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Artificial Creativity: A Case Against Copyright for AI-Created Visual Artwork

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Cover Page Footnote

Megan Svedman graduated from Northwestern Pritzker School of Law in 2019 and is currently working as an Associate at Sidley Austin LLP in Chicago. The views expressed in this article are exclusively those of the author and do not necessarily reflect those of Sidley Austin LLP and its partners. This article has been prepared for informational purposes only and does not constitute legal advice. This information is not intended to create, and receipt of it does not constitute, a lawyer-client relationship. Readers should not act upon this without seeking advice from professional advisers

Artificial Creativity: A Case Against Copyright for AI-Created Visual Artwork

MEGAN SVEDMAN*

ABSTRACT

Artificial intelligence is becoming increasingly complex, and provides examples of compelling, human-like performances. One such artificial intelligence technology is known as Creative Adversarial Network (“CAN”) technology, which relies on inputs of preexisting pieces of art to create pieces of original art that pass as human-made. Whether the coders responsible for CAN-technology should be granted coverage for the resultant art remains an open question in United States jurisprudence. This paper seeks to explore why, given both software’s historical legacy in copyright law and bedrock copyright justifications, extending copyright coverage to the coders responsible for CAN technology would be a grave misstep in copyright policy.

TABLE OF CONTENTS

I.	INTRODUCTION	2
II.	BACKGROUND	3
a.	What is CAN technology and how does it work?	3
III.	STARTING POINTS- FORMALISM, CAUSATION, AND HISTORY OF SOFTWARE COVERAGE.....	4
a.	A Straightforward Approach- Formalism and Causation in Designating Copyright Ownership	4
i.	Formalist Approach to Copyright Ownership Through a Latent Theory of Causation	5
ii.	Proximate Cause in Copyright Ownership Analysis and Underlying Policy Justifications	6
b.	Software as Copyrightable Material	7
IV.	PARADIGMATIC JUSTIFICATIONS FOR COPYRIGHT.....	10
a.	The Continuing Legacy of Personality Theory.....	11
b.	Economic (Un)Justifications for Copyright Coverage to CAN.....	13
c.	Creativity Beyond the Author: Culture as a Force Behind Creativity	15
i.	Tier One of Post-Modern Creativity: The Creative Commons.....	18
ii.	Tier Two of Post-Modern Creativity: Embodiedness	19
V.	CONCLUSION.....	22

I. INTRODUCTION

“Patents and copyrights approach, nearer than any other class of cases belonging to forensic discussions, to what may be called the metaphysics of the law, where the distinctions are, or at least may be, very subtle and refined, and, sometimes, almost evanescent”.¹

There is a phenomenon that occurs when artificial intelligence performs in a way that is so similar to humans, the humans witnessing the performance feel unsettled by it. The robot performs a human-like task, but there is generally something that remains off about the robot’s performance—a robotic tell—that reveals something not quite human. Imagine, for example, a human-like robot, controlled by artificial intelligence software, expressing sadness on its face with just a bit too much emptiness in its manufactured eyes. Creepy, no? The phenomenon, where a human loses interest in a piece of artificial intelligence is known as the uncanny valley, and it occurs when human interest dips to a low because of the unsettling nature of the technology’s performance.²

Historically, most forms of artificial intelligence fell into the uncanny valley. But now software developers are coding increasingly sophisticated iterations of artificial intelligence. People are starting to see technology that, for the first time, is passing as human. Artificial intelligence technology is exiting the uncanny valley and creating compelling, human performances. One such example is Creative Adversarial Network (“CAN”) technology, developed by art historians and computer scientists at Rutgers.³ CAN technology is designed to learn by analyzing input pieces of original art and creating novel pieces of visual art that are compellingly human.⁴ The creators responsible for the initial code are not involved with the “learning” process the machine goes through in creating more and more compelling pieces of visual art.⁵ As such, the final piece is arguably created by the machine, but to the human eye, you would never be able to guess as much.

This new breed of creative artificial intelligence is introducing questions as yet unexplored in the field of copyright law. While software has long been considered copyrightable under the Copyright Act,⁶ one might wonder whether the learned creativity of the machine that allows for the new piece of art really falls under the umbrella of software coverage, thus extending copyright ownership over the new piece of art to the original coders behind the AI. Should the coders behind CAN-technology (and other, similarly designed creative artificial intelligence) be extended copyright coverage for the resultant works the technology produces? The human-like quality of the work adds a layer of intrigue to the inquiry, prompting

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¹ Folsom v. Marsh, 9 F. Cas. 342, 344 (Story, Circuit Justice, C.C.D. Mass. 1813).

² Jeremy Hsu, *Why “Uncanny Valley” Human Look-Alikes Put Us on Edge*, SCI. AM. (Apr. 3, 2012), <https://www.scientificamerican.com/article/why-uncanny-valley-human-look-alikes-put-us-on-edge/> [<https://perma.cc/BVL5-XN6C>].

³ Ahmed Elgammal, Bingchen Liu, Mohamed Elhogeiny & Marian Mazzone, *CAN: Creative Adversarial Networks Generating “Art” by Learning About Styles and Deviating from Style Norms* 3 (Jun. 23, 2017), <https://arxiv.org/pdf/1706.07068.pdf> [<https://perma.cc/6NXS-EN9V>].

⁴ *Id.*

⁵ Abigail Swarth, *Creative Adversarial Networks (CAN)*, MEDIUM (Mar. 28, 2018), <https://medium.com/@abbymilla/creative-adversarial-networks-can-b4ae419772a2> [<https://perma.cc/8SX5-M9PC>].

⁶ 17 U.S.C. §§ 101, 102 (2012) (Software is considered a literary work under §102. Literary works are defined in § 101 as “works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects, such as books, periodicals, manuscripts, phonorecords, films, tapes, disks, or cards, in which they are embodied.”).

a more thorough examination of why copyright law exists, and what original pieces of authored work actually need to look like to receive coverage. Ultimately, to extend coverage to the coders behind the CAN artificial intelligence would be a load too great for copyright doctrine to bear, as many bedrock justifications for copyright coverage run counter to extending coverage to AI-created works.

In the subsequent sections, I seek to examine why extending copyright ownership of the artwork to the original coders responsible for the AI is unsatisfactory, and why the novel art created by the CAN technology should not receive any copyright protection. In Part II, I examine how CAN technology specifically works, and try to illustrate how and why figuring out copyright ownership with CAN-created artwork might have lasting impacts in the field of copyright and AI. Part III explores a straightforward, formalistic approach to assigning copyright ownership to AI-created pieces of original work, and why recognizing the latent theory of causation underlying copyright doctrine recommends against copyright protection for instances of AI-created pieces of visual art. Part III also argues that the history of software coverage under copyright law further attenuates the relationship between the coders responsible for CAN AI and the resultant artwork it creates. Part IV applies several paradigmatic justifications of copyright doctrine to illustrate how extending coverage to novel pieces of visual art created through AI CAN technology would fundamentally compromise copyright doctrine in an untenable manner. Part V concludes by reasserting that the coders responsible for CAN-AI should not be granted copyright ownership for AI-created pieces of visual art.

II. BACKGROUND

a. What is CAN technology and how does it work?

CAN technology was created by computer scientists and art historians at Rutgers University with an eye toward generating artwork using artificial intelligence that could pass as human created. Before outlining the mechanics of the technology, the philosophy behind the creative paradigm at work is valuable to explore a bit. The developers relied on philosopher D. E. Berlyne's aesthetic theory, which suggests that humans respond affirmatively to artwork they find arousing in some capacity.⁷ Essentially, as an artist creates new artwork, she needs to infuse into her new work enough novelty⁸ to arouse additional responses from her intended audience.⁹

Relying on Berlyne's theory of arousal, they created a two-sided technology. On the one side, the technology receives inputs of original pieces of art, which it codes into its memory and updates with each additional exposure.¹⁰ The input side breaks down stylistic components of different categories of art, attempting to code a "language" for understanding the different creative elements of each input piece.¹¹ On the other side, a generative component exists, wherein the technology tries to generate and discriminate between novel pieces of art.¹² There are training sets of art, which the generative side knows to be the points of comparison for both human-created and machine-created art. The software then compares the novel, generated pieces to the training set to see if the system can detect whether the software itself or a human generated the work.¹³ In creating new pieces of work on the generative side, "[t]he agent's goal is to generate art with increased levels of arousal potential in a constrained way without activating the aversion system and falling into the negative hedonic range. In other words, the agent tries to generate art that is novel, but not too novel."¹⁴

⁷ Elgammal et al., *supra* note 3, at 3.

⁸ For purposes of Berlyne's theory, "novelty" is not to be understood as a term of art according to intellectual property or patent law. Instead, it is understood as a subjective, viewer centered concept that denotes a sense of unfamiliarity or unusualness. *Id.* at 4.

⁹ *Id.* at 4.

¹⁰ *Id.*

¹¹ *Id.*

¹² *Id.* at 5.

¹³ *Id.*

¹⁴ *Id.* at 4.

Put succinctly: there are cordoned-off sub-networks within the CAN technology designed to strengthen the generative component. The stronger that component gets, the less able the system—and humans—are at determining when the work was computer, and not human, generated. Ultimately, the Rutgers developers have created a complex technology that creates original pieces of art. The artificial intelligence behind the CAN technology is essentially “trained in a manner similar to the way artists grow and master their craft; they need to both utilize their prior experience and have regular exposure to art.”¹⁵ In this way, the creative process is, in some ways, distinct from the initial programming that took place by the creators. As the machine “learns” how to be more creative, it does so in a space independent from the starting point of the code—it builds its own base of knowledge up, creating new data unimaginable by the initial coders.¹⁶ Given the disconnect from the initial code and the final product, one might wonder who owns the copyright for the resultant work. Is it the coders? The coders and the art historians? Could it be the machine itself?¹⁷ As the final product seeking copyright protection moves further and further away from the initial creator, questions abound as to who owns the copyright and why it matters.

III. STARTING POINTS—FORMALISM, CAUSATION, AND A HISTORY OF SOFTWARE COVERAGE

In deciding whether AI-generated works should be extended copyright coverage and how, there is a relatively straightforward approach available: the author responsible for the software behind the artificial intelligence would also be considered the author of resultant pieces of art created by the AI that otherwise satisfy copyright’s originality and fixation standards.¹⁸ However, when examining copyright theory more closely, a latent theory of causation emerges which is a necessary part of the justification for granting copyright ownership to human authors. Relying on that latent theory of causation, I suggest that AI-created pieces of art lack the requisite causal connection to the upstream coders to justify a granting of copyright. I also explore how and why the fraught history of software coverage under copyright law further illustrates why such an attenuated relationship between original coders and AI-created pieces of art weighs against a position that the coders should be granted copyright ownership.

a. A Straightforward Approach: Formalism and Causation in Designating Copyright Ownership

Countries like the U.K. and prominent copyright scholars have suggested that working backwards from an AI-generated piece of art to the nearest human in the causal chain of events leading to the work’s production is the most straightforward and coherent approach to managing emerging AI-technologies and the accompanying output. The end result of that approach would be to grant copyright ownership to the upstream authors of the computer code responsible for the artificial intelligence. However, this formalistic approach fails to adequately recognize all of the ways in which copyright justifications are absent from AI-created works—particularly our usual and implicit notions of causation.

¹⁵ Swarth, *supra* note 5.

¹⁶ Elgammal et al., *supra* note 3, at 21.

¹⁷ No, certainly not, though as artificial intelligence becomes more and more sophisticated, one can imagine a scenario where anthropomorphizing might lead to such an assertion. Consider, for example, *Naruto v. Slater*, where the court held that a monkey who took some of the actions necessary to snap a selfie was not entitled to the copyright for the resultant photograph, as “[t]he argument that animals have statutory standing to maintain a Copyright Act claim—or any property right claims—is an easy question. Under the holding in *Cetacean Community v. Bush*, 386 F.3d 1169 (9th Cir. 2004), the Copyright Act, and basic property law, animals have no such rights.” (888 F.3d 418, 428 (9th Cir. 2018)). Here, artificial intelligence has no embodied being to even consider extending coverage to.

¹⁸ In moving forward, I will use “original” as a way to describe the works produced by artificial intelligence as a shorthand to describe them. While originality within the context of copyright law has attached to it a set of particular standards outlined in both statutory language and case law, I am instead using it more generally. An original work created by artificial intelligence, for purposes of this paper, means a work not before in fixed existence.

i. *Formalist Approach to Copyright Ownership Through a Latent Theory of Causation*

The United Kingdom recently passed a law amending their copyright code to get ahead of the issue explored in this paper. Under its Copyright, Designs and Patents Act, “[i]n the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.”¹⁹ Essentially, the coders responsible for the software behind the artificial intelligence’s learning heuristic are extended ownership over any resultant work that comes from the artificial intelligence.²⁰ If CAN technology was created in the U.K., the question examined herein would have a positive answer—the coders behind CAN would own the copyright to the new pieces of visual art it creates.

Recent U.S. scholarship supports the notion that a U.K.-type statute be adopted in the United States. Such a formalist approach to copyright ownership relies on the causal chain of creation to justify coverage being extended to upstream authors. By extending copyright protection to the initial coders, this theory relies in part on the functionalist principle that copyright protection encourages creativity among authors, that it is a “system designed to advance the public goal of expanding knowledge, by means of stimulating the efforts and imaginations of private creative actors.”²¹ However, in the case of CAN software, the creativity of the initial coders is entirely obscured by the increasingly complex learning heuristics the artificial intelligence subsequently engages in. And so the creativity justification must pivot to rely much more heavily on a causation model. Because authorship is a requirement for copyright coverage,²² there of course must exist an author in instances of AI-created pieces of work that would otherwise meet copyright’s traditional standard for originality, particularly because of the underlying human act of creativity that prompts the artificial intelligence to create in the first place.²³ The initial coder is arguably responsible for creating the possibility of the novel piece of art, and so even though the learning that the AI engages in to create the art is beyond the coder’s conceptualization, it was her code that ultimately caused the learning and resultant creation. In other words, “[a]ny apparent ‘creativity’ in a machine’s output is directly attributable either to the code written by the programmers who designed and trained the machine, or to the instructions provided by the users who operate the machine.”²⁴

The suggestion that, “as long as [the coders], by designing the tool’s algorithm, or training a ‘learning’ generative model to produce outputs, *control* the inner workings of the system, they have also *executed* the resulting works”²⁵ arguably confuses *control* with *causation*. CAN, and equivalently complex artificial intelligence software, is as impressive as it is because the initial coders design a learning model which, after the coders initiate it, develops in a black box. In other words, while the designers can go in and rewrite the starting code relied upon for the AI to do its learning, the coders fundamentally do not know *how* the system learns. They do not control the instrumentality by which the final product is made. They instead cause the production by writing the starting code. While the formalists are right in suggesting that a causation theory underlies attachment of proper copyright protection to rightful owners, they are wrong in suggesting that artificial intelligence-created pieces—and specifically CAN-created pieces of visual art—satisfy a proximate-cause-like analysis such that the coders responsible for CAN AI should be granted copyright coverage.

¹⁹ Copyright, Designs and Patents Act 1988, c. 48, § 9(3) (UK).

²⁰ *Id.*

²¹ Jane Ginsburg, *The Concept of Authorship in Comparative Copyright*, 52 DEPAUL L. REV. 1063, 1068 (2003).

²² 17 U.S.C. § 102 (2012).

²³ Jane Ginsburg & Luke Ali Budiardjo, *Authors and Machines* 7 (Columbia Pub. Law, Working Paper No. 14-597, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3233885##.

²⁴ *Id.* at 58.

²⁵ *Id.* at 72.

ii. *Proximate Cause in Copyright Ownership Analysis and Underlying Policy Justifications*

The tenuousness of the proximate cause assertion formalists make with respect to creative artificial intelligence’s works and the initial software designers is deeply problematic. While copyright doctrine has not traditionally and explicitly relied on causation as a point of analysis, instead using an originality paradigm to question authorship or lack thereof, it embodies a latent theory of causation, recognizing the importance of an author’s intent and control²⁶ with her right to assert ownership over a finished work.²⁷ Formalists concede that there is a latent theory of causation in copyright.²⁸ But they argue that despite the necessity of a causal analysis in copyright ownership for AI designers, there is no problem because “the designer’s creative contribution is both the ‘cause-in-fact’ and the proximate cause of the resulting work.”²⁹ The designers are still entitled to ownership of any final creative work because their causal relationship is direct enough.

Basic syllogisms may be enough to illustrate why the formalists’ presumptive attitudes about causation—specifically but-for cause—are potentially problematic. Under the formalist model, the exact antecedent code created by the designers is the sufficient condition for the intelligence to learn creative mechanisms and create a particular final piece of original art/set of art.³⁰ In other words, if the designers code the particular artificial intelligence software, then an original piece of art will result. I instead would suggest that an adequately complex learning heuristic code—one that may or may not be identical to the one CAN creators designed—is a necessary condition for a particular piece of art to result. In other words, if a particular original piece of art created by AI exists, then so, too, does an adequately complex software code. Whereas the formalists suggest that by virtue of the code’s fixation, a piece of art results, I would instead suggest that by virtue of a piece of AI-created art existing, we know some sort of software preceded it. In the case of CAN technology, the AI learns from receiving and “understanding” outside pieces of art. The CAN intelligence learns from the art it receives, and so the software code as determined by the creators is sufficient but *not* necessary to produce any one piece of particular art.

This is not to suggest that the inability to predict the outcome of a series of volitional acts on the part of the author immediately erases the requisite causal connective tissue to warrant a granting of copyright. Indeed, an historically significant case on the originality threshold recognizes the arbitrariness by which one can achieve the requisite level of originality, noting that “[a] copyist’s bad eyesight or defective musculature, or a shock caused by a clap of thunder, may yield sufficiently distinguishable variations,” to justify granting copyright to the author.³¹ The principle is still acknowledged today, as many recognize that “Jackson Pollack’s understanding of the forces of gravity and inertia are irrelevant to his ability to claim authorship over his drip paintings. The photographer need not understand how her digital camera transforms photons into digital image files to ‘control’ the camera and thus maintain an authorial claim to her photographs.”³² An author need not be in total control of the instrumentality by which an original piece of fixed work is created, nor does she need to understand all of the elements that contributed to the creation of a work. In the same vein, a tortfeasor may be the proximate cause of an injury even where circumstances beyond her control also played a part in her attached liability. That is why the causal

²⁶ See *infra* Section III(A)(i).

²⁷ Shyamkrishna Balganesh, *Causing Copyright*, 117 COLUM. L. REV. 1, 7 (2017).

²⁸ Ginsburg & Budiardjo, *supra* note 23, at 72 n.265.

²⁹ *Id.*

³⁰ “But the use of more sophisticated ‘learning’ models which we may not precisely understand or supervise—as opposed to more heavily programmed and interpretable ‘expert system’—does not change our initial conclusion that machines are not ‘creative.’ The only difference between a ‘learning’ machine and a programmed machine is that the ‘learning’ machine is partially self-tuning—it can develop and improve its own internal processes and thus develop procedures which elude our understanding. But the machine still proceeds through a process fundamentally controlled by its programmers—the programmers determine what the machine should do (‘problem definition’), what to include in the model’s ‘training set’ (data collection and cleaning), what the model should look for in its training set (its ‘input parameters’ and its ‘outcome variables’), how the machine should seek to optimize itself (its ‘loss functions’), and when the machine should spring into action.” *Id.* at 63–64.

³¹ *Alfred Bell & Co. v. Catalda Fine Arts*, 191 F.2d 99, 105 (2d Cir. 1951).

³² Ginsburg & Budiardjo, *supra* note 23, at 63.

relationship inquiry is so critical. The formalists view the human act of creating code sufficient to cause a resultant piece of art created by AI, thus justifying the granting of copyright over the art to them. In this way, the formalists are recognizing the importance of the *human* act involved, which is also relevant to a tort analysis of causation.³³

What the formalists fail to sufficiently examine, though, are the sorts of conditions that determine whether both but-for cause and proximate cause are present, and that each category often has attached to it an epistemic and evaluative component.³⁴ Even if the but-for cause analysis weighs in the formalists' favor, the proximate cause analysis illustrates the thin causal connection between the coders and the resultant artwork CAN-AI creates. In relying on both an epistemic and evaluative lens to determine where the line between cause-in-fact and proximate cause fall, these inquiries often involve highly policy-driven considerations; as Professor Wex Malone articulated, “[i]t is through the process of selecting what is to be regarded as a cause for the purpose of resolving a legal dispute that considerations of policy exert their influence in deciding an issue of cause-in-fact [and proximate cause].”³⁵

The formalist argument is one that recognizes the *human* requirement of copyright—a human must act such that they cause an original work to be fixed in a tangible medium, even if she is not in direct control of the instrumentality responsible for expressive fixation.³⁶ But in relying so markedly on the human requirement, they fail to consider all of the ways in which copyright doctrine does not support the assignment of copyright ownership to the coders responsible for CAN technology and similarly created artificial intelligence. Copyright doctrine is upheld by a network of overlapping but often independent justifications. Each plays a role in exploring whether or not a particular piece of authored work should be granted copyright coverage. Using a causal nexus to better understand the bundle of justifications and philosophies copyright doctrine relies on, I argue that assuming a proximate causal relationship between the creators of the code and the resultant artwork in CAN technology is erroneous, and that doing so will fatally erode an already tenuous balance of such justifications and policies.

b. *Software as Copyrightable Material*

While the formalists' approach to understanding the assignment of copyright of AI-created pieces of work is unsatisfying when considered against the latent theory of causation embedded in copyright doctrine, it also fails to reflect on the nature of copyright in the initial software the initial software responsible for the artificial intelligence. The question of whether or not artificial intelligence technology should be covered by copyright—particularly in the case where AI creates a novel piece of writing—inevitably carries with it the fraught legacy of software's path to copyrightability. At its introduction, software as a piece of intellectual property was not automatically assigned copyright protection. In 1974, Congress created the National Commission on New Technological Uses of Copyrighted Works (“CONTU”) to discuss whether or not books in machine-readable form should be considered copies under the Copyright Act.³⁷ CONTU eventually also considered whether or not the Copyright Act of 1976 should be amended to include a new category of written work to cover software under copyright law.³⁸ It ultimately recommended that copyright law be rewritten to cover software, and so in 1980, four years after the last major revision of the Copyright Act, Congress adopted CONTU's recommendations.³⁹ Interestingly, despite Congress' primary concerns about digitized versions of authored works that might be more easily

³³ Balganes, *supra* note 20, at 50 (“It is indeed the centrality of this connection that forces the courts to look for, and classify, a *human* act as the cause of relevance from a host of background conditions.”).

³⁴ *Id.* at 52.

³⁵ Wex S. Malone, *Ruminations on Cause-in-Fact*, 9 STAN. L. REV. 60, 64 (1956). Note that at the time of his writing, tort law nomenclature was just delineating between cause-in-fact and proximate case.

³⁶ See Ginsburg & Budiardjo, *supra* note 23, at 64.

³⁷ Pamela Samuelson, *CONTU Revisited: The Case Against Copyright Protection for Computer Programs in Machine-Readable Form*, 4 DUKE L.J. 663, 696 (1984).

³⁸ Gerardo Con Diaz, *The Text in the Machine: American Copyright Law and the Many Natures of Software, 1974–1978*, 57 TECH. & CULTURE 753, 754 (2016).

³⁹ See Samuelson, *supra* note 37, at 694.

pirated wholesale, much of the convolution that currently exists in copyright jurisprudence is anchored to issues of derivative works and substantial similarity, where one piece of software copies expressive portions of another.⁴⁰ CONTU's failure to consider adequately address several elements of copyright doctrine with respect to the reality of software resulted in a piecemeal set of laws that reflect the imperfect fit between copyright and software .

In extending copyright coverage to software code, the CONTU report failed to adequately address a bedrock principle justifying copyright: disclosure.⁴¹ Generally, when an author publishes a work, the work itself is what the public consumes, and so the work is adequately disclosed such that the public knows what was authored. The public can view a painting, can buy and read a book, can download and stream a song. While the 1976 Copyright Act got rid of the publication requirement in order to receive copyright coverage, there was little need to articulate such a requirement prior to software's introduction—commercially successful pieces that were published were commercially successful by virtue of the public's access to the work.⁴² Rewarding an author for her work is certainly a cornerstone justification behind copyright, but copyright protection does not exist purely to reward the creative labors of the author.⁴³ Instead, there is a reciprocal nature embedded in copyright law, which “imagines that we are ethical beings, capable of being creative and of being touched by the creativity of others, include to be sociable and to return good for good.”⁴⁴ Authors publish their works for public consumption, and audiences pay for access to those works. The creativity of the original author contributes to aggregate body of authorship, which ultimately benefits the public. Thus the need for disclosure.

With software code, though, the automatic disclosure and exchange that generally happen through copyright registration is missing.⁴⁵ Part of the issue arose from CONTU's fundamental misunderstanding of copyright code; CONTU assumed that software code could be printed in a human-readable form and so in that way was a written work like any other copyrightable work.⁴⁶ Not only are most humans unable to discern any expressive meaning from written code on its own,⁴⁷ but the entirety of a software's code does not even need to be filed with the Copyright Office for a valid registration to be on file.⁴⁸ Instead, the original coders can keep secret the precise authored work that leads to the limited computer-based interface consumers get to experience. Ultimately, consumers experience a limited set of interactive processes that software “performs” or “creates” on a computer, but the consumer is left with no sense of what the authors have literally written.

Beyond failing to adequately examine issues surrounding disclosure, the CONTU report also problematically concluded that “all programs produced display of words, pictures, or sounds and that the displays were the object of copyright protection.”⁴⁹ CONTU assumed that all programs had pictures, words, or music that an end user would be able to experience⁵⁰ when, in fact, only a small fraction of programs produced any meaningful display.⁵¹ CONTU also failed to explore the literal mechanics of software, and inconsistently addressed the differences between source and machine code.⁵² What resulted was a muddled sense of what copyright law actually covered when it came to software, and so courts have been left to try

⁴⁰ *Id.*

⁴¹ *Id.* at 710.

⁴² *Id.* at 711.

⁴³ *Id.* at 712.

⁴⁴ James Grimmelmann, *The Ethical Visions of Copyright Law*, 77 *FORDHAM L. REV.* 2005, 2006 (2009) (“Or, more succinctly, authors and audiences ought to respect each other.”).

⁴⁵ See Samuelson, *supra* note 37, at 712.

⁴⁶ *Id.* at 724.

⁴⁷ Some may take umbrage with this suggestion, asserting that any expressive meaning embedded in a particular code by its author might actually communicate a unique expression of an idea to someone who is able to read code. However, the fact that the entirety of a code's structure need not be disclosed still creates problems within the public disclosure paradigm in copyright law.

⁴⁸ See Samuelson, *supra* note 37, at 716.

⁴⁹ *Id.* at 723–34.

⁵⁰ *Final Report on the National Commission on New Technological Uses of Copyrighted Works*, 3 *COMPUTER L.J.* 53 (1979).

⁵¹ Samuelson, *supra* note 37, at 704.

⁵² *Id.* None of this is hugely surprising, given that none of the CONTU commissioners tasked with exploring whether or not software should be covered under copyright had experience in software. See Con Diaz, *supra* note 38, at 759.

and parse out a meaningful body of jurisprudence to determine the extent of copyright coverage for software.⁵³

Perhaps the most complicated area of software-copyright jurisprudence has been in determining where functionality ends and creativity begins. Copyright law has long recognized the existence of a division between the creative expression of a work and any function or functionality expressed therein.⁵⁴ Courts have extended that logic to software, recognizing through *Myriad* cases that a software's program functionality is distinct from the original expression contained therein and should not receive coverage.⁵⁵ But because the line between expression and functionality in software is so blurry—particularly because copyright coverage extends to the code itself, and not just to the accompanying images, readable text, or sounds associated with an individual program—creating an easily applied test for determining where the line should fall has largely been a fool's errand for the courts. As it stands now, while there is not technically a specific ruling that requires exact copying before infringement is found, the thin gloss of coverage that software receives in the wake of a series of landmark cases essentially amounts to as much.⁵⁶

The problems attached to software copyright jurisprudence are manifold, and plenty of scholars have explored whether *CONTU*'s initial recommendations should have been adopted, or if a different area of the law—such as patent or trade secret—would have been a more appropriate avenue to protect the property interests of software creators.⁵⁷ Ultimately, software is covered, and there are arguably points of discernible creative decision making in any source code that entitles a coder to copyright protection.

Putting aside questions of whether software alone should not receive copyright coverage, pieces of art resulting from the source code responsible for CAN technology are illustrative of how software coverage created a confusing opening in copyright law, one which is now reaching untenable uncertainty. In CAN intelligence, the coders depend on their individual creative expressions to create an algorithm that is, essentially, designed to create a learning ability.⁵⁸ Whatever unique expression the coders are arguably bringing to their work is embedded entirely in the initial code. Beyond the code, the learning algorithm develops and strengthens specifically through receiving inputs of other, already-authored pieces of visual art.⁵⁹ In a traditional software program—for example, one where the end user is able to depend on individually designed icons to perform a series of functions—the end piece is discernable at some point in the source code. The experience of the software cannot extend beyond the parameters of the underlying source code. With CAN technology, though, the coders have created an algorithm that is specifically designed to expand beyond whatever they could have envisioned in their initial coding.⁶⁰ The algorithm prompts the adversarial networks to break down input pieces of art and create new, original pieces.⁶¹ The

⁵³ Samuelson, *supra* note 37, at 728.

⁵⁴ See *Baker v. Selden*, 101 U.S. 99, 103 (1879) (holding that a system for accounting could not wholesale be covered under copyright, and instead only extending coverage to the unique and expressive elements in a book explaining the accounting system).

⁵⁵ See *Lexmark Int'l, Inc. v. Static Control Components*, 387 F.3d 522 (6th Cir. 2004) (holding that printer-cartridge specific components of the software merged the idea with expression and thus was not coverable by copyright); *Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807, 814–15 (1st Cir. 1995), *aff'd by an equally divided court*, 516 U.S. 233 (1996) (holding that command hierarchy on a spreadsheet program was an integral part of a method of operation and thus excluded from receiving copyright coverage per 17 U.S.C. § 102(b)); *Comput. Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693 (2d Cir. 1992) (holding that courts should filter out unprotectable “functional” elements of a program through an “abstraction-filtration-comparison” framework before assessing infringement claims); *Whelan Assocs v. Jaslow Dental Lab., Inc.*, 797 F.2d 1222, 1236, 1248 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987) (holding that “structure, sequence, and organization” of a program was protectable expression unless there was only one way to sufficiently express a function).

⁵⁶ See *supra* note 55.

⁵⁷ See generally Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 HARV. L. REV 977 (1993); Samuelson, *supra* note 37.

⁵⁸ Elgammal et al., *supra* note 3, at 4.

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *Id.* at 5.

new pieces that result are in no way connected to the underlying code. Instead, they are aggregates of visual tropes taken from whatever input pieces the machine used to learn from.⁶²

In some ways, the publicly consumable piece that results from CAN intelligence supports an argument that the upstream coders should be extended coverage if we are to take the criticism of CONTU's reasoning seriously—in this case, we have public disclosure of a purely creative piece, and so unlike software, a piece of art is easily viewed and understood by the public. However, the piece of art is created in a space entirely beyond the comprehension of the upstream coders, in a black box “learning” space that builds its knowledge through reliance on a body of outside pieces of art.⁶³ The expressive nature of code, expression that is dependent upon the coders' own thoughts, ideas, and decision, is entirely lacking in any resulting piece of art. The justifications relied upon by those who support maintaining software's protection under copyright are entirely absent from the suggestion that CAN technology art work should be granted copyright coverage, and that the owners of the copyright should be the coders. The coders, in some sense, have exclusively created a functional device that learns how to create independently from them.⁶⁴ Unlike a case where a photographer might set up a camera and have it take shots at random, here, the link between the original source code and the AI-generated piece of art is almost undiscernible.

CAN technology illustrates how software does not fit neatly into the copyright coverage framework. Given how far beyond the parameters of the source code the resultant piece of original art is, extending coverage of the piece to the coders has no discernible benefit beyond ensuring a clean line of ownership over the piece. While one might claim that the individual moments of creative decision-making a coder engages in when developing a new software entitles her to coverage, CAN technology creates such a darkened path between the original source coders' decisions and whatever piece results that extending copyright coverage for CAN-generated artwork would leave software copyright doctrine vulnerable to potentially fatal attacks, ones that resurface the original criticisms lobbied against software coverage without the shield of discernible creative expression on the part of the coders.

IV. PARADIGMATIC JUSTIFICATIONS FOR COPYRIGHT

Copyright jurisprudence is built upon a network of separate, overlapping, and sometimes countervailing and conflicting justifications. There are the more traditional justifications, which often rest on platforms of rights- or economics-based justifications. A rights-based doctrine most often relies on the personality theory, which posits that a truly original piece of authorship should have infused into it a sense of the author herself.⁶⁵ Economic justifications for copyright coverage run the gamut of positions, but one of the most long-lasting theories is the incentive-access paradigm, which demands that an author be granted monopolistic control over her work in order to cover the costs of expression and production.⁶⁶ Finally, there are post-modern theories for understanding creativity, which recognize the cultural commons that human authors must interact with in order to create a digestible piece of creative authorship for the public.⁶⁷ In examining all of these justifications for copyright, none support the extension of copyright coverage to the

⁶² *Id.* While this paper does not seek to explore whether or not the new work created is a derivative work, given that the resultant pieces are entirely composed of creative schemes from other, likely separately covered work, one might ask whether or not the coders are committing infringement on all input pieces when generating “new” pieces through the machine.

⁶³ *Id.* at 8–9.

⁶⁴ Consider, too, that “[t]here is one very simple but important difference between a book which contains a set of instructions about how to do a particular task and a computer program in machine-readable form which contains a similar, if considerably more elaborate, set of instructions on the same subject: The former informs a human being about how the task might be done; the latter does the task.” Samuelson, *supra* note 37, at 727. In this instance, too, the software—even if printed in some readable, comprehensible form, would still do little to describe the creative process. Instead, it would only explain how to create an environment where a machine might learn how to be creative.

⁶⁵ GEORG WILHELM FREDRICH HEGEL, *ELEMENTS OF THE PHILOSOPHY OF RIGHT* 68 (Allen W. Wood eds., H.B. Nisbet trans., Cambridge Univ. Press, 1991).

⁶⁶ Oren Bracha & Talha Syed, *Beyond the Incentive–Access Paradigm? Product Differentiation & Copyright Revisited*, 92 TEX. L. REV. 1841 (2014).

⁶⁷ See generally JULIE E. COHEN, *CONFIGURING THE NETWORKED SELF: LAW, CODE, AND THE PLAY OF EVERYDAY PRACTICE* (Yale Univ. Press, 2012).

coders responsible for CAN-created pieces of art, and so even though the coders are the cause-in-fact for the artwork that results, the proximate cause analysis falls short. Because CAN-AI-created artwork cannot be justified by any of the following bedrock justifications for copyright coverage, it stands that the coders behind CAN-technology should not be granted coverage for the artwork that results from the AI's learning.

a. The Continuing Legacy of Personality Theory

Granting ownership over intellectual property by relying on the concept of “author” was not always as straightforward as it now seems. In fact, the theory of author as person responsible for the creation of a resultant work was only first philosophically introduced in the 18th century.⁶⁸ Authorship as ownership was introduced with respect to publishers, who were considered not just the owners but also the authors of printed books they would then disseminate.⁶⁹ An “author” as we would understand her today did not have any property rights.⁷⁰ Writers were assumed to be taking realized truths and reducing them to writing; the ideas were all in the public domain, as the theory of individual creativity was only ever a result of divine intervention, of which no one could claim “ownership.”⁷¹ However, as modes of production expanded and individualism as a cultural milieu emerged, the tension between author and user increased, such that, “the ‘authorship’ constrict accumulated force and circumstantiality, [and] the strategic manner in which the construct initially had been deployed was effaced.”⁷² People across Europe were more literate than ever, and reading for personal pleasure was increasing rapidly.⁷³ The notion of writer as craftsman—an individual using a learnable skill to create a utilitarian product—no longer provided enough economic incentive for writers.⁷⁴ In other words, authors began developing and honing a personal style to their writing; they no longer felt that they were just transcribing already-existent truths, and instead began to feel the pull to market their particular writings to a growing number of readers.⁷⁵

Unsurprisingly, as associations between the individual creator of a work and the end user became more complex, ways of limiting the rights of each party at either end of the spectrum began to emerge as well. As a point of departure, it will be valuable to introduce the idea of legal subject. The tradition of the legal subject in the wake of Enlightenment rationalism rests on three key attributes:

He is, first and foremost, a definitionally autonomous being possessed of abstract liberty rights that are presumed capable of exercise regardless of context. Second, the legal subject possessed at least the capacity for rational deliberation and this capacity too is detached from context . . . Finally, the selfhood that the legal subject possessed is transcendent and immaterial; it is distinct from the body in which the legal subject resides.⁷⁶

Contextualized in this spirit, the emerging theory of author vis-à-vis legal subject prompted the exploration of the individual *as his work*, an exploration that has left its mark on contemporary thought. Intuitive today is the sense that an author, because her personality is in some way infused into the essence of her work, is entitled to the same sort of bundle of rights we associate with real property.⁷⁷ Hegel’s personality theory nicely articulates some of the philosophical underpinnings responsible for our contemporary conception of author. In *Elements of the Philosophy of Right*, Hegel first asserts that

⁶⁸ Peter Jaszi, *Toward a Theory of Copyright: The Metamorphoses of “Authorship,”* 1991 DUKE L.J. 455, 470 (1991).

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ Martha Woodmansee, *The Genius and the Copyright: Economic and Legal Conditions of the Emergence of the ‘Author’*, 17 EIGHTEENTH-CENTURY STUD. 425, 434 n.19 (1984).

⁷² See Jaszi, *supra* note 68, at 470 n.59.

⁷³ See Woodmansee, *supra* note 71, at 426.

⁷⁴ *Id.* at 427.

⁷⁵ *Id.*

⁷⁶ See COHEN *supra* note 67, at 16.

⁷⁷ Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281, 288 (1970).

personality embodies the subjective whole of the individual.⁷⁸ While the theory is dense, for the purposes of understanding legal rights over intellectual property, Hegel suggests that because articulations of the intellect into consumable property (i.e. a book, a treatise, a painting) are a result of the individual spirit's capability of expressing and disposing of them, the connection that exists between the original thinker and the resultant work entitles the author to exercise rights of production and dissemination.⁷⁹ In other words, the outward manifestation of the self-awareness that accompanies the personality is requisite in creating a piece of intellectual property. It is a quasi-personality, quasi-property. The elemental necessity that attributes of the free spirit be disposed of through fixed expression requires that a footprint of the author be recognizable in the work.

Hegel's theory of personality is one among many from the 19th century that attached exclusive rights over a piece of intellectual property to the original author responsible, and justified doing so primarily through an understanding that a part of the self was infused into the authored work.⁸⁰ The consequence of such a person-centered understanding of authorship and ownership was a set of seminal cases that rested squarely on an understanding that the uniqueness of an individual's creative process—even where there was only minimal creativity—entitled the author to copyright protection.⁸¹

Even as copyright doctrine has expanded and complicated, adding layers of doctrinal gloss and countervailing justifications, personality theory has remained firmly attached to its nucleus. Take, for example, the Visual Artists Rights Act of 1990 ("VARA"), which codified the right of a visual artist to avoid having her "honor or reputation" tarnished.⁸² Particularly relevant when considering CAN intelligence, VARA provides protection for authors of visual art, ensuring that even once they sell a painting to a user, that user is statutorily prevented from modifying the painting. The language of the statute straightforwardly relies on the notion that the author's honor or reputation would de facto be tarnished if her work was modified after it left her possession. This goes beyond just the regular 17 U.S.C §106

⁷⁸ HEGEL, *supra* note 65, at 68 ("The highest achievement of a human being is to be a person; yet in spite of this, the simple abstraction 'person' has something contemptuous about it, even as an expression. The person is essentially different from the subject, for the subject is only the possibility of personality, since any living thing whatever is a subject. A person is therefore a subject which is aware of this subjectivity, for as a person, I am completely for myself: the person is the individuality of freedom in pure being-for-itself. As this person, I know myself as free in myself, and I can abstract from everything, since nothing confronts me but pure personality Personality is thus at the same time the sublime and the wholly ordinary; it contains this unity of the infinite and the utterly finite, of the determinate boundary and the completely unbounded.").

⁷⁹ *Id.* at 74–75 ("It may be asked whether the artist, scholar, etc. is in legal possession of his art, science, ability to preach a sermon, hold a mass, etc.—that is, whether such objects are *things*. We hesitate to call such accomplishments, knowledge, abilities, etc. things; for on the one hand, such possessions are the object of commercial negotiations and agreements, yet on the other, they are of an inward and spiritual nature. Consequently, the understanding may find it difficult to define their legal status, for it thinks only in terms of the alternative that something is *either* a thing *or* not a thing Knowledge, sciences, talents, etc. are of course attributes of the free spirit, and are internal rather than external to it; but the spirit is equally capable, through expressing them, of giving them an external existence and *disposing* of them, so that they come under the definition of *things* Thus, intellectual accomplishments, sciences etc. are relevant here only in their character as legal possessions").

⁸⁰ Consider, for example, Kant's argument for protecting authored works: "Kant probably saw the author's attempt to communicate with the public as an act of the author with which unauthorized copying could unjustifiably interfere; because such copying might thus unnecessarily inhibit the author's liberty, he saw a 'natural obligation' not to 'counterfeit' books." See *supra* Breyer, note 77, at 290.

⁸¹ See *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239, 250 (1903) ("The copy is the personal reaction of an individual upon nature. Personality always contains something unique. It expresses its singularity even in handwriting, and a very modest grade of art has in it something irreducible, which is one man's alone. That something he may copyright unless there is a restriction in the words of the act."); *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 54–55 (1884) ("[T]hat the same is a useful, new, harmonious, characteristic, and graceful picture, and that said plaintiff made . . . entirely from his own original mental conception, to which he gave visible form by posing the said Oscar Wilde in front of the camera, selecting and arranging the costume, draperies, and other various accessories in said photograph, arranging the subject so as to present graceful outlines, arranging and disposing the light and shade, suggesting and evoking the desired expression, and from such disposition, arrangement, or representation, made entirely by the plaintiff").

⁸² 17 U.S.C. §106A(a)(3)(A) (2012) ("[T]he author of a work of visual art . . . shall have the right to prevent any intentional distortion, mutilation, or other modification of that work which would be prejudicial to his or her honor or reputation, and any intentional distortion, mutilation, or modification of that work is a violation of that right.").

exclusive rights that generally attach to authored works; it attaches authorial rights to the physical iteration of her creativity. The author's personhood is recognized as embedded in the painting itself.

There exists, of course, valid criticism of artist rights ideology, resulting primarily from a statutory expansion of copyright coverage, which has diluted personality theory's force. Maps and atlases, for example, are afforded copyright coverage despite the fact that the author's primary goal is generally to avoid infusing the objective representation with a sense of self.⁸³ Indeed, as quickly as the personality theory justifying ownership rights in authors developed, so, too, did other justifications for granting property rights to authors.⁸⁴ Nonetheless, the legacy of personality theory remains foundational to an understanding of copyright coverage, and is a critical doctrinal consideration when determining whether a new sort of work should be extended copyright coverage.

Perhaps the most robust criticism against granting copyright coverage to CAN-created pieces of visual art is that the resulting pieces of art are *entirely* lacking a trace of the original coders' expression. In developing a learning heuristic that breaks down already-existent pieces of visual art and distills the creative elements behind the pieces to learn, all of the "creativity" present in a new piece of art comes either from the additional "learning" the AI program has done or from elements of already-existent works. The original coders have hardly "caused" the new work to exist in the proximate-cause sense, despite their critical role in writing the initial code. Given the persistence of personality theory in copyright doctrine, CAN-created pieces of visual art are missing the vital trace of the coders' personality to justify granting them copyrights.

b. Economic (Un)Justifications for Copyright Coverage to CAN

A cornerstone justification for extending copyright coverage to an author of an original work is to fairly compensate her for her labor. The incentive-access paradigm is one economic justification for copyright that offers a "solution to the public-policy problem generated by the fact that informational works are often costly to create but inexpensive to copy."⁸⁵ In order for authors to be properly rewarded for their creative works, copyright provides them with a monopolistic-like power over the work; the author can exercise control over an alienable set of property rights such that she can receive just compensation for the work if and when it is disseminated and copied.⁸⁶

More specifically, the incentive theory of copyright protection "...trades off the costs of limiting access to a work against the benefits of providing incentives to create the work in the first place.... For copyright law to promote economic efficiency, its principal legal doctrine must, at least approximately, maximize the benefits from creating additional works minus both the losses from limiting access and the costs of administering copyright protection."⁸⁷ The incentive theory examines two elements—the cost of expression and the cost of production—in justifying copyright coverage for a work.⁸⁸ The cost of expression involves the creative costs associated with authoring an original piece of work, whereas production costs include the copying and disseminating of the original work.⁸⁹ The incentive-access economic model for justifying copyright is not the only economic model scholars have applied. In fact, there are schools of

⁸³ Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L. J. 287, 341 (1988).

⁸⁴ "The gradual process of converting the abstract principle of authorial ownership of the product of the intellect into concrete doctrinal and institutional forms unfolded during the nineteenth century. It was by no means a process in which a predetermined logic of authorship embedded in copyright at the end of the eighteenth century gradually manifested itself. Rather, the abstract concepts of authorial ownership operated as a repository of intellectual resources drawn on in order to construct arguments and legal doctrines. This shaping and bending of concrete authorship-based arguments was done in service of a variety of interests and agendas, which were frequently in tension with each other." OREN BRACHA, *OWNING IDEAS: THE INTELLECTUAL ORIGINS OF AMERICAN INTELLECTUAL PROPERTY, 1790–1909*, at 63–64 (2016).

⁸⁵ Oren Bracha & Talha Syed, *Beyond the Incentive–Access Paradigm? Product Differentiation & Copyright Revisited*, 92 TEX. L. REV. 1841, 1843 (2014).

⁸⁶ Steve P. Calandrillo, *An Economic Analysis of Property Rights in Information: Justifications and Problems of Exclusive Rights, Incentives to Generate Information, and the Alternative of Government-Run Reward Systems*, 9 Fordham Intell. Prop. Media & Ent. L.J. 301, 304 (1998).

⁸⁷ William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 326 (1989).

⁸⁸ *Id.* at 330.

⁸⁹ *Id.* at 326–27, 330.

thought that suggest free access to creative works might actually increase sales,⁹⁰ and there are plenty of theories that fall somewhere in between. Ultimately, potential economic justifications for copyright run the gamut, but a more conservative incentive-access paradigm—i.e., one where expressive and production costs are used as starting points to justify an alienable set of rights afforded to the author—has provided a bedrock for myriad common law and academic thought, and is often relied upon when discussing the need to provide copyright coverage.⁹¹

The incentive-access model used to justify monopolistic control over a novel piece of authored work is not free from toothsome criticism, though, particularly when examining the breadth of monopolistic force that attaches to certain production entities now. When considering the resources that entities like music and movie studios have at their disposal, the extensive and long-living protections afforded whenever a new piece of media is created provide more protection than necessary to incentivize continued creativity.⁹² Traditionally, the significant resources required to produce a huge movie and to ensure licensing protections are properly executed weighs in favor of extending robust copyright coverage. However, as movie and music studios have grown in scale and have significant market monopolies, query whether copyright is incentivizing others to create as well.⁹³ With that in mind, increasing scrutiny has been directed at highly corporatized methods of producing creative works that then receive copyright coverage.⁹⁴ While generally folks agree that protection of some sort should exist for the big movie studio, it might not be as deserving of monopolistic-like protection as the singular author toiling away at her desk writing the next Great American Novel.

Questions of scale of production and commercial viability remain open with respect to CAN-generated works of art. If similar AI technology is any indication, though, CAN will likely be used for development and production of commercial art, at least to an extent.⁹⁵ While commercial intent is not in itself problematic—commercial motivation sits comfortably within the confines of the incentive paradigm—when considering scale and mode of production, positioning justification on covering costs starts to run thin. As CAN learns, it becomes better and better at creating new, compelling works of art. If it can create new work almost instantaneously, satisfying different end-users' aesthetic desires, the initial coders would be entitled to an expansive set of copyrights over innumerable pieces of art. Again, typically, the incentive theory looks to the cost of expression and the cost of production in justifying copyright coverage for a work.⁹⁶ With CAN-created pieces of art, the cost of production no doubt remains, but the initial cost of expression dramatically decreases once the AI begins to learn and develop new styles on its own. Given the significant set of rights attached to copyright,⁹⁷ as well as the length of a copyright's life,⁹⁸ granting such extensive coverage to the initial coders would go beyond covering expression and production costs. Much like the scrutiny that more radical copyright critics have directed at huge production studios for exercising such strong control over creative ventures,⁹⁹ CAN coders could potentially be entitled to aggressive copyright protection for innumerable pieces of art.

While the coders' labor should rightly be rewarded, and the resultant art might be entitled to protection through some other intellectual property or trade secret law doctrine,¹⁰⁰ extending copyright coverage in particular is needlessly vigorous. If a copyright doctrine seeks to encourage creativity and the

⁹⁰ See generally JAMES BOYLE, *THE PUBLIC DOMAIN: ENCLOSING THE COMMONS OF THE MIND* (2008).

⁹¹ Bracha & Syed, *supra* note 85, at 1844.

⁹² MARTIN SKLADANY, *BIG COPYRIGHT VERSUS THE PEOPLE* 88 (2018).

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ Ian Bogost, *The AI-Art Gold Rush is Here*, ATLANTIC (Mar. 6, 2019), <https://www.theatlantic.com/technology/archive/2019/03/ai-created-art-invades-chelsea-gallery-scene/584134/>.

⁹⁶ Landes & Posner, *supra* note 87, at 330.

⁹⁷ 17 U.S.C. § 106 (2012)

⁹⁸ 17 U.S.C. § 302.

⁹⁹ See SKLADANY *supra* note 92, at 88.

¹⁰⁰ Consider Pamela Samuelson's exploration of the limitations of copyright law for software coverage, where she suggests that other areas of law might be able to effectively gap-fill in the absence of extending copyright coverage to software coders. Samuelson, *supra* note 37, at 759.

dissemination of ideas, and in doing so aims to provide economic incentives to authors, extending copyright protection to the coders responsible for the AI that can create paintings ad infinitum goes beyond that goal. Instead, it provides a fierce set of protections to individuals who have little control over the final piece of authored work that their name is attached to. In contrast to the underlying code—which can receive copyright coverage such that future coders might be incentivized to create, knowing that they will be able to reap the benefits of asserting ownership over the code—the AI-created artwork will not change in quantity or quality based on whether the coders receive coverage or not. Because financial incentives quickly become irrelevant to whether or not CAN will create new, interesting, or marketable pieces of art, it renders the incentive-access paradigm inapplicable.

c. Creativity Beyond the Author: Culture as a Force Behind Creativity

In opposition to the more traditional personality or incentive theories justifying copyright coverage, some scholars have suggested that individual creativity is the result of cultural inputs and heritage—a sort of collective set of individual and cultural building blocks that come together to create unique pieces of artistic expression.¹⁰¹ Contemporary social theory has pushed back against the position that copyright doctrine can and should be aesthetically value-neutral, one that many copyright theorists and judges have promulgated in the past, insisting instead that by recognizing the “creativity” of certain pieces and not in others, copyright jurisprudence is, in fact, making sets of value judgments.¹⁰² But reception of more post-modern theories of copyright and knowledge production have been met with reductive misunderstanding, landing in a space that imagines copyright doctrine either must be merit-based or entirely relativistic if cultural contextualization comes into play.¹⁰³

Contemporary approaches to social and cultural theories that “emphasize the contingent, iterative, socially situated development of knowledge are rooted in philosophical traditions that liberalism has resisted,” and so it is unsurprising that such models have received lukewarm reception by more traditional thinkers.¹⁰⁴ However, in recognizing the marked influence culture can have on an author, we can create a copyright scheme that balances freedom of artistic expression with the recognition that larger cultural institutions inevitably direct the landscape of possible creative expression. Such a position demands two fundamental modifications to an approach to copyright:

First, [it] require[a] that progress be assigned a more open-ended interpretation. Stripped of its association with modernist teleologies, progress consists, simply, in that which causes knowledge systems to come under challenge and sometimes to shift. Second, and precisely because this understanding of progress abandons the comforting fiction of modernist teleologies, a postmodernist approach to knowledge demands careful attention to the ways that law and culture evaluate and awards (or penalize) artistic and intellectual production.¹⁰⁵

In other words, “[c]opyright’s system of incentives and rules is not, and could not, be neutral about the content of progress.”¹⁰⁶ The law guides behavior, and so in addition to the cultural devices that shape an individual’s sense of creative expression, so, too, will copyright incentivize certain forms of creativity over others. Recognizing as much, a more post-modern approach to understanding creativity and cultural capital might better equip copyright scholars to create a more nuanced, delicate set of copyright laws.

¹⁰¹ See, e.g., Julie E. Cohen, *Creativity and Culture in Copyright Theory*, 40 U.C. DAVIS L. REV. 1165, 1170 (2007) (“Together, [social and cultural theory] argue for an account of artistic and intellectual creativity that is decentered: that incorporates multiple contributing factors and makes none primary. This account should explore creativity as an emergent property of social and cultural systems, continually shaped by and shaping other social changes.”).

¹⁰² See COHEN, *supra* note 67, at 71.

¹⁰³ *Id.* at 72.

¹⁰⁴ *Id.*

¹⁰⁵ See *id.* at 73.

¹⁰⁶ *Id.*

On a more granular level, post-modern theory can assist in shaping a more nuanced approach to copyright law by recognizing the inherently context-dependent nature of ideas. While copyright law does not protect ideas, only the expression of them, ideas are inevitably guided by the cultural landscape on which they are born. As culture shifts, and zeitgeist attitudes guide our understanding of certain forms of expressions of certain ideas, so, too, does the landscape of available creative expression. Consider Bourdieu's theory of the field of cultural production, which essentially recognizes that within the space of a particular cultural moment, there are a number of possible forms of creative expression for a particular idea; as an artist takes a position, it may help to expand or contract a given cultural space for a given idea.¹⁰⁷ As a result, trying to re-contextualize the expression of an idea after its cultural moment has passed is nearly impossible.¹⁰⁸

Michel Foucault was one of the first thinkers to recognize the inherent power attached to certain ideas and expressions, recognizing that those in positions of power were better able to assert their versions of truth or expression over others.¹⁰⁹ This Foucauldian tradition recognizes that “no cultural product exists by itself, i.e. outside the relations of interdependence which link it to other products,” giving it the name “‘field of strategic possibilities’ to the regulated system of differences and dispersions within which each individual work defined itself.”¹¹⁰ The intersection of power and recognizable forms of creativity can be most readily seen in the validating institutions (of which copyright jurisprudence is arguably a part) that recognize, laud, or reject certain forms of creative expression over others.¹¹¹ Accepting cultural theorists' position that texts reflect a context-specific meaning, the cultural-transmission function performed by artists is one of promulgating more ideas for public discourse. Limiting protection of the artist's articulation of the idea only to its particular form of expression leads to an even thinner gloss of copyright coverage than what traditional theories have often supported.¹¹² Even more traditional rights-and economics-based theorists recognize that expanded rights of copying are justified by support for an increased free-flow of ideas.¹¹³ If ideas are shaped by cultural narratives, and so acceptable, understandable creative material is arguably a collective good to which every potential artist might have some access, then copyright coverage, and any resultant disputes, will necessarily revolve around “identifying those expressions that should be treated ‘like’ ideas.”¹¹⁴ Consider scenes à faire, substantial similarity tests, and the merger doctrine, all of which recognize that where the idea and expression are too closely related, that there is too much similarity

¹⁰⁷ PIERRE BOURDIEU, *THE FIELD OF CULTURAL PRODUCTION* 30–31 (1993) (“The literary or artistic field is a field of forces, but it is also a field of struggles tending to transform or conserve this field of forces. The network of objective relations between positions subtends and orients the strategies which the occupants of the different positions implement in their struggles to defend or improve their positions (i.e. their position-takings), strategies which depend for their force and form on the position each agent occupies in the power relations Every position-taking is defined in relation to the space of possibles which is objectively realized as a problematic in the form of the actual or potential position-takings corresponding to the different positions; and it receives its distinctive value from its negative relationship with the coexistent position-takings to which it is objectively related and which determine it by delimiting it. It follows from this, for example, that a position-taking changes, even when the position remains identical, whenever there is change in the universe of options that are simultaneously offered for producers and consumers to choose from. The meaning of a work changes automatically with each change in the field within which it is situated for the spectator or reader.”).

¹⁰⁸ *Id.* (“One of the major difficulties of the social history of philosophy, art or literature is that it has to reconstruct these spaces of original possibles which, because they were part of the self-evident givens of the situation, remain unremarked and are therefore unlikely to be mentioned in contemporary accounts, chronicles or memoirs. It is difficult to conceive of the vast amount of information which is linked to membership of a field and which all contemporaries immediately invest in their reading of works.”).

¹⁰⁹ MICHEL FOUCAULT, *THE ORDER OF THINGS* 380 (Routledge Classics, 2d ed. 2001).

¹¹⁰ *See* BOURDIEU, *supra* note 107, at 31.

¹¹¹ Cohen, *supra* note 101, at 1185 (“Processes of artistic and intellectual production are mediated by validating institutions, which propagate the established conventions of normal science and serve as the first line of reception for (or defense against) representational shifts. Networks of cultural production create ‘fields’ and ‘domains’ of expertise. To an extent the demarcation of fields and domains is created and maintained by the entities that traditionally have been the concerns of sociology: the communities and institutions that make up ‘art worlds.’ Established tastemaking institutions within art worlds play important roles in determining the fate of innovations, although new validating institutions will sometimes emerge.”).

¹¹² *Id.* at 1171.

¹¹³ *Id.*

¹¹⁴ *Id.* at 1172.

between the initial idea and the resultant expression, there should not exist copyright protection for the author of the work under consideration.¹¹⁵ These are all necessarily shaped by cultural recognition of certain forms of expression for certain ideas over others, and so must necessarily be grounded in some sort of recognition of a collective creative vocabulary. Bourdieu's recognition that power and acceptable forms of expression confine the set of ideas accessible to any one artist emphasizes that novel expression of available ideas is more restricted than what personality theories or economic incentive theories might otherwise suggest.¹¹⁶ Instead, the post-modern recognition that there exists a cultural commons that dictates available forms of expression also comes with recognition of a communal ownership over certain forms of expression,¹¹⁷ which inevitably are shaped by the available cultural lexicon.

Ideas that are embodied—or fixed in a tangible medium—in a form of palatable and original expression according to cultural expectations are then afforded copyright coverage. The sense of embodiedness for work is significant on two levels. The first is that consumers, influenced by creative pieces and therefore able to contribute their own new creative pieces, have disparate access to various works. Even though a work is properly fixed in a tangible medium such that it receives coverage, it may not circulate widely enough that most of the public will have access. In this way, recognizing the importance of embodiedness in copyright theory is quite literal—there are physical people taking up physical space interacting with physical pieces of creative expression.¹¹⁸ The other level is that ideas embodied in a form of expression have traditionally and necessarily been filtered through the human creator. Harkening back in some ways to the personality theory explored above, the human element of embodying a form of expression necessarily contributes to the cultural collective that allows for future acts of creativity.¹¹⁹ Consider fan fiction as a consummate form of this sort of embodiedness. The characters and text fans rely upon is funneled through them, through their community, to create additional narratives in the lives of the characters. The human filtration—specifically the way author and users interact within a community to create new, expanded forms of creative expression of similar core ideas—is a necessary component of adding to the cultural meaning of the original work and to the attached expression of creativity.¹²⁰ The importance of having an embodied expression, then, not only relates to having some sort of tangible medium through which users are able to comprehend and internalize creative expression; it also has to do with the way in which that consumption of a creative expression is internalized within the audience member, and how the consumption and interaction with external cultural forces shapes and reshapes future creative expression.

Recognizing the sort of dual-pronged mechanism of acts of creative expression—first, the cultural commons that determines the parameters of available ideas, and second, the way in which embodiedness helps expression take form—benefits less from a rights- or economics-based paradigm of copyright justification and is better suited for a theory like the capabilities theory. Amartya Sen and Martha Nussbaum are the most widely known scholars who have developed the capabilities theory, and as Nussbaum has articulated, “[a]gainst the dominant emphasis on economic growth as an indicator or a nation’s quality of life, Sen has insisted on the importance of *capabilities*, what people are actually able to do and to be.”¹²¹ A capabilities approach to distributing resources recognizes that because individuals are differently positioned, whether it be economically, socioculturally, or physically, distribution schemes should not rely purely on egalitarian principles.¹²²

¹¹⁵ *Id.*

¹¹⁶ BOURDIEU, *supra* note 107, at 31.

¹¹⁷ *See* BOYLE, *supra* note 90.

¹¹⁸ Cohen, *supra* note 101, at 1181.

¹¹⁹ *Id.*

¹²⁰ FRANCESCA COPPA, FAN FICTION AND FAN COMMUNITIES IN THE AGE OF THE INTERNET: NEW ESSAYS 225, 243 (Karen Hellekson & Kristina Busse eds., 2006).

¹²¹ Martha Nussbaum, *Capabilities as Fundamental Entitlements: Sen and Social Justice*, 9 FEMINIST ECON. 33 (2003).

¹²² “Equality of resources falls short because it fails to take account of the fact that individuals need differing levels of resources if they are to come up to the same level of function. They also have differing abilities to convert resources into actual functioning. Some of these differences are straightforwardly physical: a child needs more protein than an adult to achieve a similar level of

While Nussbaum in particular seeks to justify use of the capabilities theory to more effectively confront issues of sex inequality and other human rights through exploring the question of fundamental entitlements, and Sen focused primarily on economic development,¹²³ by recognizing the cultural currency of creativity, I would assert that a similar consideration can and should be imposed onto a copyright justification analysis. This would reorient the discussion of property rights away from more traditional rights- or economics-based theories,¹²⁴ and instead anchor the discussion in the sort of capabilities each artist has available to exercise an embodied sense of creativity.

The capabilities theory has been cast as a third approach to ethics in contemporary philosophy, juxtaposed against deontology and utilitarianism, which might be best understood as bedrock for both the personality theory of copyright and an incentive theory of copyright, accordingly.¹²⁵ A capabilities approach relies on looking outward, to the actual sociocultural landscape, to construct a theory of rights-allocation, rather than depending on the more neutral starting point that a Rawlsian social contract theory relies on.¹²⁶ In this respect, it recognizes that facially neutral laws that promote equal protection for all implicated parties might actually benefit certain groups more than others. In Nussbaum's theory in particular, "it is the person and the realization of that person's capabilities that is central to ethics, and the existence of rights and their specific nature and extent are deduced from the demands of such self-realization."¹²⁷ Only by recognizing a particular individual's sociocultural positionality can a set of rights be articulated to effectively maximize each person's capability.

Returning to a post-modern understanding creative expression, wherein initial access to a cultural commons of possible creative expression leads to a necessary embodied articulation of a novel creative expression, we might be able to better understand why, through reliance on a capabilities theory, the causal nexus between CAN-created pieces of visual art and the initial coders is too weak to warrant copyright coverage.

*i. Tier One of Post-Modern Creativity: The Creative Commons*¹²⁸

Beginning with the recognition that all artists in a given sociocultural moment have access to a limited vocabulary of ideas from which to draw,¹²⁹ let's consider access and input with respect to CAN AI. The commons responsible for a set of understandable ideas within a culture go beyond the idea of the public domain in copyright.¹³⁰ Instead, Foucault and Bourdieu recognize that ineffable cultural structure plays a part in shaping the expressive vocabulary available to authors in creating a palatable piece of creative expression. Not only are there larger cultural structures that play a part in determining the parameters of creative expression, but there are also the validating institutions that perpetuate or disrupt the traditional modes of creative expression—the "art world," as it might be called.¹³¹ While these institutions can no doubt shift over time and recognize new modes of creative expression,¹³² they nonetheless exert enormous control over the shape of creative expression in a given culture at a given time.

healthy functioning, and a pregnant woman more nutrients than a nonpregnant woman. But the differences that most interest Sen are social, and connected with entrenched discrimination of various types." *Id.* at 35.

¹²³ *Id.* at 36.

¹²⁴ See *supra* Parts III.A., III.B.

¹²⁵ ROSALIND HURSTHOUSE & GLEN PETTIGROVE, VIRTUE ETHICS, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (Edward N. Zalta ed. Winter 2018 ed.)

¹²⁶ *Id.* at 586.

¹²⁷ *Id.* at 585.

¹²⁸ For purposes of this paper, "creative commons" refers to the aggregate sociocultural inputs available to authors in shaping their creative expression. It is not referencing the licensing group Creative Commons. See *Creative Commons*, CREATIVE COMMONS, <https://creativecommons.org/>

¹²⁹ See BOURDIEU, *supra* note 107, at 31.

¹³⁰ See COHEN, *supra* note 101, at 1171.

¹³¹ See COHEN, *supra* note 67, at 91.

¹³² *Id.*

The significant element in this first tier of creative expression—the cultural commons, both the legacy of creative expression that predates a point of new creative expression and the validating institutions that shape the available lexicon of creative expression—is largely absent from the CAN “creative” process. Even if CAN technology received as input every piece of art available to the public from which to improve its creative process, it still would not be fully accessing the creative commons that helps shape an iteration of creative expression in a given moment of time.¹³³ CAN technology relies on a particular learning heuristic for understanding creativity, and in doing so learns exclusively according to one model of creative expression.¹³⁴ Further, it depends exclusively on deconstructing publicly available works of art to develop a sense of creative expression.¹³⁵ In this sense, it is not engaging in creative practice under the umbrella of a cultural commons, which includes systems of expression and validating institutions that ceaselessly dialogue with an artist’s choice of expression; instead, CAN mimics creative expression of bygone eras, rather than creating new works under the current cultural framework.¹³⁶

Refracting the failure of CAN technology to meaningfully interact with contemporary creative commons through a capabilities-theory lens, extending copyright coverage for pieces of visual art created by CAN AI would in no way contribute to their flourishing as creative participants in the cultural commons. The initial code underlying CAN AI more straightforwardly satisfies the first tier of a post-modern understanding of creative expression—each individual coder is, by virtue of creating as an individual within a larger cultural landscape, markedly influenced by the cultural forces that narrate creative expression. But the resultant piece of art, as explored above, does not satisfy the first tier. If a capabilities theory aims to maximize the self-actualization of the individual by assigning rights, doing so here by assigning copyright coverage to the initial coders would not likely serve that aim. By receiving copyright protection for the underlying code that primes CAN AI to learn, the coders are being granted a rights-based recognition for their creative efforts; they have responded to the creative commons and designed a software that has the ability to “learn.” But the resultant art that CAN technology creates is in very few ways, if any, attached to the placement of the individual coders in a larger creative commons.¹³⁷ Instead, CAN AI learns in a vacuum, stripped of the cultural legacy that otherwise attaches itself to creative expression. In seeking to maximize self-actualization according to the first tier of a post-modern approach to the creative process, capabilities theory weighs against extending copyright coverage to the initial coders for any AI-created piece of art, as their positionality in the cultural commons is irrelevant to the creation of the piece of art itself.

ii. *Tier Two of Post-Modern Creativity: Embodiedness*

A capabilities-theory analysis of the second tier of the post-modern creative process also fails to justify extending copyright coverage to the initial coders for CAN-created pieces of art. As explored above, an embodied expression of a creative piece of authorship indicates that the piece is both consumable in some way by the public and that both the artist and the public are engaged in a kind of cultural dialogue through that consumption.¹³⁸ In other words, the creativity behind the piece perfected as the artist fixes the work, and as the public consumes and experiences it. While not all authored work is made publicly available, the orientation of the creative work as a piece made by an individual who is part of a large cultural collective is nonetheless relevant to the infusion of creativity.¹³⁹ In this way, a post-modern approach to

¹³³ Again, the idea of a creative commons goes far beyond just recognizing the importance of having a fulsome public domain of creative works. See Cohen, *supra* note 101, at 1171.

¹³⁴ See Elgammal et al., *supra* note 3, at 2.

¹³⁵ *Id.*

¹³⁶ Emerging Technology, *Machine Creativity Beats Some Modern Art*, MIT TECH. REV. (June 30, 2017), <https://www.technologyreview.com/s/608195/machine-creativity-beats-some-modern-art/> [https://perma.cc/K6G8-LQQC].

¹³⁷ One might assert that, as the creators of the AI, the coders might rely on their understanding of culturally relevant expressions of creativity to determine which pieces of art to use as input data for CAN. While such a volitional set of choices is no doubt glossed by the cultural commons, it ultimately lacks any marked exertion of force from the cultural commons on the creative process itself, as the AI “learns” creativity separate and above from the underlying code and without access to the cultural commons on the whole.

¹³⁸ See Cohen, *supra* note 101, at 1171.

¹³⁹ See COPPA, *supra* note 120.

understanding the importance of embodiedness goes beyond personality theory as a justification for copyright coverage.¹⁴⁰ It contextualizes the individual artist as a reference point for a larger cultural narrative of creative language. The artist who creates an embodied work not only filters culture through herself, but also presents a work that contributes to the legacy of her creative culture.

The requirement of embodiedness starts from the language of the Copyright Act itself, which requires that a work of authorship be fixed in a tangible medium.¹⁴¹ Software has a fraught legacy of coverage as it is, with some disputing whether the source code is sufficiently fixed in a tangible enough medium that there truly is a publicly consumable work of authorship available.¹⁴² Putting aside the question of whether the software itself is a valid form of creative expression according to a post-modern understanding of embodiedness, we are left to explore whether CAN-generated pieces of original art satisfy the post-modern paradigm of embodiedness. Interestingly, there is no dispute that a CAN-generated piece of art satisfies the literal fixation requirements of the Copyright Act—an art print is viewable by the public and readily reproducible. However, given its tenuous beginnings—software being a starting point that has attached to it a legacy of uncertain coverage rights—and its cordoned-off form of creativity,¹⁴³ CAN AI fundamentally lacks the embodiedness post-modern theory suggests is necessary for creative expression. In creating an embodied work, authors filter culture through their person, relying on whatever myriad pieces of creative expression they have been exposed to throughout their lives. Their exposure is undoubtedly limited; I, for example, grew up watching a lot of Looney Toons cartoons, but am hardly familiar with Marvel comic book characters. Any cartoon I might conceptualize would likely be more influenced by my exposure to Looney Tunes than to Marvel characters. Nonetheless, the person-centric filtration is integral to the way a final piece of creative work turns out. There is something fundamentally human about the way a piece is created, firmly attached to the author’s phenomenological understanding of their creative landscape.

Arguably, the coders *are* preferencing exposure to certain artwork and modes of creativity over others, communicating their personhood in the process—they articulate the creativity heuristic in the code, and might even select the input pieces that the CAN technology learns from. Nonetheless, the technology breaks down the input pieces and learns “creativity” in a fundamentally non-human way.¹⁴⁴ It is exclusively relying on pre-existing pieces of art, void of the community under which the pieces are understood.¹⁴⁵ In this way, despite the work being fixed in a straightforwardly tangible medium, it is decidedly disembodied, in that there is no communication between the original coders, their own exposure to creative works, and the final audience that may react to the work. The connection to the original human creators, the coders, is too attenuated.

In considering how creative expression requires an embodied process to take place, I want to be careful to note that, while the coders behind CAN technology should not be granted copyright coverage for any original art the AI creates, a different sort of machine-created piece of creative expression is not necessarily foreclosed from satisfying a post-modern theory of creativity. Let’s return to the Naruto—or monkey selfie—case as an example. In that case, the photographer who labored to set up the camera was ultimately extended coverage for the photograph.¹⁴⁶ There, the issue was whether the monkey should own the copyright instead,¹⁴⁷ but it offers an example that illustrates when an author sets up a machine without knowledge of what will be produced. When a photographer sets up a camera on a timer, without knowledge of what will be captured, they are still considered the author under copyright law. This satisfies the formalists’ argument that authorship merely requires an author to “devise a *creative plan* for the work.”¹⁴⁸

¹⁴⁰ See *supra* Section II.B.

¹⁴¹ See 17 U.S.C. § 101 (2012).

¹⁴² See *supra* Section II.A.

¹⁴³ See Elgammal et al., *supra* note 3, at 3.

¹⁴⁴ See Emerging Technology, *supra* note 136.

¹⁴⁵ *Id.*

¹⁴⁶ *Naruto v. Slater*, 888 F.3d 418, 426 (9th Cir. 2018).

¹⁴⁷ *Id.*

¹⁴⁸ See Ginsburg & Budiardjo, *supra* note 23, at 10.

David Slater devised a creative plan wherein he understood that the monkeys might take photographs. Similarly, the coders responsible for CAN AI arguably devised a creative plan wherein they understood that the technology would learn creative aesthetic patterns to create novel pieces of art.

Examining the element of embodiedness by looking at post-modern art might more clearly illustrate why the *Naruto* photo should receive coverage under a post-modern theory of creativity but the CAN-created art should not. In 1917, Marcel Duchamp found a urinal in an alleyway, took it, and submitted it—without any adjustments to the physical structure—to the New York Society of Independent Artist’ exhibition.¹⁴⁹ From this piece, Duchamp catalyzed an entirely new approach to understanding what was and was not art; his piece was commentary on art, and as such was widely acclaimed as a provocative display of human creativity.¹⁵⁰ Duchamp’s ready-mades do not actually do anything different visually or structurally to the objects on display.¹⁵¹ Nonetheless, Andy Warhol owned Duchamp’s *Fountain* piece until 1988, when it was sold for over \$68,000,¹⁵² highlighting the significant role it played and continues to play in the creative arts world. Duchamp is one example of an artist whose works are seemingly *uncreative*, in that they are indirectly “created” by the artist, who is using found objects to make commentary rather than use traditional forms of creative expression to make a new piece of art. Consider, too, John Cage’s “4’33” composition, which consists of four minutes and thirty-three seconds of silence “performed” in front of an audience.¹⁵³ The piece, which offers audiences no lasting memories of notes or references to the musical legacy Cage grew up steeped in, instead offers a meta-creative message: that silence is a fallacy, and that each moment of the lived experience is demarcated by a series of circumstantially particular sounds (think rain pattering on a roof top, a muffled cough from an audience member, the squeak of a chair).¹⁵⁴

Artists like Duchamp and Glass are engaging in meta-creative choices about what to present to the world as art.¹⁵⁵ While the works they introduced into the creative lexicon were not traditionally “creative,” they represented an active examination of the creative process and of what was valued creatively. Their works irrevocably influenced the creative landscape under which they were created. Arguably, this is exactly what CAN-created art does, too; it learns a particular creativity heuristic and creates art under the umbrella of that heuristic, attempting to illustrate how creativity works and looks. However, the difference between artists like Duchamp and Glass, and CAN-AI on the other hand—all of which are engaging in acts of meta-creativity—is that artists like Duchamp and Glass are expressing in their works a fundamental embodiedness that is entirely lacking in CAN-AI-created pieces of art. Duchamp, Glass, and others of their ilk are providing an embodied form of creative criticism through their work. Necessarily attached to their pieces is a cultural commentary or criticism. CAN-created works, on the other hand, are not criticisms of the works that came before. A human might be capable of constructing a critique through her viewing of CAN-created art, but that is not what the coders or the CAN technology are attempting to provoke in viewers by creating new pieces of art. Meta-creative human artists are not just giving you the idea of meta-creativity; they are actually giving you an example of it. CAN-technology, on the other hand, is intentionally stripped of the human critique that necessarily accompanies human-created meta-creative works.

The capabilities theory provides a way to separate a timed, random photograph, or a piece of found art, and CAN-created art according to post-modern embodiedness principles. A capabilities approach recognizes how different matrices can play into supporting the greatest self-actualization of an individual’s rights. In analyzing the extent to which rights should be granted along the line of embodied forms of

¹⁴⁹ J. Alex Ward, *Copyrighting Context: Law for Plumbing’s Sake*, 17 COLUM.-VLA J.L. & ARTS 159, 160 (1993).

¹⁵⁰ *Id.* at 164.

¹⁵¹ Albery Cook, *The “Meta-Irony” of Marcel Duchamp*, 44 J. OF AESTHETICS AND ART CRIT. 263 (1986). Interestingly, it is not clear whether or not, under U.S. copyright law, Duchamp would be extended copyright coverage for his *Fountain* piece. See *Mazer v. Stein*, 347 U.S. 201, 212 (1954) (holding that utilitarian objects will only receive copyright coverage for any discernable creative marks included therein).

¹⁵² See Ward, *supra* note 149, at 164.

¹⁵³ See Alex Ross, *Searching for Silence*, NEW YORKER (Sep. 27, 2010), <https://www.newyorker.com/magazine/2010/10/04/searching-for-silence> [<https://perma.cc/P7ZV-H7UZ>].

¹⁵⁴ *Id.*

¹⁵⁵ As used in this analysis, by meta-creativity, I mean the exercise of examining how and why a piece might be considered creative, and the attempt to communicate that message to a receiving audience.

creativity, one might consider matrices like volition, temporality, predictability and control, community interaction and dialogue, and human filtration. Embodiedness requires that creativity be filtered through and among human authors and consumers, as the human work is a commentary on the creative process itself, not a distilled regurgitation of it. It takes into account the author's time, place and exposure to creative works; it also takes into account the audiences' responses, consumption, and sense of community. What is lacking in both a randomly placed and timed camera and CAN-created pieces of art are a sense of volition and predictability. Embodiedness does not necessarily require that the work produced by an author be volitional, predictable, or even produced *by the human herself*, but it does require that there not be so attenuated a relationship between the human author and the resultant work that the spirit of embodiedness—the physicality of author exposed to creative data points and the way in which the art is understood and reacted to—must remain recognizably intact.

Failing to meet some of the really fundamental ways post-modern thinkers understand creative expression, the capabilities theory highlights why CAN-created pieces should not receive copyright coverage. The capabilities theory seeks to provide rights to individuals with an aim toward increased human dignity, recognizing that normative obligations and cultural power distribution should be taken into account when structuring a system of laws.¹⁵⁶

V. CONCLUSION

Why Traditional Justifications for Copyright Do Not Extend to CAN Technology Coders

While the concept of author is a culturally, politically, economically, and socially constructed category and not a real or natural one,¹⁵⁷ expanding the parameters of our statutory and common law understanding of author to the coders responsible for CAN-technology-created pieces of art would create an untenable framework for understanding authorship moving forward. The formalist attitude relies on an understanding of copyright that ignores the underlying theory of causation implicitly relied upon in contemporary copyright jurisprudence.¹⁵⁸ A necessity for granting copyright protection is having enough causal connective tissues between traditional and newer justifications for copyright such that proximate cause between author and work is clearly established.¹⁵⁹ In the case of CAN-created works of art, relying on bedrock principles of copyright coverage, including a personality rights-based theory, an incentive-access economic theory, and post-modern frameworks of creativity and rights allocation makes clear that CAN-created works lack the requisite causal connections to the original coders such that the coders should be granted copyright coverage. The lack of causal connection is only exacerbated when viewed in light of the complicated and unsatisfactory history software coverage has under copyright jurisprudence. While CAN-AI is undoubtedly an impressive and important technological development, copyright protection is not the appropriate area of law to incentivize and protect the coders responsible for the technology.

¹⁵⁶ Rutger Claassen and Marcus Düwell, *The Foundations of Capability Theory: Comparing Nussbaum and Gewirth*, 16 ETHICAL THEORY & MORAL PRAC. 493 (2013).

¹⁵⁷ Jaszi, *supra* note 68, at 459.

¹⁵⁸ See generally Ginsburg & Budiardjo, *supra* note 23.

¹⁵⁹ See generally Balganes, *supra* note 27.