiming copyright ownership of the graphic elements used to create CryptoPunks images, and by extension all of the CryptoPunks images those elements can be used to create.



CryptoPunk 1424 (cigarette, headband, nerd glasses, goatee)

That might be a problem. Many of the graphic elements created by Larva Labs and used to create the CryptoPunks images are quite simple, and probably don't qualify for copyright protection. For example, there's only a limited number of ways to depict a cigarette, headband, or glasses in a 24x24 matrix of pixels. Some of the graphic elements consist of only a few pixels, like a clown nose, buck teeth, or a mole. Copyright can't protect such simple images as pictorial works. If anything lacks the "creativity" required for copyright protection, it's a square of four red pixels. What's more, if there's only one way or a limited number of ways to represent an object in a particular medium, then the merger doctrine applies, and none of them are protected.



CryptoPunks Types

Even the CryptoPunks types are minimalistic representations of human heads, on the cusp of copyrightability. While there's more than one way to represent a face in three-quarters profile in a 24x24 matrix of pixels, the number of available options is limited. What's more, some options are more desirable than others. It's not enough to say that others can still create similar images. They need and deserve the ability to create similar images that are as good or better. The idea-expression dichotomy protects that right by preventing copyright owners from monopolizing a category of works.

While the originality requirement for copyright protection is notoriously forgiving, it isn't a gimme. The Copyright Office rejects a significant number of registration applications every year.³⁹ And many of those registration applications are rejected for lack of sufficient "creativity."⁴⁰ Why? Often because it considers them "standard" works, reflecting the conventional way of realizing a familiar object. For example, the Copyright Office refused to register:

³⁹ See generally Zvi S. Rosen & Richard Schwinn, *An Empirical Study of 225 Years of Copyright Registrations*, 94 Tulane L. Rev. 1003 (2020)

⁴⁰ See generally Nicole E. Pottinger & Brian L. Frye, *Registration is Fundamental*, 8 IP Theory 1 (2018).



- Cady Noland's sculpture *Log Cabin*, because it took the form of a standard log cabin;⁴¹
- Fernando Donis's sculpture *Dubai Frame*, because it took the form of a standard picture frame;⁴² and,
- The design of a package of cod liver in its own oil, because it was dictated by regulatory and functional requirements.⁴³

The Copyright Office often refuses to register logos for lacking sufficient originality. For example, it refused to register:



- The American Airlines logo;⁴⁴ and
- The Ulthera logo.⁴⁵

The Copyright Office even has a history of resisting registration of pixel art. For example, it refused to register the Atari video game Breakout, finding that it lacked sufficient originality to qualify for copyright protection.⁴⁶ While the District of Columbia Circuit repeatedly disagreed with the Copyright Office's refusal to register the game, it acknowledged that copyright was a close question.

⁴¹ Letter from U.S. Copyright Office Review Board to Michael Frodsham (Oct. 13, 2016).

⁴² Letter from U.S. Copyright Office Review Board to Edward Klaris (Nov. 29, 2017).

⁴³ Letter from U.S. Copyright Review Board to Jennette Wiser (Jan. 24, 2017).

⁴⁴ Letter from U.S. Copyright Office Review Board to Andrew J. Avsec (Oct. 23, 2017).

⁴⁵ Letter from U.S. Copyright Office Review Board to Jonathan Hyman (Jan. 8, 2018).

⁴⁶ See *Atari Games Corp. v. Oman*, 888 F. 2d 878 (D.C. Cir. 1989) and *Atari Games Corp. v. Oman*, 979 F. 2d 242 (D.C. Cir. 1992).



If the Copyright Office found these works uncopyrightable, it is at least possible that it would find some or all of the elements of the CryptoPunks images uncopyrightable as well. After all, surely an entire 8-bit video game includes more copyrightable material than a single 8-bit sprite.

In any case, copyright can only protect the elements of the CryptoPunks images if they were independently created by Larva Labs. In other words, if Larva Labs copied elements of other 8-bit sprites when it created the CryptoPunks elements, then copyright can't protect the copied elements. It's impossible to know whether Hall and Watkinson actually copied any other works, but it wouldn't be surprising. Borrowing visual elements is a common and widely-accepted practice among pixel art authors, probably because the nature of the medium limits the range of possible expression, and also because meme culture encourages copying.



Epyx, *California Games* (1987)

In any case, the CryptoPunks elements resemble elements used in other 8-bit sprites. Take this image from the 1987 Epyx videogame *California Games*, which represents the judges of the surfing competition. The shape of the judges' heads resembles the shape of the CryptoPunks types, in some cases quite closely. And many of the other elements used to create the judges resemble CryptoPunks traits. For example, I see versions of regular shades, classic shades, mohawk thin, wild hair, wild blonde hair, and messy hair.

Are the CryptoPunks types and elements identical to those used in *California Games*? Of course not, although some are quite close indeed. Were the CryptoPunks types and elements copied from *California Games*? Maybe, it was a popular game, selling more than 500,000 copies. Does it matter?

Of course it does. Copyright can only protect original works of authorship, which means it can only protect the elements of a work that aren't copied from another work. But versions of the graphic elements used to create the CryptoPunks images were used to create works of pixel art long before the CryptoPunks were created. After all, I found this example of similar pictorial works in about 30 minutes, with little knowledge of pixel art. I'm sure there are many other examples.

If copyright can protect the CryptoPunks elements at all, it can only provide thin protection, covering the graphic elements Hall and Watkinson created and no more. And in many cases, it's hard to see how copyright can protect those elements at all, if copyright protection would effectively prevent other authors working in the same medium from achieving a similar visual effect.

In a nutshell, it's hard to say for certain whether copyright can and does protect the CryptoPunks images. On one side, copyright protection is quite forgiving, so even simple images like 8-bit sprites usually receive at least some copyright protection. But on the other side, Larva Labs isn't just claiming an 8-bit sprite, it's claiming all possible combinations of a set of graphic elements. That's a much broader claim, which presents a much harder copyright question. Does claiming all possible CryptoPunks variations simply mean claiming a lot of particular expressions, or is it more like claiming an abstract idea?

Owning the CryptoPunks

So, are the CryptoPhunks NFTs or the V1 CryptoPunks NFTs infringing? It all depends on whether Larva Labs owns a valid copyright in the CryptoPunks images, what rights if any it explicitly or implicitly gave to owners of CryptoPunks NFTs, and whether a particular use of a CryptoPunks image is infringing.

First, let's get something off the table. Selling an NFT is almost never infringing.⁴⁷ The overwhelming majority of NFTs consist of nothing more than an encrypted URL. Owning, transferring, and transacting in encrypted URLs is not and cannot be infringing. There's nothing to infringe.

What can be infringing is creating a reproduction of a copyrighted image associated with an NFT without permission. When the copyright owner of an image sells an NFT of that image, they often give the NFT owner the explicit right to use the image in certain ways. At the very least, they implicitly give the NFT owner the right to use the image when "displaying" or selling the NFT.

The copyright owner of an image has the exclusive right to reproduce that image. Accordingly, the copyright owner of an image can create an NFT of that image, display the image when selling the NFT, and convey rights to use the image to the NFT owner. Anyone can create and sell an NFT of anything they like, including a copyrighted image. But if you aren't the copyright owner, you can't use the image when you sell the NFT without infringing copyright, and you can't convey any rights to use the image, because you don't have any. Of course, if the image is in the public domain, it isn't protected by copyright, and anyone can use it in any way they like.

The overwhelming majority of NFTs are associated with copyrighted digital images, and the overwhelming majority of those NFTs were created and sold by the copyright owner of the images they represent. Different NFT artists have chosen to license their images in different ways. While NFT artists can retain all rights in their images, most at least give NFT owners the right to use the image associated with their NFT personally or non-commercially. Others, like Yuga Labs, are more liberal, giving NFT owners the right to use the image associated with their NFT in some commercial ways as well.⁴⁸ And increasingly, many NFT artists use Creative Commons licenses to make their images open-access, or the Creative Commons CC0 tool to disclaim copyright ownership of their images and place them in the public domain.⁴⁹

Oddly, despite the prominence of the CryptoPunks NFTs, their licensing status is unclear.⁵⁰ When Larva Labs released the CryptoPunks NFT collection, it didn't provide any licensing terms for the images associated with the NFTs. Apparently, Watkinson initially intended the owners of CryptoPunks NFTs to own the copyright in the CryptoPunks image associated with their NFT.⁵¹ But Larva Labs never actually transferred copyright ownership to NFT owners, so it retained any

⁴⁷ See generally Alfred "Dave" Steiner, *The Paper It's Printed On: NFTs, Ownership and Conceptual Art*, at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3997352 (explaining how copyright affects NFTs and licensing the images associated with them).

⁴⁸ See Bored Ape Yacht Club, Terms & Conditions, at <https://boredapeyachtclub.com/#/terms>.

⁴⁹ Examples of CC0 NFT collections include: CrypToadz (<https://www.cryptoatz.io/>) and NounsDAO (<https://nouns.wtf/>).

⁵⁰ See generally Edward Lee, *The Cryptic Case of the CryptoPunks Licenses: The Mystery Over the Licenses for CryptoPunks NFTs*, at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3978963 (explaining the licensing status of the images associated with CryptoPunks NFTs).

⁵¹ See Eric Adler, *CryptoPunks: Aligning Blockchain Ownership with Copyright Ownership*, PNW STARTUP LAWYER (Jan. 24, 2018).

copyright ownership that exists in the images.⁵² Later, Watkinson expressed an intention to adopt the so-called “NFT License” used by Dapper Labs for the CryptoKitties NFTs.⁵³ But there’s no evidence Larva Labs ever adopted the NFT License, or any other license, for that matter.

However, Larva Labs did hire United Talent Agency to manage its intellectual property, presumably including its CryptoPunks brand and copyright.⁵⁴ What is UTC licensing? Who knows. The CryptoPunks brand seems strong, and Larva Labs has a pending trademark registration application.⁵⁵ And Larva Labs has also registered a copyright in a composite of all 10,000 CryptoPunks images.

But everyone seems to think UTC is managing the rights in all 10,000 CryptoPunks images. Is that true? And if so, what rights is it managing? Some CryptoPunks images have certainly become distinctive, and function as de facto brands. For example, the owner of the CryptoPunk 6529 NFT has almost 250,000 Twitter followers, and considerable clout in the NFT space.⁵⁶ It’s possible, even likely, that UTC is working with prominent CryptoPunks NFTs owners to promote the CryptoPunks brand.

However, there’s no evidence that Larva Labs or UTC are doing much of anything to actually enforce copyright ownership of the CryptoPunks images. They’re widely reproduced, and Larva Labs has never objected. On the contrary, Larva Labs makes it easy to find the CryptoPunks image of your choice, and even provides a downloadable, high-resolution JPEG, for your convenience. They haven’t even filed a copyright infringement action against Not Larva Labs, which is obviously using CryptoPunks images without permission.

What gives? I suspect Larva Labs realizes that its copyright in the CryptoPunks images is questionable. If Larva Labs owns a copyright in the CryptoPunks images, it’s a wafer-thin copyright. And there’s a very real possibility they don’t and can’t own any copyright at all. It’s hard to know. And Larva Labs probably doesn’t want to find out. There’s no real upside to talking about the copyrightability of the images you claim to own, especially when everyone assumes they’re protected, and you know they might not be.

Punking the CryptoPunks

How does any of this affect NFT collections that use CryptoPunks images without the permission of Larva Labs, like CryptoPhunks and the V1 Punks? It depends.

⁵² Under the Copyright Act, copyright vests in author of a work of authorship and can be transferred only in a signed writing. 17 U.S.C. § 201(d).

⁵³ See Eric Paul Rhodes, *CryptoPunks and Copyrights: What’s All The Fuss About?*, The Outer Realm, July 12, 2021, at <https://www.theouterrealm.io/blog/cryptopunks-copyrights>. See also <https://www.nftlicense.org/>.

⁵⁴ See Taylor Hatmaker, CryptoPunks creator inks representation deal with major Hollywood talent agency, TechCrunch, August 31, 2021, at <https://techcrunch.com/2021/08/31/larva-labs-cryptopunks-uta-meebits/>.

⁵⁵ See, United States Patent and Trademark Office, CRYPTOPUNKS, at https://tsdr.uspto.gov/#caseNumber=90587519&caseType=SERIAL_NO&searchType=statusSearch

⁵⁶ See Twitter, <https://twitter.com/punk6529>.

If the CryptoPunks images are uncopyrightable, then it's a free-for-all. CryptoPhunks and the V1 Punks would be in the clear, but so would anyone else who wanted to use the CryptoPunks images. Anyone could use the CryptoPunks images in any way they liked, without asking permission from Larva Labs. They could use CryptoPunks images to illustrate newspaper articles, as profile pictures, and on t-shirts. They could even sell NFTs of the CryptoPunks images.

What a catastrophe! Maybe not. In fact, obviously not. All of those things are already happening, and it hasn't hurt the market for CryptoPunks NFTs one bit. Is it even a luxury good without counterfeiters? If anything, it's only made them more valuable, by creating more buzz. As a great philosopher once said, "The only thing worse than being talked about is not being talked about."

But let's assume the CryptoPunks images are copyrightable. How would it affect other NFT projects using those images?

Copyright & V1 Punks NFTs

I'll start with the V1 Punks NFTs. I don't think the copyrightability of the CryptoPunks images should affect them at all. And I think Larva Labs knows it. They can huff and puff, but I don't think they can do anything to stop people from selling V1 Punks NFTs or using CryptoPunks images in connection with those NFTs.

Think about it. Larva Labs created the V1 Punks NFTs. It intended those NFTs to represent particular CryptoPunks images. And it enabled people to claim those NFTs. There's no question that the people who claimed V1 Punks NFTs owned those NFTs. And there's nothing stopping them from wrapping those NFTs in a new contract or selling those NFTs to someone else.

The only real question is whether an owner of a V1 Punks NFTs has a right to use the CryptoPunks image their NFT represents in connection with the sale of their NFT. The answer has to be yes. After all, Larva Labs created the NFT and said it represents ownership of a particular CryptoPunks image. If that doesn't create an implied license, I don't know what does.

Larva Labs is in a pickle. It can't possibly deny that CryptoPunks NFTs represent ownership of particular CryptoPunks images, or that ownership of a CryptoPunks NFT creates an implied license to use the CryptoPunks image it represents in at least some ways. It literally created and operates a marketplace for CryptoPunks NFTs. But it wants to be able to distinguish between CryptoPunks NFTs it considers authentic and CryptoPunks NFTs it considers inauthentic.

It probably can! Copyright has little to say about the authenticity of works of authorship, and nothing to say about the authenticity of digital works.⁵⁷ If Larva Labs wants to say the V1 Punks

⁵⁷ While the Visual Artists Rights Act created limited attribution and integrity rights for authors of "works of visual art," there's no serious argument that it applies to digital works. See 17 U.S.C. § 106A and 17

NFTs are inauthentic, fine. Everyone's got an opinion. But NFT collectors don't have to agree with Larva Labs. If they think the V1 Punks NFTs are authentic, that's their business, and Larva Labs can't stop them.

What's more, Larva Labs can't stop the owner of a V1 Punks NFTs from telling people what it is or what it represents. After all, Larva Labs created the V1 Punks NFTs and said what they represent. And if the owner of a V1 Punks NFT can say what the NFT represents, then they can show what it represents as well. That's the whole point of the NFT, it was literally created to represent a CryptoPunks image. If you are allowed to sell something, then you are allowed to show people what you are selling.⁵⁸

Of course, Larva Labs doesn't have to give the owners of V1 Punks NFTs any additional rights, or give them the same rights it gives to the owners of CryptoPunks NFTs. If Larva Labs owns a copyright in the CryptoPunks images, it can license its copyright in any way it likes. But it can't take back an implied license it already granted.

Copyright & CryptoPhunks

What about the CryptoPhunks? If Larva Labs owns a copyright in the CryptoPunks images, then the CryptoPhunks are in trouble. There's no serious argument that the CryptoPhunks images aren't *prima facie* infringing. Flipping an image isn't a relevant or material change.

The only viable argument is fair use. I'm not optimistic. Sure, the CryptoPhunks NFTs are a parody of the CryptoPunks NFTs. But they're also literal copies being sold for the same purpose to the same people. For better or worse, copyright is a form of competition policy, and the entire point of the CryptoPhunks parody is to compete with the CryptoPunks for fun and profit. They had their fun, but they don't necessarily get to profit.

Reflections

Does any of this matter? I just explained to you why the CryptoPunks images might not be protected by copyright. But I'm confident my analysis will have no impact on the market for CryptoPunks NFTs. Why not? Maybe because copyright doesn't really matter. Or rather, maybe because the whole point of NFTs is to make copyright irrelevant.⁵⁹ Larva Labs is obviously worried about its copyright in the CryptoPunks images. Maybe it should stop worrying and learn to love open-access and the public domain.

U.S.C. § 101. The definition of a “work of visual art” does not and cannot include digital works, which by their very nature cannot exist in a “single” or “limited number” of copies. NFTs are unique, the works they represent are not, that's literally the whole point of NFTs.

⁵⁸ Cf. Brian L. Frye, *Andy Warhol's Pantry Tokens*, at <https://opensea.io/collection/andywarholspantrytokens> and Brian L. Frye, *Andy Warhol's Pantry Tokens*, at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3957679.

⁵⁹ Cf. Brian L. Frye, *After Copyright: Pwning NFTs in a Clout Economy*, *Columbia Journal of Law & the Arts*, Forthcoming, at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3971240.