

2018

Copyrightability of Artworks Produced by Creative Robots and Originality: The Formality-Objective Model

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Shlomit Yanisky-Ravid & Luis A. Velez- Hernandez, *Copyrightability of Artworks Produced by Creative Robots and Originality: The Formality-Objective Model*, 19 MINN. J.L. SCI. & TECH. 1 (2018).

Available at: <https://scholarship.law.umn.edu/mjlst/vol19/iss1/1>

The Minnesota Journal of Law, Science & Technology is published by the University of Minnesota Libraries Publishing.

Copyrightability of Artworks Produced by Creative Robots and Originality: The Formality-Objective Model

Shlomit Yanisky-Ravid and Luis Antonio Velez-Hernandez*

In our new era of advanced technology, creative robots, driven by sophisticated artificial intelligence systems and hence acting autonomously, are capable of producing innovative artistic and other works—ones which, had they been created by humans, would be eligible for copyright protection. This article addresses the question of copyrightability of artworks created by

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creative robots. We argue that creative robots as autonomous entities are capable of holding copyrights in artworks they produce. However, the greatest hurdle to this notion, from the copyright law point of view, is the interpretation of the most important concept in copyright protection: the requirement of originality. Therefore, in this article, we are revisiting the concept of originality. This article argues that confronting the challenges of the new 3A era (advanced, automated and autonomous) calls for a reassessment of the meaning of originality, which is undefined in the field of copyright protection both in international law, under the Berne Convention, and in domestic U.S. copyright law. The lack of a clear definition means that the existing concept of originality is inadequate for addressing new, possibly “copyrightable” works produced by creative robots. Moreover, the lack of a clear definition leads to interpretations of “originality” that are vague, immeasurable, and disharmonized, and already causes confusion in the industry as well as the public. This uncertainty surrounding an important legal concept has triggered a search for a solution that could eliminate or, at the very least, reduce future conflicts. This article suggests that a more formal, objective approach—as opposed to the existing, subjective (or mixed) approach—to the concept of originality should be adopted. The proposed objective approach might be applicable to works created by creative robots as well as artworks generated by digital tools and is further warranted by the intangible, vague nature of art. We suggest that a consistent legal determination of the question “what is original?” can successfully be achieved only by a formal, objective, descriptive approach.

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INTRODUCTION

“Four hundred years after the death of the old master, Rembrandt van Rijn, a new Rembrandt has been unveiled to the world, or at least, the *Next Rembrandt*.”¹ Next Rembrandt is a new project that digitizes the painting method of Rembrandt with the goal of creating computer-generated artwork.² Once exposed to open data, the program will be capable of not only replicating existing paintings, but also producing entirely new,

1. Steve Schlackman, *The Next Rembrandt: Who Holds the Copyright in Computer Generated Art*, ART L. J. (Apr. 22, 2016), <http://artlawjournal.com/the-next-rembrandt-who-holds-the-copyright-in-computer-generated-art> (describing the first goal of the project as “discover[ing] if an algorithm . . . could produce a physical work of art that could mimic the look of a genuine Rembrandt painting.”). The project was launched by ING and the J. Walter Thompson agency, along with their partners Microsoft, TU Delft, Mauritshuis, and Rembrandthuis. *Id.*

2. *See id.*

creative, and original artwork.³ The project is the result of collaboration between data scientists, engineers, and art historians, who are studying Rembrandt's painting techniques, his style, and his subject matter in order to build a computer program capable of creating innovative artwork.⁴ If humans, not digital systems, had created such works, they would be copyrightable, but projects such as Next Rembrandt blur the boundary between technology and art, creating new challenges to the copyright regime in general.⁵ This new reality requires a reevaluation of the concept of originality as applied to artwork.

Creative robots driven by automated machines, artificial intelligence (AI) systems, and machine learning software (hereinafter, creative robots or AI systems) have already become part of our daily lives. Automated AI systems play a role in many fields, including diagnostic medicine,⁶ transportation,⁷

3. *See id.*

4. *See id.*

5. *See* The Next Rembrandt, *The Next Rembrandt*, YOUTUBE (Apr. 5, 2016), <https://www.youtube.com/watch?v=IuygOYZ1Ngo> (depicting how the team began with an in-depth study of the proportions and features of the faces in Rembrandt's works). To master his style, the project team

designed a software system that could understand Rembrandt based on his use of geometry, composition, and painting materials. A facial recognition algorithm identified and classified the most typical geometric patterns used by Rembrandt to paint human features. It then used the learned principles to replicate the style and generate new facial features for [the new] painting."

Id.

6. *See* Fazal Khan, *The "Uberization" of Healthcare: The Forthcoming Legal Storm over Mobile Health Technology's Impact on the Medical Profession*, 26 HEALTH MATRIX (2016) (discussing the eventual likely rise of mobile health supplementing or replacing traditional providers of healthcare); Jolene Creighton, *AI Saves Woman's Life by Identifying Her Disease When Other Methods (Humans) Failed*, FUTURISM (Aug. 5, 2016), <http://futurism.com/ai-saves-womans-life-by-identifying-her-disease-when-other-methods-humans-failed> ("If you needed proof that the age of artificial intelligence is officially upon us, well, look no farther. Reports assert that IBM's artificial intelligence (AI) system, Watson, just saved the life of a Japanese woman by correctly identifying her disease. This is notable because, for some time, her illness went undetected using conventional methods, and doctors were stumped.").

7. *See* Caitlin Brock, *Where We're Going, We Don't Need Drivers: The Legal Issues and Liability Implications of Automated Vehicle Technology*, 83 UMKC L. REV. 769, 770–73 (2015) (citing the many benefits of automated vehicles); Ray Kurzweil, *The Virtual Thomas Edison*, TIME (Dec. 3, 2000) (describing the issues raised by automated cars); Ionut Alexandru Budisteanu, *Using Artificial Intelligence to Create a Low Cost Self-Driving Car*, BUDISTEANU TECH BLOG,

investment,⁸ and combat (e.g. automated weapons or war robots),⁹ as well as many lesser-known areas, such as therapy,¹⁰ intelligence gathering,¹¹ and social policymaking.¹² Even legal

<http://budisteanu.net/Download/ISEF%202%20Autonomous%20car%20Doc%20particle.pdf> (describing the achievability of creating a car with the ability to drive automatically and autonomously in an urban area). In 2004, car accidents caused 2.5 million deaths worldwide and injured 50 million people. 87% of the crashes were due solely to driver errors. Most of the components of self-driving cars have already been completed, and the system is able to recognize traffic signs and register them in a common database using Google Maps, GPS, and other tools. *Id.*

8. See Nizan Geslevich Packin & Yafit Lexv-Aretz, *Big Data and Social Netbanks: Are You Ready to Replace Your Bank?*, 53 HOUS. L. REV. 1211, 1222 (2016) (describing how most financial institutions in North America use big data analysis and how banks are adopting technological tools).

9. See Rebecca Crootof, *The Killer Robots Are Here: Legal and Policy Implications*, 36 CARDOZO L. REV. 1837, 1840–43, 1863–71, 1894–1901 (2015) (describing how AI weapons systems with varying levels of autonomy have already been integrated into the armed forces of numerous states, and calling for a definition of Autonomous Weapon System and international regulations thereof); Roberto Baldwin, *The Robots of War: AI and the Future of Combat*, ENGADGET (Aug. 18, 2016), <https://www.engadget.com/2016/08/18/robots-of-war-ai-and-the-future-of-combat> (arguing that the future of warfare will be filled with AI and robots, and whoever builds the best artificial intelligence will win the conflict).

10. See Hideki Kozima et al., *Keepon: A Playful Robot for Research, Therapy, and Entertainment*, 1 INT'L J. SOC. ROBOTICS 3, 3 (2009); Jonathan Amos, *Love Lab Predicts Marital Outcome*, BBC NEWS (Feb. 13, 2004), <http://news.bbc.co.uk/2/hi/science/nature/3484981.stm> (reporting that scientists have created a mathematical model that predicts which marriages will end in divorce).

11. See James Bamford, *The NSA Is Building the Country's Biggest Spy Center*, WIRED (Mar. 15, 2012, 7:24 PM), http://www.wired.com/threatlevel/2012/03/ff_nsadatacenter; Jasper Hamill, *Eyes in the Sky: CIA Training Artificial Intelligence to Spy on Earth from Space Using 'Computer Vision'*, THE SUN (Aug. 25, 2016, 5:19 PM), <https://www.thesun.co.uk/news/1673802/cia-training-artificial-intelligence-to-spy-on-earth-from-space-using-computer-vision> (reporting that CosmiQ Works, a firm closely related to the CIA, is working with Amazon and DigitalGlobe, a satellite mapping firm, to train AI algorithms to use “computer vision” to spy on Earth).

12. See Rob Kling, *Automated Information Systems as Social Resources in Policy Making*, 78 ACM 666 (1978), <http://dl.acm.org/citation.cfm?id=810109> (documenting that automated information systems have been suggested by a number of theorists to aid public policymakers in acquiring more accurate, timely, and relevant information). This article reports a study of the uses and impacts of automated systems for policy analysis in forty-two municipal governments. *Id.* The study demonstrates that automated analyses are commonly used in municipal governments to support policy suggestions, which are often implemented. *Id.* Automated systems in these settings serve both

systems have not escaped the influence of automated AI systems, which play a role in the creation, and possibly even the enforcement, of legal tools and methods, such as the practice of law,¹³ alternative dispute resolution,¹⁴ contract drafting,¹⁵ and more.¹⁶

The production of automated AI machines has been consistently and rapidly growing, with the AI industry forecast to become a \$70 billion industry by 2020.¹⁷ The fact that the AI industry is also actively involved in the creative production of

educational and political aims. *Id.* But see Jack M. Balkin, *The Three Laws of Robotics in the Age of Big Data*, 78 OHIO ST. L.J. (forthcoming 2017) (finding that a characteristic feature of the Algorithmic Society is that new technologies permit both public and private organizations to govern large populations). Behind robots, artificial intelligence agents, and algorithms are governments and businesses—organized and staffed by human beings—that exercise power over other human beings mediated through new technologies. *Id.* Balkin argues that it is therefore important to keep in mind three rules: good faith, private owners' fiduciary obligations to the public, and transparency. *Id.*

13. See Michael Mills, *Using AI in Law Practice: It's Practical Now*, LAW PRAC. MAG., July–Aug. 2016, at 48; Jessica Chasmar, *Stanford Student's Robot Has Beaten 160,000 Parking Tickets*, WASH. TIMES (June 29, 2016), <http://www.washingtontimes.com/news/2016/jun/29/joshua-browder-stanford-students-robot-lawyer-has-/>; *This Robot Lawyer Could Help You Get Your Parking Ticket Dismissed*, CBS NEWS (July 26, 2016), <http://www.cbsnews.com/news/donotpay-bot-lawyer-helps-dismiss-parking-tickets-joshua-browder> (reporting that the robot lawyer had already saved drivers an estimated \$4–5 million).

14. See David Allen Larson, *Artificial Intelligence: Robots, Avatars, and the Demise of the Human Mediator*, 25 OHIO ST. J. DISP. RESOL. 105 (2010); Arno R. Lodder & John Zeleznikow, *Artificial Intelligence and Online Dispute Resolution*, in ONLINE DISPUTE RESOLUTION THEORY AND PRACTICE (Mohamed Abdel Wahab, Ethan Katsh & Daniel Rainey eds., 2013).

15. See Lauren Henry Scholz, *Algorithmic Contracts*, 20 STAN. TECH. L. REV. (forthcoming 2017) (arguing that understanding the existence of algorithms as servants rather than mere tools justifies the creation and analysis of a distinct category called “algorithmic contracts”). Machine learning enables sophisticated algorithms to be more similar in function to a human employee with a task to achieve than to a tool. *Id.*

16. See Edwina L. Rissland, Kevin D. Ashley & Ronald P. Loui, *AI and Law: A Fruitful Synergy*, 150 ARTIFICIAL INTELLIGENCE 1 (2003) (arguing that AI and the Law is a classic field for AI research).

17. See Reuters, *Tech CEOs Declare This the Era of Artificial Intelligence*, FORTUNE (June 3, 2016), <http://fortune.com/2016/06/03/tech-ceos-artificial-intelligence> (reporting that tech companies are diving into AI analytics research, an industry that will grow from just \$8.2 billion in 2013 to \$70 billion by 2020). The article describes Elon Musk's remarks as such: “Artificial intelligence and machine learning will create computers so sophisticated and godlike that humans will need to implant ‘neural laces’ in their brains to keep up[.]” *Id.*

intellectual property works, including “copyrightable” works, represents the 3A Era of Advanced, Automated, and Autonomous digital tools. An unforgettable scene in the film *Ex-Machina*, in which Eva (a robot) gives Caleb (a human) a drawing she created as a gift to capture his heart, illustrates this new reality: creative robots can create original works—ones that have neither been copied nor infringe the rights associated with other works.¹⁸ However, copyrightable works created by creative robots do not exist only in science-fiction movies. Creative robots and other AI-like systems currently produce original works in almost every copyrightable medium: literature,¹⁹ poetry,²⁰ news,²¹ music,²² and other branches of visual arts.²³

The fact that creative robots and other forms of AI systems can autonomously create original works—independently of the human beings who created the AI system itself—raises many legal questions. Are these works copyrightable as original artwork? Who would own the copyright, including all the rights flowing from that ownership (e.g. licenses, royalties, rights to remedies for infringement of the works)? Who is entitled to the

18. *EX-MACHINA* (Universal Pictures International 2015).

19. See Alison Flood, *Computer Programmed to Write Its Own Fables*, *GUARDIAN* (Aug. 6, 2014), <http://www.theguardian.com/books/2014/aug/06/computer-programmed-to-write-fables-moral-storytelling-system>.

20. See Samuel Gibbs, *Google AI Project Writes Poetry Which Could Make a Vogon Proud*, *GUARDIAN* (May 17, 2016), <https://www.theguardian.com/technology/2016/may/17/googles-ai-write-poetry-stark-dramatic-vogons> (reporting that Google, Stanford University, and others are working on an artificial intelligence program that will write poems after exposing the program to novels).

21. See Lin Weeks, Note, *Media Law and Copyright Implications of Automated Journalism*, 4 *N.Y.U. J. INTELL. PROP. & ENT. L.* 67 (2014) (discussing examples of news created by machines, but leaving open the questions regarding copyright); Steve Lohr, *In Case You Wondered, a Real Human Wrote This Column*, *N.Y. TIMES* (Sept. 10, 2011), <http://www.nytimes.com/2011/09/11/business/computer-generated-articles-are-gaining-traction.html>.

22. See William T. Ralston, *Copyright in Computer-Composed Music: HAL Meets Handel*, 52 *J. COPYRIGHT SOC'Y U.S.A.* 281, 306 (2005) (“The question of whether machine-generated expression is a proper subject for copyright has been, and probably will continue to be, a subject of continued debate.”).

23. See Peter Kugel, *Artificial Intelligence and Visual Art*, *LEONARDO*, Spring 1981, at 137 (describing computers’ means of “thinking” and how this relates to the creation of visual artwork).

moral rights?²⁴ Many of these questions depend on the identification of the legal entity that can be considered the creator, which depends on a prior discussion about the definition of originality. This discussion is the focus of this article.

The AI systems of today can best be described as sharing ten characteristics: they are (1) innovative, (2) autonomous, (3) unpredictable, (4) independent, (5) rational-intelligent, (6) evolving and capable of learning, (7) efficient, (8) accurate, (9) goal oriented, and (10) capable of processing free choice—all features that make these systems inherently intelligent.²⁵ The ability of these systems to create original artwork constitutes the basis for the following debate on the concept of originality.

We argue that in the case of artworks produced by creative robots, the source of subjective originality is no longer relevant. In this sense, works created by creative robots or other AI systems can be considered an impetus for revisiting our understanding of the traditional concept of originality. Traditionally, intellectual property (IP) laws, and in particular, copyright laws, have been based on a human creator, who creatively, originally, and independently creates a work from within his or her mind and soul in a way that reflects his or her personality.²⁶ Even the law and economics rationales are focused

24. See Xiyin Tang, *The Artist as Brand: Toward a Trademark Conception of Moral Rights*, 122 YALE L.J. 218 (2012); Shlomit Yanisky-Ravid, *Rethinking Employees' Intellectual Property Moral Rights: A New Model*, in INTELLECTUAL PROPERTY: INTERDISCIPLINARY PERSPECTIVE 70–71 (Miriam Bitton & Lior Zemer eds., 2012), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2132704 (comparing the laws in France and Germany, which provide strong legal protection for moral rights to authors and creators, including employed creators, to the law in the United States, which diminishes moral rights dramatically and totally negates moral rights in regard to employees).

25. Shlomit Yanisky-Ravid & Xiaoqiong (Jackie) Liu, *When Artificial Intelligence Systems Produce Inventions: The 3A Era and an Alternative Model for Patent Law*, CARDOZO L. REV. (forthcoming 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2931828.

26. See Colin R. Davies, *An Evolutionary Step in Intellectual Property Rights – Artificial Intelligence and Intellectual Property*, 27 COMPUTER L. & SECURITY REV. 601 (addressing and analyzing the issue of ownership of computer-generated works within patent and copyright law, and concluding that the current regime is woefully inadequate to deal with the growing use of more and more intuitive artificial intelligence systems in the production of such works). It considers the respective claims of interested parties to such rights before moving on to a consideration of the creation of a new legal personality to

on incentive as a human trait.²⁷ However, in acknowledging how creative robots produce their work, we realize, perhaps for the first time, that there is *no* human behind their creations. It is the automated AI system, representing the 3A era, that creates and produces the potentially copyrightable works by itself. We argue that there exists a great tension between the traditional notion of human creators, who are entitled to copyright on the fruits of their creative labor, and creative robots, which autonomously and independently produce new works. This discord between art, creation, and machines demands further investigation and clarification.

This article addresses the modern-day challenge of applying existing copyright laws to this new category of works. We argue that creative robots can be considered the authors. However, traditional copyright laws are unsuited to dealing with the copyrightable works produced by creative robots in light of technological advances. Current IP law and policy will most likely not survive this technological revolution as is, which is why we must be prepared to replace the current understandings of the legal system with some alternative meanings. This article focuses on revisiting the concept of originality with the result of adopting a new understanding of this concept.

We contend that the traditional approach to copyright law focuses on protecting the human being behind the machine. Under this approach, once we identify a human being (or an entity as transferee), we can identify the party who will be responsible for the work and, consequently, the target of the law.²⁸ This known reality, in which only human beings are creators, has been the reason to preserve the law “as is.” We argue that, when dealing with creative robots, this traditional approach should adopt new modifications. This dilemma

which such rights could be granted to resolve the difficulties inherent in the current system. *Id.*

27. Naci Mocan & Kaj Gittings, *The Impact of Incentives on Human Behavior: Can We Make It Disappear? The Case of the Death Penalty*, in *THE ECONOMICS OF CRIME: LESSONS FOR AND FROM LATIN AMERICA* 379–81 (Rafael Di Tella, Sebastian Edwards & Ernesto Schargrotsky eds., 2010) (describing an empirical analysis testing the economic model of crime, which has demonstrated that illicit behavior responds to incentives and sanctions).

28. See *infra* text accompanying notes 60–61 (discussing the National Commission on New Technological Uses of Copyrighted Works (CONTU)).

demands that we rethink the way we define and apply existing legal terms such as “originality.”

Take, for example, an interesting story concerning the town of Borja in the Spanish province of Zaragoza.²⁹ A lady, Cecilia Gimenez, acting entirely with good intentions, took on the task of restoring a 120-year old fresco in the Sanctuary of Mercy (*Santuario de Misericordia*).³⁰ Ms. Gimenez’s “restoration” resulted in a “botched” work, but one that was also an entirely new painting. After a long period of exposure in the news, this “botched” artwork became an international sensation and a common topic in intellectual property classes and blogs.³¹ The “botched” work began to appear on T-shirts and postcards. The owner of the building, which might be described as the “tangible medium” of the preexisting artwork, began collecting increased donations from the public as a result of exhibitions of the “botched” version.³² However, none of the money collected ended up in the pockets of the lady responsible for the so-called “botched” painting.³³ Now, if we imagine that Ms. Gimenez, the creator, was actually a creative robot instead of a human being, we must ask the following questions: Can the artwork be considered an “original”? Is Ms. Gimenez, the robot, or anyone on its behalf, entitled to royalties for reproduction profits?³⁴ This example demonstrates the very real difficulties presented by the

29. See generally Jonathan Jones, *Great Art Needs a Few Restoration Disasters*, THE GUARDIAN (Aug. 23, 2012, 7:30 AM EDT), <http://www.guardian.co.uk/commentisfree/2012/aug/23/great-art-restoration-disasters> (introducing the *Ecce Homo* fresco and Ms. Gimenez’s attempt at restoration).

30. *Id.*

31. See *Art Attack: Pensioner Destroys Church Fresco*, SKY NEWS (Aug. 23, 2012, 10:18 AM UTC), <http://news.sky.com/story/976008/art-attack-pensioner-destroys-church-fresco>; Jones, *supra* note 29; Stacey Leasca, *Art World Rejoices Over ‘Botched’ Restoration*, GLOBALPOST (Aug. 24, 2012, 6:55 PM UTC), <http://www.globalpost.com/dispatches/globalpost-blogs/weird-wide-web/art-world-rejoices-over-botched-restoration>; Barry Neild, *Ecce Homo ‘Restorer’ Wants a Slice of the Royalties*, THE GUARDIAN (Sept. 20, 2012, 4:14 PM EDT), <http://www.guardian.co.uk/world/2012/sep/20/ecce-homo-cecilia-gimenez-royalties>; Amy Willis, *Elderly Woman Destroys 19th-Century Fresco with DIY Restoration*, THE TELEGRAPH (Aug. 22, 2012, 10:26 AM), <http://www.telegraph.co.uk/culture/art/9491391/Elderly-woman-destroys-19th-century-fresco-with-DIY-restoration.html>.

32. *Art Attack*, *supra* note 31; Jones, *supra* note 29; Neild, *supra* note 31.

33. Neild, *supra* note 31.

34. *Id.*

vagueness of the term “originality” in Intellectual Property and copyright law.

We argue that policymakers need to rethink the concepts of originality and authorship within the international and U.S. legal systems. In searching for answers to the legal questions presented by the scenario described above, the absence of a concrete definition of “originality” under copyright law is undoubtedly troublesome.³⁵ Although originality is one of the most important concepts of copyright protection,³⁶ the absence of a definition of “originality” and the variety of standards for assessing “originality” frequently result in uncertainty regarding the copyright protections of artwork.³⁷ This problem is only exacerbated when one examines works produced by creative robots.

To avoid this confusion, this article proposes a formal, descriptive, and objective approach to the concept of “originality” in artwork. This approach represents an entirely new model from the current one, which has a number of flaws. First, the level of originality required by the current U.S. standards varies from one case to another. Second, the jurisprudence provides definitions of “originality” that better describe how to attain originality than how to perceive or recognize it. Third, the lack of uniformity across jurisdictions creates a burden for the advancement of creativity in works, especially when discussing original works produced by creative robots.

In seeking to propose an effective approach for the formalization of originality—one that is also capable of recognizing works produced by creative robots—the first part of this article discusses creative robots as potential authors of artworks they produce. The second part describes the international and domestic concepts of “originality.” It closely examines the lack of a clear definition for such an important criterion, highlighting the differences that exist with respect to the originality requirement. The third part of this article confronts the dilemma of the subjective and objective approaches, concluding that the objective approach is preferable.

35. See 17 U.S.C. (2012) (including no definition of “originality”).

36. See *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345 (1991) (“The *sine qua non* of copyright is originality.”).

37. See discussion *infra* Section II.B.

This part proposes a new model of formal “originality.” Finally, the fourth part examines the traditional current copyright regime regarding the copyrightability of works produced by creative robots.

I. CAN CREATIVE ROBOTS BE THE AUTHORS OF ARTWORKS?

Creative robots already produce a tremendous number of creative works which could be copyrightable.³⁸ Imagine a portrait produced by a creative robot. The artist is not a human being, but rather a robot driven by artificial intelligence systems. The subject of the portrait is unknown to the human operators of the AI system until the creative robot has generated the image. Such a creation cannot meet the subjective concept of originality. However, the portrait might meet the concept of objective originality suggested by this article and hence, would be copyrightable.³⁹

A. SUBJECT MATTER ELIGIBILITY

As one of us argues in another article, creative robots are, among the ten features, autonomous, creative, independent, and unpredictable to the developers or operators, and therefore, they can be eligible to authorship.⁴⁰ In order for a work to be eligible for copyright protection, it must principally satisfy three criteria—a minimum amount of creativity, fixation, and, most important, originality. First, the work must have a minimum level of creativity. Second, the work must exist in a tangible medium. Third, the work must be original in a vague sense. For a work to qualify as subject matter eligible for copyright

38. See, e.g., the discussion on patents in Aashish R. Karkhanis & Jenna L. Parenti, *Toward an Automated First Impression on Patent Claim Validity: Algorithmically Associating Claim Language with Specific Rules of Law*, 19 STAN. TECH. L. REV. 196 (2016).

39. Schlackman, *supra* note 1.

40. Yanisky-Ravid & Liu, *supra* note 25; see also Shlomit Yanisky-Ravid & Samuel Moorhead, *Generating Rembrandt: Artificial Intelligence, Accountability and Copyright - The Human-Like Workers Are Already Here - A New Model*, MICH. ST. L. REV. (forthcoming 2017). The article was awarded as the best article of 2017 in intellectual property by Michigan State University.

protection, it must satisfy all three elements.⁴¹ Only works that meet all three criteria are copyrightable.⁴² This is also true regarding creative robots. As long as these conditions are satisfied, the works produced by creative robots may obtain copyright protections. This would be similar to inventive robots, which are operated by artificial intelligence systems, producing works eligible for patent protection.⁴³ Nevertheless, although creative robots easily meet the first two criteria, the demand of originality may be troublesome, especially when facing the subjective approach to originality. Intellectual property rights should be granted whenever eligible subject matter meets these standards.⁴⁴ We argue that creative robots, because of their fundamental ten features, and as long as we adopt the objective concept of originality, can easily fulfill all three criteria. Once no intention to create is needed, since they can produce new and creative works, creative robots might be entitled to copyrights for their inventions.

B. THE MISUNDERSTANDING OF THE CURRENT (TRADITIONAL) COPYRIGHT REGIME

Creative robots' works are not currently unquestionably eligible because copyright law is perceived as intended for human authors only.⁴⁵ We claim that the current (traditional)

41. *Copyright Basics*, U.S. COPYRIGHT OFF. 1 (Sept. 2017), <https://www.copyright.gov/circs/circ01.pdf>; see also National Copyright Guidelines, *Requirements for Copyright Protection*, SMARTCOPYING, <http://www.smartcopying.edu.au/copyright-guidelines/copyright---a-general-overview/1-4-requirements-for-copyright-protection> (claiming that "fixed in a tangible medium" means the work is not just an idea in someone's head, rather, to be copyrightable, the work must have a tangible physical representation). Ideas are not copyrightable, only the execution or expression of those ideas, which usually occurs once words are written on a page, paint is placed on a canvas, doodles drawn on a napkin, or even an image captured by the digital sensor of a camera or copied to a disk or cloud drive. *Id.*

42. Copyright Office's Compendium, § 300, *Copyrightable Authorship* 1–2 (2017); Yanisky-Ravid & Liu, *supra* note 25.

43. See 35 U.S.C. §§ 101–03, 112 (2012); Ryan Abbott, *I Think, Therefore I Invent: Creative Computers and the Future of Patent Law*, 57 B.C. L. REV. 1079 (2016); Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 U. PITT. L. REV. 1185 (1985).

44. For a detailed discussion, see *infra* Part IV.

45. Yanisky-Ravid & Moorhead, *supra* note 40.

legal regime focuses only on what was relevant in the past, namely the human authors behind the creative process. When this traditional approach has been implemented for assessing robots' creations, policymakers have considered the human behind the creative robot's works and declared that person to be the creator and therefore entitled to copyright protection.⁴⁶ However, in the case of creative robots' works—when robots act autonomously and independently to create entirely new works—the traditional approach reflects a misunderstanding about the way in which creative robots function. Applying this approach to creative robots calls for revisiting the term “originality.” Adopting the objective approach to originality is a necessary step toward the recognition of creative robots as legal entities, similar to the way firms are recognized as legal entities and hence capable of holding copyrights by themselves.

C. THE PROGRAMMERS OF AI SOFTWARE AND THE ARTWORKS PRODUCED BY CREATIVE ROBOTS

One could argue against this conclusion by claiming that the programmers of the AI software should be considered the authors of the creative robots' works. Following the traditional approach of identifying the human author behind the creative robot, this human programmer or operator would then be entitled to the copyrights.⁴⁷

For traditional artwork, the creator is entitled to copyright as soon as the work is created.⁴⁸ Generally speaking, the algorithms that power the next generation of creative AI systems are the product of many participants. But once produced, the creative robot is capable of producing works by itself. Assuming humans (rather than AI systems) created the AI software program, could the software programmer be entitled to the copyright of works created by the AI system?

46. 35 U.S.C. §§ 101–02; Jonathan R. Tung, *Who Owns the Creation of an Artificial Intelligence?*, TECHNOLOGIST (Aug. 22, 2016), <http://blogs.findlaw.com/technologist/2016/08/who-owns-the-creation-of-an-artificial-intelligence.html> (“Current intellectual property law in this country does not allow and does not recognize machines as ‘individuals.’ The legal fiction has not yet been invented. Fine, so machines don’t own what they make.”).

47. Yanisky-Ravid & Moorhead, *supra* note 40, at 31–32.

48. *Copyright Basics*, *supra* note 41, at 4.

Copyright laws usually protect software.⁴⁹ The software industry has been developing and flourishing rapidly.⁵⁰ As discussed *infra* Section II.B, the Constitution delegates to Congress the power to grant exclusive rights to “Authors and Inventors” in their respective “Writings and Discoveries.”⁵¹ The constitutional inquiries regarding copyright thus become (1) identifying an author and (2) identifying a writing. The AI software that powers creative robots triggers copyright protection because software code is one of the “Writings” protected by the Constitution.⁵² One might conclude that AI-generated art, separately from the AI software itself, can be regarded as proper “works of authorship” pursuant to Section 102 of the Copyright Act⁵³ because AI has a sufficient nexus to human creativity. The traditional approach to the Copyright Act, however, provides copyright protection under certain conditions.⁵⁴ In order to be entitled to copyright registration, a work must have its origin in human authorship. Thus, works produced by mechanical processes or random selection—without any contribution from a human author—are not entitled to protection.⁵⁵

D. ARE ARTWORKS PRODUCED BY CREATIVE ROBOTS DERIVATIVE WORKS?

The question whether works of art produced by creative advanced technology systems are derivative works was raised in the complaint filed by Rearden LLC and Rearden Mova LLC

49. See Christopher M. Holman, *Copyright for Engineered DNA: An Idea Whose Time Has Come?*, 113 W. VA. L. REV. 699, 702 (2011).

50. Pamela Samuelson, *Evolving Conceptions of Copyright Subject Matter*, 78 U. PITT. L. REV. 17, 64 (2016).

51. U.S. CONST. art. I, § 8, cl. 8.

52. See *id.*

53. See 17 U.S.C. § 102 (2012).

54. Copyright Office’s Compendium II, § 503.03(a), *Works Not Originated by a Human Author* (“In order to be entitled to copyright registration, a work must be the product of human authorship. Works produced by mechanical processes or random selection without any contribution by a human author are not registrable. Thus, a linoleum floor covering featuring a multicolored pebble design which was produced by a mechanical process in unrepeatable, random patterns, is not registrable. Similarly, a work owing its form to the forces of nature and lacking human authorship is not registrable; thus, for example, a piece of driftwood even if polished and mounted is not registrable.”).

55. *Id.*

against The Walt Disney Company. In this case the plaintiff claims that characters, such as the animal-like face of the Beast (in the movie *Beauty and the Beast*) which were generated through unique Oscar-winning effects using a system called MOVA, are derivative works that belong, together with other derivative works, to Rearden, which owns Mova technology.⁵⁶ According to the Rearden lawsuit, “Disney used the stolen MOVA Contour systems and methods, made derivative works, and reproduced, distributed, performed, and displayed at least *Guardians of the Galaxy*, *Avengers: Age of Ultron*, and *Beauty and the Beast*, in knowing or willfully blind violation of Rearden Mova LLC’s intellectual property rights.”⁵⁷

The claim is based on the legal paradigm of derivative works, which might assume that the output of a computer program or system is a derivative work of the owner of the copyrighted program or patented system. According to U.S. Copyright law, the holder of the copyright would hold the copyright for the output too.⁵⁸ This approach is supported by the U.S. Supreme Court.⁵⁹ This conclusion in regard to creative robots’ production reflects the assumption that a computer requires a significant amount of input from a human user in order to generate artistic output. Congress repeated this idea when it established the National Commission on New Technological Uses of Copyrighted Works (CONTU), in regard, among other issues, to authorship of computer-generated works.⁶⁰ CONTU concluded that authorship rights ought to go to the user when the user makes a substantial contribution to the computer’s output.

Nevertheless, in contrast to the traditional approach to copyright law, we argue that sophisticated, advanced AI systems pose more complicated and challenging questions. This is due to

56. Complaint, Rearden LLC v. Walt Disney Co., No. 3:17-cv-04006 (N.D. Cal. Filed July 17, 2017).

57. *Id.* at 3.

58. 17 U.S.C. § 101 (2012).

59. *Goldstein v. California*, 412 U.S. 546, 561 (1973) (interpreting the authorship requirement of the Copyright Act to include “any physical rendering of the fruits of creative intellectual or aesthetic labor.”).

60. See NAT’L COMM’N ON NEW TECH. USES OF COPYRIGHTED WORKS, FINAL REPORT OF THE NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS (July 31, 1978).

the fact that the question of who owns the works produced by creative robots is distinct from the question of who owns the robots and the technology itself. When the computer produces most of the output independently and creatively, without copying or infringing on other authors' rights, then it is less likely that the owner might be considered as the original source of the work.

Therefore, the approach of derivative works argued by Rearden is not necessarily a winning strategy, as we are not sure whether the works are actually derivatives or if they stand alone as new and creative artworks. Moreover, if a human being involved in the process were to provide some input that affected the artwork being generated, such as by exposing the robot to new data, then the final work may be the result of another human's creative input. Therefore this human, rather than the programmer or the owner of the robot, may be entitled to copyright protection for the composition. Accordingly, Disney can argue that the figure of the Beast as well as others are the result of Disney's human contribution, such as the cinematographer, director, and actors.⁶¹

In this article, we do not challenge the programmer's entitlement to ownership of the software according to copyright laws. Nevertheless, we do challenge the idea that this entitlement automatically results in the programmer owning the products and processes created by the AI system.

Can a robot be the originator of artwork? The term "originality" has the potential to decide the case in favor of one side or the other. On one hand, we can decide to nullify copyright law as inapplicable, irrelevant, and outdated. On the other hand, once we decide to maintain the copyright regime, we should rethink threshold concepts, such as originality, and give them

61. See also Anna Gaca, "The World's First Songs Composed by Artificial Intelligence" Are Neither First nor Entirely Artificial, SPIN (Sept. 22, 2016), <http://www.spin.com/2016/09/first-song-written-by-ai-really-isnt> ("Researchers at Sony's Computer Science Laboratory in Paris have shared a pair of tracks created with the assistance of software called Flow Machines. The program analyzes a database of existing songs to 'learn' musical styles and identify commonalities, then '[exploits] unique combinations of style transfer, optimization, and interaction techniques' to synthesize original music. Researchers can tailor the process to produce tunes that sound like the work of a particular artist—for example, 'Daddy's Car,' which is intended to emulate the style of the Beatles[.]").

new meanings so they can cope with the 3A era as well as, in our discussion, a digital author of artworks as the original one. This attitude might better reflect the understanding of creative robots and how they function. As the first and most important step, we should start by rethinking the meaning of originality.

II. DEFINING THE UNDEFINED—THE ORIGINALITY REQUIREMENT

A. THE INTERNATIONAL STANDARD IN THE BERNE CONVENTION

In order to decide who is the author and if a creative robot can be an author, one must first address the question of originality. This is true in the United States as well as around the globe. Therefore, the international meaning of “originality” is crucial. The Berne Convention (the Convention), which entered into force on December 5, 1887,⁶² plays an important role in copyright protection. The Berne Convention is one of the main sources of international copyright eligibility matters.⁶³ The text of the Convention encouraged two basic principles that continue to resonate today: the establishment of a Union concept and the principle of national treatment.⁶⁴ However, the question of what legal requirements should be adopted nationally for the protection of literary and artistic works has resulted in inconsistency.⁶⁵

The Convention primarily protects the works of authors who are citizens of member-states to the Convention, but it also provides for the enjoyment of such protections in all other

62. See PAUL GOLDSTEIN & BERNT HUGENHOLTZ, INTERNATIONAL COPYRIGHT 34 (2010).

63. As of 2017, 175 states are parties to the Berne Convention. See *WIPO-Administered Treaties*, WORLD INTELL. PROP. ORG., http://www.wipo.int/treaties/en/ShowResults.jsp?treaty_id=15. Article 1 of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) requires all WTO members to provide copyright protections embedded, inter alia, in the principles of Berne Convention. See Agreement on Trade-Related Aspects of Intellectual Property Rights, art. 1, Jan. 1, 1995, 33 I.L.M. 1197.

64. Ralph Oman, *The United States and the Berne Union: An Extended Courtship*, 3 J.L. & TECH. 71, 72 (1988); Berne Convention for the Protection of Literary and Artistic Works, Paris Act, art. 1, July 24, 1971, reprinted in GOLDSTEIN & HUGENHOLTZ, *supra* note 62, at App’x 1 (2010) (“The countries to which this Convention applies constitute a Union for the protection of the rights of authors in their literary and artistic works.”).

65. Oman, *supra* note 64, at 93.

member-states.⁶⁶ Through this principle, called the “nationalization of the international,”⁶⁷ the Convention purports to be “open to all countries of the world and capable, by means of periodic revision, of keeping pace with juridical, technical and economic change.”⁶⁸ This nationalization was meant to protect works created by human beings, but looking for an author who is a citizen might make it impossible to implement the originality standard when creative robots create original, artistic works. Even if this hurdle were to be overcome, in order to acquire protection, a work must comply with basic requirements, including originality. The term originality—although it is one of the basic requirements for acquiring copyright protection—is actually undefined. There exists neither an international definition of the concept of originality nor any standard that member-states could adopt nationally.⁶⁹ On the contrary, every member-state has to create its own national concept of, and standard for, originality.⁷⁰

66. *Id.* at 73.

67. *See id.* (describing the principle of “national treatment” or the “assimilation of the foreigner to the national”).

68. WORLD INTELLECTUAL PROP. ORG., GUIDE TO THE BERNE CONVENTION FOR THE PROTECTION OF LITERARY AND ARTISTIC WORKS 9 (1978); *see also* Oman, *supra* note 64, at 73 (noting that the agreement that formed the Union was one that made the members “open to all countries of the world . . . keeping pace with juridical, technical and economic change . . . [A]uthors who are subjects or citizens of any Union country should enjoy, in all other member countries, the same protection for their works as those countries accord their own authors.”). It was explained above that the Convention concedes to its members the enjoyment of similar copyright protection in all member countries. Does this mean that coexistence of different originality requirements is possible? If the standard in one member country is higher than that in another member country, how are they supposed to offer the same protection? Is it logical to have different definitions and standards among countries while providing the same protections? Does this system encourage artists to export their talents to countries that offer lower standards or ones that provide a more concrete definition of the originality concept? This article envisions the logic behind having at least a general descriptive idea of what exactly constitutes originality in artworks.

69. *See* Diana Rhoten & Walter W. Powell, *The Frontiers of Intellectual Property: Expanded Protection Versus New Models of Open Science*, 3 ANN. REV. L. & SOC. SCI. 345 (2007) (arguing that just as the public and private spheres of science may be converging, so must future scholarship if we are to answer harder questions about the appropriate balance between traditional logics of open science and the more recent regimes of proprietary science).

70. *See id.*

If legal professionals believe that “[c]opyright treaties simply do not exist in isolation from the domestic copyright laws of states party to such treaties,”⁷¹ then it is understandable that a harmonized legal environment will require the most basic principles to be defined. Originality is clearly among such fundamental concepts, yet its precise meaning remains elusive. The Convention allegedly defines the subject matter of its protection, sets minimum rights and requirements giving rise to such protection, and establishes the rule of national treatment and the independence of copyright protection among states of the Union from protection in the country of origin.⁷² Yet, a shrewd reading of the Convention’s articles demonstrates that it lacks an express definition or standard for “originality” as a legal term of art.

The Convention does protect specific subject matter, namely the “rights of authors in their literary and artistic works.”⁷³ The Convention lists a number of types of works that, as a minimum standard, member-states must include as protected works.⁷⁴ However, the Convention does not include a definition or a standard for the concept of originality that could guide member-states by explaining why or how originality in works should be

71. Oman, *supra* note 64, at 77.

72. *Id.* at 76–77 (discussing the content of the Articles of the Convention, which also “enumerate certain minimum economic and moral rights of authors with respect to the use of their works; establish specific opportunities to exempt certain uses from the exclusive rights guaranteed by the Convention; set down special provisions taking account of the unique circumstances surrounding the creation and dissemination of motion pictures; and govern retroactive application of the Convention.”).

73. Berne Convention for the Protection of Literary and Artistic Works, Paris Act, art. 2(1), July 24, 1971, *reprinted in* GOLDSTEIN & HUGENHOLTZ, *supra* note 62, at App’x 1 (2010).

74. *See id.* (stating that protected works should include “every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression, such as books, pamphlets and other writings; lectures, addresses, sermons and other works of the same nature; dramatic or dramatico-musical works; choreographic works and entertainments in dumb show; musical compositions with or without words; cinematographic works to which are assimilated works expressed by a process analogous to cinematography; works of drawing, painting, architecture, sculpture, engraving and lithography; photographic works to which are assimilated works expressed by a process analogous to photography; works of applied art; illustrations, maps, plans, sketches and three-dimensional works relative to geography, topography, architecture or science.”).

protected. The only constant expression regarding originality is the phrase “shall be protected as original works.”⁷⁵ But what *is* an “original work” under the Convention?

One could imagine that copyrightable works produced by creative robots could be classified as “derivative works” of the original AI software. It is therefore interesting to pinpoint the international concept of derivative works. Although the Berne Convention covers the concept of originality, the article that covers derivative works does not define “originality.”⁷⁶ This article clearly mandates that original works, even those based on copyrighted underlying works, should be protected: “Translations, adaptations, arrangements of music and other alterations of a literary or artistic work shall be protected as original works without prejudice to the copyright in the original work.”⁷⁷ The only reference to originality in derivative works is embedded in the phrase “protected as original works without prejudice to the copyright in the original work.”⁷⁸ This section, too, lacks a definition of, or standard for, original works with which member-states could distinguish the new, original works produced by humans and by digital tools, such as creative robots, from the underlying works. As a result, member-states currently have the freedom to establish their own originality standards and definitions for derivative works that acquire protection.

The broad language of the Berne Convention thus provides member-states some “leeway” in determining the conditions for receiving protection.⁷⁹ But is it actually helpful for states to have such leeway in defining the originality requirement for protection? If the goal of the Berne Convention is to harmonize the protection of copyrightable works internationally, then uncertainty over a basic requirement will naturally lead member-states to clarify the law nationally. This results in diverse standards and definitions throughout the member-states. This uncertainty regarding the fundamental definition of

75. *Id.* at art. 2(3); *see also id.* at 14*bis*(1).

76. *Id.* at art. 2(3).

77. *Id.* (noting that the use of the word “original” refers to underlying works).

78. *Id.* Those original works created from the alteration or transformation of the underlying work acquire a separate protection from the one that the underlying work already has.

79. GOLDSTEIN & HUGENHOLTZ, *supra* note 62, at 39.

“originality” in the international arena is mirrored in national legal systems, like the one in the United States.⁸⁰

B. THE STANDARD IN THE U.S. LEGAL SYSTEM

1. Originality as a Constitutional Concept

The Constitution of the United States establishes the Federal Government’s right to legislate regarding copyrights and patents: “Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries”⁸¹ The language of the Constitution promotes the creation of knowledge.⁸² The legal support for creation is tied to economic incentives, which allow the authors of works to hold a monopoly-like right for a period of time.⁸³ This economic incentive, fulfilled by a Congress empowered to protect authors and their writings through copyrights, resulted from “the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors . . . in ‘ . . . useful Arts.’”⁸⁴ The Constitution’s promotion of creation was motivated by the Framers’ desire to guarantee people’s freedom to create new works.⁸⁵

Before the Copyright Act of 1976 was enacted, the Copyright Act of 1909 provided protection for writings, but did not expressly recognize originality as a requirement for protection.⁸⁶

80. *See id.*

81. U.S. CONST. art. I, § 8, cl. 8.

82. CRAIG JOYCE ET AL., COPYRIGHT LAW 20 (2010).

83. *Id.*

84. *Mazer v. Stein*, 347 U.S. 201, 219 (1954); *see also* Steven S. Boyd, *Deriving Originality in Derivative Works: Considering the Quantum of Originality Needed to Attain Copyright Protection in a Derivative Work*, 40 SANTA CLARA L. REV. 325, 330 (2000) (citing *Mazer v. Stein* as part of the discussion on originality as a constitutional and statutory prerequisite).

85. *See* Boyd, *supra* note 84; Christine Wallace, Note, *Overlapping Interests in Derivative Works and Compilations*, 35 CASE W. RES. L. REV. 103 (1985).

86. *See* *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340, 351 (1991) (citing 1 MELVILLE NIMMER & DAVID NIMMER, COPYRIGHT §§ 2.01[A], [B] (1990)) (“The Court’s decisions announcing this rule predate the Copyright Act of 1909, but ambiguous language in the 1909 Act caused some lower courts temporarily to lose sight of this requirement. The 1909 Act embodied the originality requirement, but not as clearly as it might have.”).

Instead, the concept of originality was governed by two well-known Supreme Court cases describing originality from two perspectives: “writings” and “authorship.”⁸⁷ The *In re Trademarks Cases* decision determined that originality is required in writings.⁸⁸ The Court explained that originality requires *independent effort plus a modicum of creativity*:

[W]hile the word *writings* may be liberally construed, as it has been, to include original designs for engravings, prints, [etc.], it is only such as are *original* and are founded in the creative powers of the mind. The writings which are to be protected are *the fruits of intellectual labor*, embodied in the form of books, prints, engravings, and the like.⁸⁹

In the *Burrow-Giles Lithographic Co. v. Sarony* decision,⁹⁰ originality was described from the author’s standpoint.⁹¹ The Court defined “author” in a constitutional sense as “he to whom anything owes its origin; originator; maker”⁹² The Court described copyright as being limited to the “original intellectual conceptions of the author,” and stressed the importance of requiring an author who accuses another of infringement to prove “the existence of those facts of originality, of intellectual production, of thought, and conception”⁹³

The originality requirement articulated by these two cases remains “the touchstone of copyright protection”⁹⁴ and the very

87. See JOYCE ET AL., *supra* note 82, at 84; Boyd, *supra* note 84, at 330–32 (making reference to the mainstay cases discussed in this paper).

88. *In re Trade-Mark Cases*, 100 U.S. 82, 93–94 (1879).

89. *Id.* at 94; see also JOYCE ET AL., *supra* note 82, at 84.

90. *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53 (1884).

91. *Id.* at 58. See also *Goldstein v. California*, 412 U.S. 546, 561–62 (1973) (citing *Burrow-Giles*, 111 U.S. at 58) (“While an ‘author’ may be viewed as an individual who writes an original composition, the term, in its constitutional sense, has been construed to mean an ‘originator’”).

92. *Burrow-Giles*, 111 U.S. at 57–58 (emphasis added) (discussing the scope of “writings” under the Constitution and stating that “[b]y writings in that clause is meant the *literary productions of those authors*, and [C]ongress very properly has declared these to *include all forms of writing, printing, engravings, etchings, etc., by which the ideas in the mind of the author are given visible expression*”).

93. *Id.* at 59–60 (listing a number of facts that proved the original conception in a photograph of the author: “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 plaintiff, he produced the picture in suit”).

94. See JOYCE ET AL., *supra* note 82, at 86.

“premise of copyright law.”⁹⁵ In other words, “[t]he originality requirement is constitutionally mandated for all works.”⁹⁶ Although it is quite clear that originality is a substantive requirement for receiving copyright protection, there is no clear definition of originality for creative works.⁹⁷ Moreover, the case law makes it seem like originality is based only on authors who are human beings.⁹⁸ Therefore, creative works produced by creative robots might not be subject to copyright protection at all.

2. Originality as a Statutory Concept

The important concept of originality appears throughout the Copyright Act of 1976 and judicial opinions interpreting it.⁹⁹ We argue that the absence of an express statutory definition has led to the current legal micro-disparity between judicial opinions within the United States, which reflects the macro-inconsistency between member-states of the Berne Convention.

Section 102(a) of the Copyright Act of 1976 clearly establishes that “copyright protection subsists . . . in *original works of authorship* fixed in any tangible medium of expression”¹⁰⁰ Although the Act identifies when protection subsists and expressly recognizes protection for originality, we state that the definition of “original works” remains unclear. Indeed, the congressional intent behind the Copyright Act was to leave the originality concept undefined in order to clear the path for courts to maintain their existing standards of originality.¹⁰¹ It was

95. See *Miller v. Universal City Studios, Inc.*, 650 F.2d 1365, 1368 (5th Cir. 1981) (referring to the concept of originality as the establishment of the scope of protection in copyrights, which extends to the expression of facts and not the facts themselves); JOYCE ET AL., *supra* note 82, at 84.

96. L. Ray Patterson & Craig Joyce, *Monopolizing the Law: The Scope of Copyright Protection for Law Reports and Standing Compilations*, 36 UCLA L. REV. 719, 763 n.155 (1989).

97. See JOYCE ET AL., *supra* note 82, at 84.

98. *Burrow-Giles*, 111 U.S. at 57–58.

99. 17 U.S.C. § 101 (2012) (using the term “original” to define other statutory terms).

100. 17 U.S.C. § 102(a) (2012) (emphasis added).

101. See H.R. REP. NO. 94-1476, at 51 (1976), *as reprinted in* 1976 U.S.C.C.A.N. 5659, 5664.

Congress's intent to avoid enlarging the contemporary standard of copyright protection.¹⁰²

One could argue that congressional inaction should be understood as increasing uncertainty while opening the door for courts to manipulate the standard to a higher or lower degree when they deem it to be necessary. According to some scholars, Congress intended, through the Copyright Act, to broaden the range of eligible subject matter and also to align it with the requirements of the Berne Convention.¹⁰³ Regardless of what Congress intended, it is clear that the result has been uncertainty regarding the meaning of "originality."

3. Originality as a Standard for Works

The uncertainty over the exact definition of originality gives courts freedom in determining which works will be entitled to receive copyright protection.¹⁰⁴ The lack of uniformity and formality in the originality standard in the United States relates to the subject matter of the work created by the author.¹⁰⁵ U.S. courts have modified the originality standard when it seems unsuited to the subject matter at hand.¹⁰⁶ This raises the question of whether the standard should be dependent on the degree of creativity demanded by the type of work. Recently, courts have tended to fight this inconsistency by incorporating the same standard for all types of works.¹⁰⁷ However, we propose that courts ought to adopt a higher, more formal standard.

102. See *id.* (establishing that "[t]his standard does not include requirements of novelty, ingenuity, or esthetic merit, and there is no intention to enlarge the standard of copyright protection to require them").

103. See J. H. Reichman, *Goldstein on Copyright Law: A Realist's Approach to a Technological Age*, 43 STAN. L. REV. 943, 951–53 (1991) (including a citation of the legislative history to sustain his position, although the passing of the Copyright Act of 1976 was before the adherence of the United States to the Berne Convention and there was no mention of the Convention in the legislative history of the Act).

104. See H.R. REP. NO. 94-1476, at 51 (1976).

105. See *id.*

106. See Reichman, *supra* note 103, at 952 (setting as an example the case of *L. Batlin & Son, Inc. v. Snyder*, 536 F.2d 486, 490 (2d Cir. 1976), which employed a quantitative creativity test).

107. Ryan Littrell, *Toward a Stricter Originality Standard for Copyright Law*, 43 B.C. L. REV. 193, 196 (2002) (emphasizing the law's loose standard for originality).

a. The Current, Lower Originality Standard for Works

“[T]he one pervading element prerequisite to copyright protection regardless of the form of the work” is the requirement of originality.¹⁰⁸ One can understand originality as being undefined in many ways. Originality means that the work must be the original product of the claimant.¹⁰⁹ An original work is one that is new or novel and, therefore, not a reproduction, clone, forgery, or derivative work.¹¹⁰ In other words, “[o]riginality means that the work owes its creation to the author and this in turn means that the work must not consist of actual copying.”¹¹¹ The originality test consists of “something more than a ‘merely trivial’ variation, something recognizably ‘his own.’”¹¹²

An original work stands out because it is not a mere reflection of the work of others. However, “[t]he originality requirement for copyright protection is not particularly rigorous.”¹¹³ U.S. courts’ standard of originality demands the author’s independent conception and a low quantum of creativity that he or she employed in his or her work.¹¹⁴ A work is original if it is the independent creation of its author. A work is creative if it embodies some *modest amount of intellectual labor*.¹¹⁵ Thus, creativity is deeply connected to the originality concept and an author needs to invest some intellectual effort to create a work independently. But is this requirement of effort or creativity necessary?

108. *L. Batlin & Son, Inc. v. Snyder*, 536 F.2d 486, 489–90 (2d Cir. 1976); *see also* NIMMER & NIMMER, *supra* note 86, at § 10, at 32 (1975).

109. *Batlin*, 536 F.2d at 489–90; *see also* NIMMER & NIMMER, *supra* note 86, at § 10, at 32.

110. *See* NIMMER & NIMMER, *supra* note 86, at § 2.01.

111. *Batlin*, 536 F.2d at 490; *see also* *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, 191 F.2d 99, 102–03 (2d Cir. 1951); *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49, 54 (2d Cir. 1936), *aff’d*, 309 U.S. 390 (1940).

112. *Batlin*, 536 F.2d at 490 (citing *Alfred Bell & Co.*, 191 F.2d at 103).

113. *Greenspan v. Random House, Inc.*, 859 F. Supp. 2d 206, 216 (D. Mass. 2012).

114. *See* JOYCE ET AL., *supra* note 82, at 82.

115. *See* *Durham Indus. v. Tomy Corp.*, 630 F.2d 905, 911 (2d Cir. 1980); *accord* *Donald v. Zack Meyer’s T.V. Sales & Service*, 426 F.2d 1027, 1029–30 (5th Cir. 1970), *cert. denied*, 400 U.S. 992 (1971); *see also* *Batlin*, 536 F.2d at 490 (citing *Herbert Rosenthal Jewelry Corp. v. Grossbardt*, 436 F.2d 315, 316 (2d Cir. 1970)) (discussing the quantitative test of originality and characterizing it as “modest,” “minimal,” and as establishing a “low threshold”); *Puddu v. Buonamici Statuary, Inc.*, 450 F.2d 401, 402 (2d Cir. 1971).

In *Feist Publications, Inc. v. Rural Telephone Service Co.*, the Court clarified the general originality standard and suggested a “minimal degree of creativity” test.¹¹⁶ According to the Court, “the requisite level of creativity is extremely low; even a slight amount will suffice.”¹¹⁷ “[O]riginality requires independent creation plus a modicum of creativity”,¹¹⁸ which should be present in a work for it to be protected.¹¹⁹

The Court’s establishment of a low originality standard did not result in as much efficiency as they intended because lower courts have struggled to develop a neutral standard for original works. The flexibility bestowed on courts burdens authors, who must defend the effort and labor they employed, especially in artworks for which a high level of skill is required and there are no formal guidelines for addressing the resemblance of works from a descriptive perspective. The legal reality is that the originality standard could vary depending on the subject matter to which the standard would be applied.

b. Is a Higher Standard Needed for Works?

While a higher standard is not really needed for determining originality in artwork, a more formal standard could ameliorate the problems discussed above. For professionals in the intellectual property field, the minimum originality standard (i.e. “a modicum of creativity requirement”) is applied for first generation works,¹²⁰ even though these works are also exposed to preexisting material.¹²¹ Courts demand a higher originality standard (i.e. “more rigorous amount of

116. *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340 (1991).

117. *Id.* at 345.

118. *See id.*; *see also Batlin*, 536 F.2d at 346 (citing *NIMMER & NIMMER*, *supra* note 86, § 10.2, at 36).

119. *See Baltimore Orioles, Inc. v. Major League Baseball Players Ass’n*, 805 F.2d 663, 668 (7th Cir. 1986).

120. *See JOYCE ET AL.*, *supra* note 82, at 220 (describing that first-generation works are considered to be the original works of authorship “composed essentially of materials created by their authors”).

121. *See Boyd*, *supra* note 84, at 342 (discussing the standard for first generation works and establishing that it “appears to generate bright-line rules, even if those rules depend ultimately on the author’s prior exposure to previously existing materials”).

creativity”) for second-generation works.¹²² Section 101 of the Copyright Act of 1976 defines a derivative work:

[A] work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, *transformed*, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications, which, as a whole, represent an original work of authorship¹²³

In explaining the subject matter of derivative works in Section 103 of the Copyright Act,¹²⁴ in addition to its definition in Section 101, Congress intended “to define, more sharply and clearly than does section 7 of the [1909 Act], the important interrelationship and correlation between protection of preexisting and of ‘new’ material in a particular work.”¹²⁵ Congress clarified the scope of protection for derivative works by establishing that “copyright in a ‘new version’ covers only the material added by the later author, and has no effect one way or the other on the copyright or public domain status of the preexisting material.”¹²⁶ The statute thus makes clear that a derivative work is not new, but something added to a preexisting work.¹²⁷

122. See JOYCE ET AL., *supra* note 82, at 220. The second-generation works are the ones based on preexisting matter. See Boyd, *supra* note 84, at 342–43 (establishing that courts require a more rigorous amount of creativity, “implying that a different quantum of originality may be required depending on the type of work involved”).

123. 17 U.S.C. § 101 (2012) (emphasis added) (defining derivative works).

124. 17 U.S.C. § 103 (2012) (establishing the subject matter for derivative works: “(a) The subject matter of copyright as specified by section 102 includes compilations and derivative works, but protection for a work employing preexisting material in which copyright subsists does not extend to any part of the work in which such material has been used unlawfully. (b) The copyright in a compilation or derivative work extends only to the material contributed by the author of such work, as distinguished from the preexisting material employed in the work, and does not imply any exclusive right in the preexisting material. The copyright in such work is independent of, and does not affect or enlarge the scope, duration, ownership, or subsistence of, any copyright protection in the preexisting material.”).

125. See H.R. REP. NO. 94-1476, at 57-58 (1976), *as reprinted in* 1976 U.S.C.C.A.N. 5659, 5670–71; JOYCE ET AL., *supra* note 82, at 221.

126. See H.R. REP. NO. 94-1476, at 57–58; JOYCE ET AL., *supra* note 82, at 221.

127. See *Schrock v. Learning Curve Int’l, Inc.*, 586 F.3d 513, 521 (7th Cir. 2009).

There is inconsistency within the U.S. legal system regarding the standards to be applied to “first generation” works and derivative works. Although recent cases have established that the same originality standard applies to any kind of works (i.e. minimal element of creativity over and above the requirement of independent effort),¹²⁸ a well-known art law case decided by Judge Posner proposed a higher originality standard for derivative works. *Gracen v. Bradford Exchange* involved an invitational competition in which the artists submitted paintings depicting the character Dorothy from the Metro-Goldwyn-Mayer (MGM) movie *The Wizard of Oz*.¹²⁹ A still photograph of the character, which was given as an exemplar, inspired the artists to depict a realistic Dorothy.¹³⁰ According to the competition rules, the artist who submitted the best painting would be chosen to work on a series of collector’s plates.¹³¹ Gracen (who might be replaced by a creative robot nowadays) won the competition but did not sign the contract that would allow her painting to be used on the collector’s plates.¹³² The sponsor of the competition hired another artist to create a similar plate.¹³³ Gracen sued the sponsor, MGM, and the other artist they hired for copyright infringement.¹³⁴ Judge Posner, ignoring the modest quantum for originality and the descriptive elements normally used to prove the quantum,¹³⁵ established a new standard for artworks and derivative works: “If Miss Gracen had painted Judy Garland from life, her painting would be copyrightable even if we thought it kitsch; *but a derivative work must be substantially different from the underlying work to be*

128. *FragranceNet.com, Inc. v. FragranceX.com, Inc.*, 679 F. Supp. 2d 312, 325 n.5 (E.D.N.Y. 2010).

129. *Gracen v. Bradford Exch.*, 698 F.2d 300, 301 (7th Cir. 1983).

130. *Id.*

131. *Id.*

132. *Id.*

133. *Id.*

134. *Id.* at 302.

135. *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 59–60 (1884) (listing a number of facts that proved the original conception in a photograph of the author: “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 plaintiff, he produced the picture in suit”).

copyrightable.¹³⁶ According to Judge Posner, the en banc decision in *Batlin & Son, Inc. v. Snyder* required a higher standard for derivative works.¹³⁷ Judge Posner even suggested that all cases establishing a liberal test should be considered “superseded.”¹³⁸ The court considered a hypothetical example to explain its concern about a low quantum for derivative works:

Artist A produces a reproduction of the Mona Lisa, a painting in the public domain . . . B also makes a reproduction of the Mona Lisa . . . [I]f the difference between the original and A’s reproduction is slight, the difference between A’s and B’s reproductions will also be slight, so that if B had access to A’s reproductions the trier of fact will be hard-pressed to decide whether B was copying A or copying the Mona Lisa itself.¹³⁹

In the more recent case of *Schrock v. Learning Curve International, Inc.*, the same federal court accepted as valid the concern presented by *Gracen*.¹⁴⁰ But it clarified the originality standard:

[N]othing in the Copyright Act suggests that derivative works are subject to a more exacting originality requirement than other works of authorship . . . “[T]he only ‘originality’ required for [a] new work to be copyrightable . . . is enough expressive variation from public-domain or other existing works to enable the new work to be readily distinguished from its predecessors.”¹⁴¹

The lack of a fundamental justification for elevating the standard only for artworks and derivative works resulted in courts retaining the current lower standard for all works. However, in addressing the concerns articulated in *Gracen*, Judge Sykes articulated some principles that must be followed when dealing with derivative works: “(1) *the originality requirement for derivative works is not more demanding than the originality requirement for other works*; and (2) *the key inquiry is whether there is sufficient nontrivial expressive variation in the derivative work to make it distinguishable from the underlying*

136. *Gracen*, 698 F.2d at 305 (emphasis added).

137. *Id.* (citing *L. Batlin & Son, Inc. v. Snyder*, 536 F.2d 486, 491 (2d Cir. 1976) (en banc)).

138. *Id.*

139. *Id.* at 304.

140. *Schrock v. Learning Curve Int’l, Inc.*, 586 F.3d 513, 521 (7th Cir. 2009).

141. *Id.* (emphasis added) (quoting *Bucklew v. Hawkins, Ash, Baptie & Co.*, 329 F.3d 923, 929 (7th Cir. 2003)).

*work in some meaningful way.*¹⁴² These principles will be considered by our proposal *infra* Section III.B.

III. ADDRESSING FORMALITY FOR ORIGINALITY OF ARTWORKS

A. COMPARING OBJECTIVE AND SUBJECTIVE APPROACHES TO ORIGINALITY

When one considers artwork created by creative robots, even more questions arise. From a legal standpoint, the Copyright Act of 1976 defines a work of visual art only by reference to a list of protected subject matter.¹⁴³ Just as the legislation only broadly identifies “originality” as requiring independent effort and a modicum of creativity, it does not have a concrete definition for artwork. When thinking about works created by creative robots, we cannot avoid considering what makes art original. This is a specific question that demands a narrow answer. “In order to be acceptable as a [pictorial, graphic, or sculptural] work of art, the work must embody some creative authorship in its delineation or form.”¹⁴⁴ How can a delineation or form be quantified as creative? Originality in artworks requires a formal descriptive framework that connects the artist’s intention to the expression that he or she conveys through his or her work. The framework

142. *Id.* (emphasis added) (“This focus on the presence of nontrivial ‘distinguishable variation’ adequately captures the concerns articulated in *Gracen* without unduly narrowing the copyrightability of derivative works.”).

143. 17 U.S.C. § 101 (2012) (“A ‘work of visual art’ is—(1) a painting, drawing, print, or sculpture, existing in a single copy, in a limited edition of 200 copies or fewer that are signed and consecutively numbered by the author, or, in the case of a sculpture, in multiple cast, carved, or fabricated sculptures of 200 or fewer that are consecutively numbered by the author and bear the signature or other identifying mark of the author; or (2) a still photographic image produced for exhibition purposes only, existing in a single copy that is signed by the author, or in a limited edition of 200 copies or fewer that are signed and consecutively numbered by the author.”); *see also* Stéphanie Giry, *An Odd Bird*, LEGAL AFFAIRS, Sept.–Oct. 2002, reprinted in PATTY GERSTENBLITH, ART, CULTURAL HERITAGE AND THE LAW: CASES & MATERIALS 10 (Carolina Academy Press, 2d ed. 2008) (“[S]culptures qualified as art works only if they were ‘chisel[ed]’ or ‘carve[d]’ ‘imitations of natural objects,’ chiefly the human form representing such objects ‘in their true proportions.’”).

144. *Esquire, Inc. v. Ringer*, 591 F.2d 796, 800 n.10 (D.C. Cir. 1978) (quoting 37 C.F.R. § 202.10(b)); *see also* 17 U.S.C. § 101 (2012) (“[Pictorial, graphic, and sculptural works] shall include works of artistic craftsmanship insofar as their form but not their mechanical or utilitarian aspects are concerned . . .”).

should also include observations by the audience responsible for capturing, decoding, and comparing the expression depicted by the artist.

Judge Leval has criticized the lack of a formal framework, albeit with respect to a different issue in copyright law. He argues for the establishment of formal guidelines for the “fair use” analysis.¹⁴⁵ Applying his reasoning to the fundamental concept of originality, it is evident that determinations of originality should also follow a set framework.¹⁴⁶ The current legal environment is driven toward a definition that better describes how to attain originality (a quantum focus) rather than how to perceive originality (emphasizing a descriptive focus without reaching the aesthetic).¹⁴⁷ As a result, it is difficult for judges and juries to make determinations of originality in artworks using the current standard.¹⁴⁸

In redefining the standard for originality, we argue that it is important to encourage a uniform analysis in judicial determinations for artworks and, perhaps, to promote the same analysis for all works (created either by humans or by creative robots). Under this approach, a work would be declared as original under the laws of all member-states of the Berne Convention. Originality affects the artwork itself as well as the designated authorship of the work. Furthermore, originality could be affected by the audience’s perception of the work.¹⁴⁹

145. Pierre N. Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105 (1990).

146. See *id.* at 1105 (discussing the inconsistency of the “fair use” doctrine) (“Is this because no rational defining values exist, or is it rather that judges, like me, have repeatedly adjudicated upon ad hoc perceptions of justice without a permanent framework?”).

147. See Reichman, *supra* note 103, at 954 (acknowledging the inquiry of whether the originality requirement implies a quantitative or qualitative threshold of creativity and also explaining that he reviews the lengthening list of cases that have sought some quantum of creativity beyond independent creation and the possibility that courts applied a qualitative standard).

148. Giry, *supra* note 143 (discussing the case *Brancusi v. United States*, 54 Treas. Dec. 428 (Cust. Ct. 1928) which involved an issue regarding the definitions of an “original sculpture” or a metal “article or ware not specially provided for” under the 1922 Tariff Act) (“For the [sculpture] to enter the country duty-free under the act, [the] lawyers had to prove that Brancusi was a professional sculptor; that the [sculpture] was a work of art; that it was original; and that it had no practical purpose.”).

149. See *Rogers v. Koons*, 960 F.2d 301, 307 (2d Cir. 1992) (first quoting *Ideal Toy Corp. v. Fab-Lu Ltd.*, 360 F.2d 1021, 1022 (2d Cir. 1966); then quoting

There are many factors to consider when developing an acceptable legal standard for copyrighted artworks that could refer to the works of creative robots as well. Our interest in conceiving a formal originality standard internationally led us to incorporate relevant legal concepts into this proposal.

First, we encourage the division of the descriptive analysis into two spheres: the subjective and the objective.¹⁵⁰ Incorporating this general overview into the legal framework could create a more coherent, general, and descriptive concept of originality. Some elements that influence originality are included in the proposal to separate the risk of an aesthetic analysis in artworks, not approved by judges,¹⁵¹ from the more descriptive originality analysis proposed below. Factors such as the interpretation by the audience and the resemblance of an artwork to preexisting works, when taken as a whole, could lead to an efficient originality determination.

Whereas the factor of an artist's intent, which focuses on the artist's mind and soul, reveals immeasurable elements, the audience's perspective may lead to a more efficient tool. An artist's intent includes his or her hidden feelings and motivation for the expression, which could be to create an entirely new work, to reflect ideas inspired by other works, or to replicate the expression of a pre-existing work. By contrast, an audience's interpretation of a work has to comply with a reasonable, objective perspective. In other words, the "audience" may be defined as an average observer (a concept found in the substantial similarity test)¹⁵² who makes a reasonable

Peter Pan Fabrics, Inc. v. Martin Weiner Corp., 274 F.2d 487, 489 (2d Cir. 1960)).

150. See S.T.S., Oct. 26, 1992 (J.T.S., No. 914, p. 7972) (Spain) (addressing how originality is treated from both the subjective and objective standpoint).

151. See Gracen v. Bradford Exch., 698 F.2d 300, 304 (7th Cir. 1983).

152. The substantial similarity test has been applied differently by U.S. courts. ROBERT C. OSTERBERG & ERIC C. OSTERBERG, SUBSTANTIAL SIMILARITY IN COPYRIGHT LAW § 3, at 3-2 (Practising Law Inst. 2003). The approach proposed in this article combines elements taken from the tests applied for infringement by the Second, Fourth and Ninth Circuits. See *id.* § 3, at 3-2 to -3 (summarizing all of the approaches applied by the U.S. circuit courts). The Second Circuit applies the "substantial similarity test," which the Osterbergs summarize: "the court tests to see whether the defendant had access to plaintiff's work at the time defendant prepared his work, and whether there is sufficient similarity between the works to prove copying." *Id.* at § 3.1.1, at 3-3 (first citing *Laureyssens v. Idea Grp., Inc.*, 964 F.2d 131, 140 (2d Cir. 1992));

comparison of the work in question to pre-existing works. To determine the resemblance of an artwork to other works, the audience could compare details that “jump to the eye” of a lay observer.¹⁵³ Originality in artworks has to vary distinguishably if there is some resemblance to preexisting works.¹⁵⁴ Adopting

then citing *Arnstein v. Porter*, 154 F.2d 464, 468 (2d Cir. 1946)). The Ninth Circuit, in *Shaw v. Lindheim*, 919 F.2d 1353 (9th Cir. 1990), applied the Extrinsic/Intrinsic Test. The intrinsic test is considered a “subjective analysis of expression” (i.e., “no more than the visceral reaction of the lay observer, and as such is ‘virtually devoid of analysis’”). OSTERBERG & OSTERBERG, *supra*, § 3.2.1.B, at 3-26 (citing *Shaw*, 919 F.2d at 1357). The extrinsic test, on the other hand, is treated as an “objective analysis of expression.” *Id.* It suggests that courts must list the elements of the works and determine whether there is any similarity . . . For works of visual art, the criteria include shapes, colors, and arrangements of the representations in addition to the type of artwork involved, the materials used, the subject matter and the setting for the subject.

Id. (footnote omitted) (first citing *Shaw*, 919 F.2d at 1362; then citing *Cavalier v. Random House, Inc.*, 297 F.3d 815, 826 (9th Cir. 2002)). The Fourth Circuit’s test is similar to the Ninth Circuit’s test, but it establishes that “a plaintiff must show—typically with the aid of expert testimony—that the works in question are extrinsically similar because they contain substantially similar elements that are subject to copyright protection.” *Id.* § 3.2.2, at 3-35 (quoting *Towler v. Sayles*, 76 F.3d 576, 583 (4th Cir. 1996)). Their difference rests on the intrinsic part in which the Fourth Circuit tests similarity by means of the “intended audience” test. *Id.* § 3.2.2, at 3-36 (first citing *Towler*, 76 F.3d at 579; then citing *Dawson v. Hinshaw Music Inc.*, 905 F.2d 731 (4th Cir. 1990)).

153. The Second Circuit’s philosophy of the substantial similarity test focuses on the “ordinary observer” and applies it “where the plaintiff’s work is wholly original, that is, where the work does not incorporate public domain or other noncopyrightable material.” OSTERBERG & OSTERBERG, *supra* note 152, § 3.1.1.A, at 3-4 (first citing *Boisson v. Banian, Ltd.*, 273 F.3d 262, 271–72 (2d Cir. 2001); then citing *Laureyssens v. Idea Grp. Inc.*, 964 F.2d 131, 140 (2d Cir. 1992)). One question accompanies this element: “would the ordinary observer, unless he set out to detect the disparities, be disposed to overlook those disparities and regard the aesthetic appeal of the two works as the same?” *Id.* § 3.1.1.A, at 3-5 (first citing *Horgan v. MacMillan, Inc.*, 789 F.2d 157, 162 (2d Cir. 1986); then citing *Peter Pan Fabrics, Inc. v. Martin Weiner Corp.*, 274 F.2d 487, 489 (2d Cir. 1960)). The Fourth Circuit is considered to be the minority test, and it is the only one (among the tests already mentioned) that substitutes the “ordinary observer” for the “intended audience.” *Id.* § 3.2.2.D, at 3-41 to -42 (first citing *Airframe Sys., Inc. v. L-3 Comm. Corp.*, 658 F.3d 100, 106 n.7 (1st Cir. 2010); then citing *Jacobsen v. Deseret Book Co.*, 287 F.3d 936, 943 (10th Cir. 2002) *cert. denied*, 537 U.S. 1066 (2002)). The intended audience is “the perspective of the group that is the market for the work, that is, the work’s intended audience.” *Id.* § 3.2.2.A, at 3-36 (citing *Dawson v. Hinshaw Music Inc.*, 905 F.2d 731, 736–37 (4th Cir. 1990)).

154. See *Schrock v. Learning Curve Int’l, Inc.*, 586 F.3d 513, 521 (7th Cir. 2009). Although “[t]his focus on the presence of nontrivial ‘distinguishable

an objective perspective of originality would enable judges and juries to evaluate works made not only by humans, who act with intention, but also works created by creative robots, for which it remains difficult to understand the concept of consciousness and intention.¹⁵⁵

Second, considering the general impression that the legal field has for works of art,¹⁵⁶ there is a need to analyze the doctrine of derivative works through this objective lens. Because derivative works entail transformation of a prior work, the gap between the originality concept and transformation has to be addressed by transformativeness from a “fair use” standpoint. In other words, we claim that the creator’s subjective intention to make a derivative work is irrelevant. The decision regarding derivative works should be made based on objective similarities to the original work even though derivative works are usually produced with a different medium (e.g. a play based on a book). The derivative work, when it includes major copyright-protected elements of the first work, would be entitled to the copyright holder of the first work. For example, deciding whether the song “Pretty Woman” by 2 Live Crew was an unauthorized derivative work should be based on objective criteria rather than on the intentions or feelings of 2 Live Crew. The same logic and preference for objective rules is true when deciding whether the song is a parody and, hence, enjoys the fair use defense.¹⁵⁷ Similarly, and perhaps more importantly, the objective criterion is inevitable for Internet or computer-generated works as there are no subjective feelings involved.¹⁵⁸

variation’ adequately captures the concerns articulated in *Gracen* without unduly narrowing the copyrightability of derivative works,” the proposal recognizes that some of the artworks are inspired by preexisting works and need to be distinguishable. *Id.*

155. See John Markoff, *The Rapid Advance of Artificial Intelligence*, N.Y. TIMES (Oct. 14, 2013), <http://www.nytimes.com/2013/10/15/technology/the-rapid-advance-of-artificial-intelligence.html>.

156. See, e.g., Giry, *supra* note 143, at 100 (“In a non-technical sense, most works of art are derivative in that they either depict another work of art or an element of nature.”).

157. *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 596 (1994) (holding that 2 Live Crew’s commercial parody may be a fair use within the meaning of Section 107 of the U.S. Copyright Act).

158. See *Perfect 10, Inc. v. Amazon.com, Inc.*, 487 F.3d 701 (9th Cir. 2007) (finding that the search engine serves a different function and added an additional benefit to the public).

B. A FORMAL, DESCRIPTIVE APPROACH FOR ORIGINALITY IN ARTWORK

1. The Difficulties of Implementing the Subjective Approach

The artist's intent could be defined as the force that drives the artist to invest his or her independent effort to create an artwork. Intention, for the purpose of determining originality, is the artist's determination to create a specific work.¹⁵⁹ But sometimes the artist's intent for a creation could be different from the actual work resulting from his or her effort. For example, Ms. Gimenez's inner intention for "restoration" resulted in a "botched" work, but one that was also an entirely new painting.¹⁶⁰ Circuit Judge Frank, in *Chamberlin v. Uris Sales Corp.*, determined that even though the plaintiff copied a drawing from a traditional board game, "[i]f one made an unintentional error in copying which he perceived to add distinctiveness to the product, he might perhaps obtain a valid copyright on his copy . . ."¹⁶¹ Judge Frank added, "although the question would then arise whether originality is precluded by lack of intention. That question we need not consider. For plaintiff's error yields nothing new of substance or distinction. Without originality, his drawing, if it stood lone, could not be the subject of a valid copyright."¹⁶²

Should originality be precluded by lack of intention? Or should lack of intention to copy be considered proof of originality? Courts have demonstrated that the artist's intent must be considered when analyzing copying or infringement. In *Rogers v. Koons*, a plaintiff photographer sued a defendant sculptor for borrowing the plaintiff's photograph that captured a happy couple holding a litter of puppies.¹⁶³ The plaintiff demonstrated that the defendant intentionally copied the plaintiff's work by presenting evidence that the defendant sent notes to his artisans remarking how he wanted the sculpture to

159. *Intent*, BLACK'S LAW DICTIONARY (9th ed. 2009) (defining "intent" in the context of criminal law and the law of evidence) ("Purpose; formulated design; a resolve to do or forbear a particular act; aim; determination.").

160. Neild, *supra* note 31.

161. *Chamberlin v. Uris Sales Corp.*, 150 F.2d 512, 513 (2d Cir. 1945).

162. *Id.* (footnote omitted) (describing the variations as "so minute as to escape the attention of the ordinary observer").

163. *Rogers v. Koons*, 960 F.2d 301, 303 (2d Cir. 1992).

resemble the plaintiff's photograph.¹⁶⁴ This evidence not only provided proof of unauthorized copying, but also established that, in fact, the defendant did copy the preexisting work.¹⁶⁵ According to the court, it proved that the defendant's intent was to produce a non-original work.¹⁶⁶

Although the concepts of idea and intent attend to the artist's state of mind, these concepts are interpreted differently depending on whether the court is judging whether an artwork should receive protection or judging whether the artwork infringes another work.¹⁶⁷ When courts assess infringement, they consider the artist's intent as a factor in their decisions.¹⁶⁸ For example, the *Rogers* case involved a small black and white photograph and a large polychrome wooden sculpture.¹⁶⁹ The case suggested that, to find copying on visual grounds, the court must ignore scale, color, and materials—i.e., the court must ignore how the artist made the artwork.¹⁷⁰ The Second Circuit's

164. *Id.* at 305 (“In his ‘production notes’ Koons stressed that he wanted ‘Puppies’ copied faithfully in the sculpture. For example, he told his artisans the ‘work must be just like photo—features of photo must be captured;’ later, ‘puppies need detail in fur. Details—Just Like Photo!;’ other notes instruct the artisans to ‘keep man in angle of photo—mild lean to side & mildly forward—same for woman,’ to ‘keep woman’s big smile,’ and to ‘keep [the sculpture] very, very realistic;’ others state, ‘Girl’s nose is too small. Please make larger as per photo,’ another reminds the artisans that ‘The puppies must have variation in fur as per photo—not just large area of paint—variation as per photo.’”).

165. *Id.* at 307 (“His instructions invariably implored that the creation must be designed ‘as per photo.’ This undisputed direct evidence of copying is sufficient to support the district court’s granting of summary judgment.”).

166. *Id.* at 308 (“No genuine issue of material fact exists with respect to this finding; ‘String of Puppies’ was copied from the photograph ‘Puppies’ based either on the direct evidence of copying or on proof of access and substantial similarity.”).

167. *See id.*

168. *See id.*

169. *See id.*

170. *See id.* How can the court ignore the scale, color, and materials of the sculpture yet evaluate these elements of originality in a sculpture represented in a photograph? Do courts take into consideration the originality lower standard that acknowledges effort even if it is accidentally perpetrated? The substantial similarity test has many flaws. It is difficult to consider that courts are not partial when they evaluate works and hunt for similarities with the allegedly infringed-upon work. Courts should analyze the differences between both the allegedly infringed and the infringing artwork. Looking only for similarities in the allegedly infringed work could be detrimental because courts will have a preconceived idea in favor of the allegedly infringed artwork. To remedy this, the courts should adopt a difference test instead of a similarity

ruling relied on its observations of black and white photographs of both works, thus ignoring the qualities of the sculpture (i.e., size, color) that made it different from the photograph.¹⁷¹ This method “enhanced [the two works’] similarities and prevented the court from appreciating the aesthetic impact of the sculpture. The court was willing to treat a small, colorless picture of the sculpture as conveying all the relevant meaning, literally flattening its judgment.”¹⁷² Consequently, the notes between Koons and his associates discussing the use of the photograph, which was presented as evidence of Koons’s intention, could be considered a cop-out by the court in analyzing what is original and different about the derivative work because the court was reluctant to analyze the works’ differences and inclined to find only similarities.¹⁷³ This leads to the problem of intention, which should come into play if an artist’s intent is to make a lot of money on someone else’s creative work.

Conversely, in *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*,¹⁷⁴ Judge Frank analyzed whether the defendants, who knew of existing copyrights, infringed plaintiff’s copyright for mezzotint

test, which will initiate a more neutral process. The analysis in *Cariou v. Prince*, 714 F.3d 694, 706 (2d Cir. 2013), provides an example favoring an evaluation of differences, rather than similarities, of artworks. Albeit a fair use analysis, the court acknowledged those elements that make an artwork different from the allegedly infringing work:

These twenty-five of Prince’s artworks manifest an entirely different aesthetic from Cariou’s photographs. Where Cariou’s serene and deliberately composed portraits and landscape photographs depict the natural beauty of Rastafarians and their surrounding environs, Prince’s crude and jarring works, on the other hand, are hectic and provocative. Cariou’s black-and-white photographs were printed in a 9 1/2” x 12” book. Prince has created collages on canvas that incorporate color, feature distorted human and other forms and settings, and measure between ten and nearly a hundred times the size of the photographs. Prince’s composition, presentation, scale, color palette, and media are fundamentally different and new compared to the photographs, as is the expressive nature of Prince’s work.

171. See Rebecca Tushnet, *Worth a Thousand Words: The Images of Copyright*, 125 HARV. L. REV. 683, 721 (2012) (citing Heather J. Meeker, Comment, *The Ineluctable Modality of the Visible: Fair Use and Fine Arts in the Post-Modern Era*, 10 U. MIAMI ENT. & SPORTS L. REV. 195, 225 (1993) (citing a telephone interview with curator John Caldwell, who reports that audiences’ experiences of seeing the Koons sculpture are far different from those they expect based on reading about it or seeing pictures of it)).

172. See *id.*

173. See *id.*

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

engravings of a painting. The defendant alleged that, because the plaintiff copied works in the public domain, plaintiff could not seek copyrights for his reproductions.¹⁷⁵ Judge Frank explained that reproduction of works of art could be protected “while prohibiting a copyright of ‘the original text of any work . . . in the public domain’”¹⁷⁶ In this case, the plaintiff presented evidence to prove defendant’s intent to copy, and defendant presented evidence of his intent not to copy the work. Judge Frank established that “[t]here is evidence that [plaintiffs’ works] were not intended to, and did not, imitate the paintings they reproduced,”¹⁷⁷ but he also concluded that, “on the findings, again well grounded in the evidence, we see no possible doubt that defendants, who did deliberately copy the mezzotints, are infringers.”¹⁷⁸ Judge Frank recognized that unintentional departures from preexisting works could be considered original works:

[E]ven if their substantial departures from the paintings were inadvertent, the copyrights would be valid. A copyist’s bad eyesight or defective musculature, or a shock caused by a clap of thunder, may yield sufficiently distinguishable variations. Having hit upon such a variation unintentionally, the “author” may adopt it as his and copyright it.¹⁷⁹

When assessing copyright protection, the artist’s idea is always evaluated in conjunction with his or her expression.¹⁸⁰ The artist’s idea relates to the depiction of a particular subject in a particular way on a tangible expression (i.e. “how the artist depicts it”).¹⁸¹ But what happens if the artist’s intention is to depict another artist’s vision of that same subject? For copyright protection, one cannot separate the idea from its expression. However, for infringement considerations, courts tend to evaluate the artist’s intention (i.e. what the artist is depicting)

175. *Id.*

176. *Id.* at 104 (citing 17 U.S.C. § 5 (2012)) (“[N]ot only does the Act include ‘Reproductions of a work or art’, but—while prohibiting a copyright of ‘the original text of any work in the public domain’—it explicitly provides for the copyrighting of ‘translations, or other versions of works in the public domain.’”).

177. *Id.* at 104–05.

178. *Id.* at 105.

179. *Id.*

180. *See* 17 U.S.C. § 101 (2012).

181. *Mannion v. Coors Brewing Co.*, 377 F.Supp. 2d 444, 458 (S.D.N.Y. 2005); *see also* Tushnet, *supra* note 171, at 715 (citing *Mannion*, 377 F. Supp. 2d at 458).

without considering the idea and its expression. Courts often forget that, for either the protection or infringement tests, the idea leads to creativity in the expression (i.e., uniqueness), but the intention triggers that idea. If the idea and the intention are not considered jointly, a contradiction will exist when analyzing originality.¹⁸²

Based on the discourse in these cases regarding the subjective approach to originality, we argue that the subjective analysis might be troublesome because it is an immeasurable criterion. The artist's intentions, at the end of the day, are mostly (if not completely) hidden and unknown. Therefore, to avoid confusion and speculation, we contend that courts should adopt the objective approach. Furthermore, once courts reject the subjective approach, they might open the door for finding that works produced by creative robots are original.¹⁸³

2. The Objective Approach

a. The Audience's Interpretation of a Work

Who should decide whether an artwork possesses originality of its own as compared to preexisting works? U.S. courts have struggled to determine which audience provides adequate feedback for judging an artwork. In *Bleistein v. Donaldson Lithographing Co.*, for example, Justice Holmes delivered an

182. See Tushnet, *supra* note 171, at 739–40. If we analyze infringement without concentrating on whether the artwork is actually original, it could lead to many issues, including applying incorrectly the similarity test to works that are not identical. Tushnet encourages the “factfinder to focus on differences between the works, not similarities, contrary to current doctrine[.]” which would better assist the court's analysis. This approach could provide for a more just decision by focusing on the degree of differences and recognizing the efforts of both artists. For example, in the case of Cecilia Gimenez, discussed *supra* Introduction, if we observe the differences between the two paintings without focusing on the similarities, we will conclude that Ms. Gimenez's work is a new one. But it would take only one simple similarity (in this case, the tangible medium of the painting) to grant derivative rights to the owner of the earlier painting whereas the differences would grant the artist of the new work reproduction rights.

183. On linguistic creativity, musical creativity, and visual and artistic creativity, see THE ART OF ARTIFICIAL EVOLUTION: A HANDBOOK ON EVOLUTIONARY ART AND MUSIC (Juan Romero & Penousal Machado eds., 2008); DAVID COPE, COMPUTER MODELS OF MUSICAL CREATIVITY (2006); David Cope, *Experiments in Music Intelligence (EMI)*, INT'L COMPUTER MUSIC ASS'N PROC. (1987).

opinion that found pictorial illustrations, used for advertisement, to be original and protected by copyright.¹⁸⁴ Justice Holmes sought to characterize an adequate audience as one that could decide the value of the artwork, but the only way that he was able to describe the audience was to use two groups at opposite extremes.¹⁸⁵

The first audience that Justice Holmes described was the professional one trained only in the law (the trier of law): “It would be a dangerous undertaking for persons trained only to the law to constitute themselves final judges of the worth of pictorial illustrations, outside the narrowest and most obvious limits.”¹⁸⁶ He further considered the drawbacks of this audience:

At the one extreme, some works of genius would be sure to miss appreciation. Their very novelty would make them repulsive until the public had learned the new language in which their author spoke. It may be more than doubted, for instance, whether the etchings of Goya or the paintings of Manet would have been sure of protection when seen for the first time.¹⁸⁷

Justice Holmes’s decision suggests a reasonable degree of reliance, by the Court, on the general public’s (the trier of facts) knowledge in determining the originality of artworks.

The second audience considered by the Justice was “a public less educated” in comparison to legal professionals:

At the other end, copyright would be denied to pictures which appealed to a public less educated than the judge. Yet if they command the interest of any public, they have a commercial value,—it would be bold to say that they have not an aesthetic and educational value,—and the taste of any public is not to be treated with contempt.¹⁸⁸

Justice Holmes’s decision might incline courts to seek a more subjective opinion when evaluating artworks by considering the public’s aesthetical interpretation instead of deciding objectively or describing the elements necessary to comply with an objective result to protect artworks based on their originality. Indeed, although the Court’s remarks about the audience that interprets artworks suggest a subjective solution, shifting the focus from the intention of the creator to the

184. *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239 (1903).

185. *See id.*

186. *Id.* at 251.

187. *Id.*

188. *Id.* at 251–52.

audience already reflects a more objective approach. This shift was important for future tests for analyzing originality.

The Second Circuit has included an observer's test when discussing substantial similarity in artworks.¹⁸⁹ The observer's test is useful for addressing copyright infringement, providing the following inquiry: whether "the ordinary observer, unless he set out to detect the disparities, would be disposed to overlook them, and regard their aesthetic appeal as the same."¹⁹⁰ This Circuit has also established the requirement for the audience deciding originality of a work as "the decision-maker, whether it be a judge or a jury, need not have any special skills other than to be a reasonable and average lay person."¹⁹¹

For artworks, is it permissible to rely on the interpretation of an audience that is intellectually average? There is not an exact definition of what is an "artwork" or "art."¹⁹² For the audience to consider a work as art and to have the same interpretation for the work as the author, both the audience and the author need to be identically connected to the subject depicted in the work.¹⁹³ Although recognizing art in works could

189. See *Rogers v. Koons*, 960 F.2d 301, 307 (2d Cir. 1992) (noting that substantial similarity does not require literally identical copying of every detail); see also OSTERBERG & OSTERBERG, *supra* note 152.

190. *Peter Pan Fabrics, Inc. v. Martin Weiner Corp.*, 274 F.2d 487, 488 (2d Cir. 1960).

191. *Koons*, 960 F.2d at 308.

192. See *Giry*, *supra* note 143.

193. This is an impossible test given the inconsistencies in perception and psychology of the audience. On perception and realism, see NEAL FEIGENSON & CHRISTINA SPIESEL, *LAW ON DISPLAY* 9–10 (2009) (footnote omitted) ("People tend (again, initially and unreflectively) to conflate representations with direct perceptions of reality, to 'look through' the mediation at what is depicted. To see the picture is to see the real thing, unmediated. What a picture depicts just seems to have presence, a kind of being in the world. As a consequence, the meaning of the picture is understood to be identical to its content. The realism in this way of understanding pictures is the entirely plausible belief that (most) descriptive, documentary pictures that purport to describe external reality actually do so, if incompletely; the naïveté comes from ignoring how [to paraphrase Marshall McLuhan] the medium affects the message—how the meanings a picture conveys are shaped by the tools, techniques, and social contexts of representation."); Tushnet, *supra* note 171, at 693 ("Even though there is both historical and cross-cultural evidence that perceptions of the correspondence of images with reality vary depending on the viewer's background and knowledge, the default is to treat images as real, and people have a corresponding difficulty analyzing them as images that are distinct from what they (purport to) represent."); see also *Giry*, *supra* note 143 (discussing the

depend on the knowledge of the people who evaluate the works, most viewers are naïve—they mistake the work for its subject and they do not see the material, the means, and the cultural context behind it.¹⁹⁴ That does not mean that an audience is incapable of enjoying the work, but demanding that the audience evaluating the originality of an artwork have above-average knowledge would be unreasonable. Moreover, it could lead to an aesthetic analysis (i.e. an isolated appreciation of beauty) instead of an observation and acknowledgment of the artist's effort with the artwork's originality and distinction.¹⁹⁵ A change

questions the judge asked the plaintiff, including, “[W]hat makes you call the sculpture a bird, does it look like a bird to you?” To which the plaintiff responded, “[I]t does not look like a bird but I feel that it is a bird, it is characterized by the artist as a bird.”). Including the audience's feelings regarding an interpretation of an artwork risks having the audience fall into an aesthetic value analysis instead of an originality descriptive approach. Thus, under the approach proposed by this article, the intention of the artist must be considered. See, e.g., DEWITT H. PARKER, *THE PRINCIPLES OF AESTHETICS* 53 (2012) (“To this material, secondly, are attached vague feelings. It is characteristic of aesthetic expressions, as we have observed, that their media, quite apart from anything that they may mean or represent, are expressive of moods—the colors of a painting have a *stimmung*, so have tones and words, when rhythmically composed.”).

194. See *Giry*, *supra* note 143 (citing the sculptor Brancusi: “In art, one does not aim for simplicity. One achieves it unintentionally as one gets closer to the real meaning of things.”); see also FEIGENSON & SPIESEL, *supra* note 193, at 8–9 (defining naïve realism as “[t]he intuitive tendency to believe in whatever things, events, or ideas a picture (perhaps especially a descriptive, documentary picture) depicts or suggests—that is, to be more inclined, at least initially, to accept pictures than words as reliable evidence of reality—derives from two closely related habits of mind that, singly or in combination, may be called *naïve realism*”).

195. Adopting a subjective perspective for determining the artist's intention will, at least, diminish the possibility of an aesthetic analysis that relies only on the subjectivity of the observer. See *Gracen v. Bradford Exchange*, 698 F.2d 300, 304 (7th Cir. 1983); see also PARKER, *supra* note 193, at 59–60 (“There are two characteristics of aesthetic feeling in its relation to sensations and ideas, which must be taken into account in any explanation; its objectification in them, and the universality of this connection. . . . The feelings have become true attributes. It is only by analysis that we pick them out, separate them from the other elements of idea or sensation in the whole, and then, for the purpose of scientific explanation, inquire how they came to be connected.”); Christine Haight Farley, *Judging Art*, 79 TUL. L. REV. 805, 809 n.10 (2005) (describing the meaning of aesthetics); Tushnet, *supra* note 171, at 723 n.186 (“Copyright plaintiffs have not generally offered courts extrinsic evidence of how ordinary observers perceive the meaning of a particular work. The Ninth Circuit explicitly rejected reliance on a consumer survey to determine whether a particular accused work was a parody. *Mattel Inc. v. Walking Mountain Prods.*,

in the intellectual knowledge—demanding expertise in the art form—of the audience who observes, decodes, and decides if an artwork is original could lead to a change in the quantum necessary to achieve originality. Art *per se* calls for a deeply emotional analysis, in addition to technical knowledge, and demands more than a rational and objective analysis when considering its originality.¹⁹⁶

b. The Resemblance of a New Artwork to Preexisting Works

When the federal court in *Koons* analyzed the originality of the sculpture made by the defendant, and whether he copied the plaintiff's work, it acknowledged an important conclusion in favor of the plaintiff: "in terms of his *unique expression of the subject matter captured* in the photograph, plaintiff has established valid ownership of a copyright in an original work of art."¹⁹⁷ Although the court found a substantial similarity,¹⁹⁸

353 F.3d 792, 801 (9th Cir. 2003). My argument is certainly not that copyright laws need more surveys—that would just mean more words to fight about, since surveys can always be contested—but rather that copyright's epistemology is sharply limited by courts' attempts to fix a singular meaning without interrogating their own assumptions about how images, music, and so on make their meanings.").

196. See *Gracen*, 698 F.2d at 304 (citing SUPER REALISM: A CRITICAL ANTHOLOGY (Gregory Battcock ed., 1975)) ("But artistic originality is not the same thing as the legal concept of originality in the Copyright Act. Artistic originality indeed might inhere in a detail, a nuance, a shading too small to be apprehended by a judge. A contemporary school of art known as 'Super Realism' attempts with some success to make paintings that are indistinguishable to the eye from color photographs."); PARKER, *supra* note 193, at 59 (explaining how sensations and feelings are considered in an aesthetic analysis: "From a psychological standpoint, sensation is the datum of the aesthetic experience, the first thing there, while its power to express depends upon a further process which links it up with thoughts and feelings. We must inquire, therefore, how this linkage takes place—how, for example, it comes about that the colors of a painting are something more than mere colors, being, in addition, embodiments of trees and sky and foliage, and of liveliness and gayety and other feelings appropriate to a spring landscape. Let us consider the linkage with feeling first.").

197. *Rogers v. Koons*, 960 F.2d 301, 307 (2d Cir. 1992) (emphasis added) (citing *Burrow-Giles Lithographic Co. v. Saroni*, 111 U.S. 53, 60 (1884)) (listing the elements of originality in a photograph as "posing the subjects, lighting, angle, selection of film and camera, evoking the desired expression, and almost any other variant involved").

198. *Id.* (analyzing if there was infringement under the substantial similarity test); see also *Sid & Marty Krofft Television Prod., Inc. v. McDonald's Corp.*, 562 F.2d 1157, 1164 (9th Cir. 1977) (establishing an extrinsic and

uniqueness was important for the protection of the artist's expression of an idea: "What is protected is the original or unique way that an author expresses those ideas, concepts, principles or processes."¹⁹⁹

In *L. Batlin & Son, Inc. v. Snyder*,²⁰⁰ the Second Circuit explained that a genuine difference has to exist between the underlying work and the alleged copy that seeks protection.²⁰¹ The essence of the test provides the audience with tools for identifying the genuine difference needed to comply with the constitutional principle. Thus, to assess the resemblance between two artworks, one must understand not only what constitutes small differences between the two works, but also when a work is deemed totally dissimilar from the other.²⁰² "It is only where the points of dissimilarity exceed those that are similar and those similar are—when compared to the original work—of small import quantitatively or qualitatively that a finding of no infringement is appropriate."²⁰³ When assessing resemblance, differences must be distinguishable from other works.²⁰⁴ We would define distinguishing features as the details in the artwork that "jump to the eye" of an observer.²⁰⁵

intrinsic test to find substantial similarity and determining that the test of similarity is a factual one decided by the trier of fact).

199. *Koons*, 960 F.2d at 308.

200. *L. Batlin & Son, Inc. v. Snyder*, 536 F.2d 486 (2d Cir. 1976).

201. *Id.* at 492; *see also* *Bridgeman Art Library v. Corel Corp.*, 36 F. Supp. 2d 191, 196 n.36 (S.D.N.Y. 1999) (establishing that if a genuine difference is absent, the public interest in promoting progress of arts could hardly be served).

202. *See Koons*, 960 F.2d at 308 (citing 3 *NIMMER & NIMMER*, *supra* note 86, § 13.03[B][1][a]).

203. *Id.*

204. *See Batlin*, 536 F.2d at 490 (citing *Gerlach-Barklow Co. v. Morris & Bendien, Inc.*, 23 F.2d 159, 161 (2d Cir. 1927)).

205. This article uses the phrase "jump to the eye" to refer to the audience's perception of singularities in an artwork that are "distinguishable to the eye." *See* Tushnet, *supra* note 171, at 690 ("Images are more vivid and engaging than mere words, decreasing our capacity to assess images critically because we are more involved in reacting to them. And, because we process images so quickly and generally, we may stop looking before we realize that critical thought should be applied to them."); FEIGENSON & SPIESEL, *supra* note 193, at 7 (describing the effect of visual images compared to reading words and how the eye retains visual information: "Consider, for instance, how we see a continuous visual field even though our retinas receive no input at the 'blind spot' where the optic nerve connects to the eye. . . . But we can enter a picture anywhere we want to, drawn to any feature of it that catches our eye, whether the attraction

Applying this approach to the example of Ms. Cecilia Gimenez and the “botched” fresco, one must conclude that Ms. Gimenez created an entirely new work. The audience—the viewers of her fresco—considered the artwork to be a new work because they perceived it as fully original. The name given to the work by the audience, *Ecce Mono*, reflects their interpretation of the painting as resembling a monkey, thus providing proof of the total originality of the work. The audience also generated another title, *Beast Jesus*, for the piece, which acknowledged the figure of “Jesus” in the painting. This perception is more aligned with the conclusion that the work was a transformation—not a new, original work.

A number of factors “jumped to the eye” of the audience and motivated their conclusions about the artwork. These included: the colors used for the new fresco were entirely different from the original one; the physical appearance of the new creation was totally different from the former painting (e.g. the eyes, the beard, the hair, the nose, skin color); and the original fresco depicted a realistic expression of the biblical figure, whereas the new work depicted an unrealistic, cartoon-like expression. One need not conduct a deep aesthetic analysis to conclude that this transformation resulted in an original creation. The audience found a level of creativity in the artwork higher than the mere modicum required by the legal standard in the United States.²⁰⁶ It also grants the singularity of a new original artwork that could be easily distinguished from the prior artwork. Should Ms. Gimenez’s fresco be considered a transformation, alteration, or modification (i.e. a derivative work), or a transformation of purpose under “fair use”?

Considering that derivative works are modifications or transformations of underlying original works of authorship,²⁰⁷ there should be at least some consideration of whether the *Ecce Mono* was a partial or full transformation of the original painting. A full transformation would lead to a new original

is based on our own interests and predilections, formal qualities of the picture itself, or some combination thereof.”).

206. See *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 340 (1991) (citing *In re Trade-Mark Cases*, 100 U.S. 82, 94 (1879)) (“For a particular work to be classified ‘under the head of writing of authors,’ . . . ‘originality is required.’”).

207. See 17 U.S.C. § 101 (2012) (defining derivative works).

work, separate from the preexisting one.²⁰⁸ However, a partial transformation would lead to a derivative work, which would receive protection only for the new original additions or changes,²⁰⁹ insofar as those additions or changes do not infringe on another work.²¹⁰ Section 106(2) of the Copyright Act of 1976 provides for the ownership of this type of work: the “owner of copyright under this title has the exclusive rights to do and to authorize . . . derivative works based upon the copyrighted work.”²¹¹

According to the facts of this example, the church authorized the “restoration” of the earlier original work,²¹² not for the creation of a derivative work. If there had been no authorization at all, then, according to section 106(2), there would have been an unauthorized creation of a derivative work.²¹³ But Ms. Gimenez had authorization to apply her skills to the former painting. Her creation was not meant to be a derivative work and it did not result in a derivative work because the preexisting work is not traceable to the new artwork.²¹⁴ Rather, the transformation was a complete change that resulted in a new and different artwork.

Some professionals in the field have proposed a standard for transformativeness based on the fair use analysis. They focus not on the author’s intent, but rather on the reader’s reaction.²¹⁵ In the art world, the author’s intention is considered to be an important factor in originality and the constitution of the work itself.²¹⁶ Professor R. Anthony Reese, summarizing the tendency of court decisions regarding the transformation of content and

208. See WORLD INTELLECTUAL PROP. ORG., *supra* note 68, at 9.

209. See *Ty Inc. v. Publ’ns Int’l Ltd.*, 292 F.3d 512, 517 (7th Cir. 2002).

210. See *Giry*, *supra* note 143, at 100.

211. 17 U.S.C. § 106(2) (2012).

212. The church did not provide any guidelines, nor did it make any requests regarding how to restore the painting. The authorization was verbally communicated.

213. See 17 U.S.C. § 106(2) (2012).

214. See *generally* WORLD INTELLECTUAL PROP. ORG., *supra* note 68.

215. See Laura A. Heymann, *Everything Is Transformative: Fair Use and Reader Response*, 31 COLUM. J.L. & ARTS 445, 448 (2008).

216. See SIMON STOKES, *ART & COPYRIGHT* 16 (2003) (citing the philosopher Herbert Spencer and explaining that “[a] production of mental labour may be regarded as property in a fuller sense than may be a product of bodily labour; since that which constitutes its value is exclusively created by the worker”).

the transformation of purpose, concluded that, for the fair use analysis, the latter is far more important than the former.²¹⁷

3. Adopting the Objective Approach

One might claim that it would be difficult to understand the meaning of a work of art without considering the artist's intention as well as the audience's interpretation.²¹⁸ The subjective perspective, nevertheless, focuses primarily on the artist's intention to create new artwork.²¹⁹ But as the case of *Ecce Mono* demonstrates, the artist's purpose may be different from the outcome. In that case, the artist's stated intent was to retouch the former painting and retain the resemblance of the biblical figure of Jesus,²²⁰ but her work resulted in a distinguishable painting, one that can only be attributed to the artist's skill and creativity.²²¹

According to the quantum of originality standard established by courts²²² and an analysis of the artwork through the formal assessment, Ms. Gimenez's artwork is original and therefore deserving of legal protection. The artwork can be described as a novel painting that is distinguishable and singular—in other words, a protectable expression of an idea. As a result, Ms. Gimenez should be granted reproduction rights for the artwork. Her creativity—the newness that added value to the painting—must be compensated.²²³ The same conclusion

217. R. Anthony Reese, *Transformativeness and the Derivative Work Right*, 31 COLUM. J.L. & ARTS 101, 119 (2008) (“In assessing transformativeness, the courts generally emphasize the transformativeness of the defendant's *purpose* in using the underlying work, rather than any transformation (or lack thereof) by the defendant of the *content* of the underlying work.”).

218. See, e.g., Giry, *supra* note 143.

219. *Id.*

220. However, the inexistence of an exact reference that provides the real physical appearance of the biblical figure of Jesus is general knowledge. Thus, could it be determined that the depiction of the physical appearance of “Jesus” is available to the public domain?

221. See *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239, 250 (1903) (“No matter how poor artistically the ‘author’s’ addition, it is enough if it be his own.”); *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49, 54 (2d Cir. 1936), *aff’d*, 309 U.S. 390 (1940).

222. See *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345 (1991).

223. See 17 U.S.C. § 106(1) (2012) (“Subject to sections 107 through 122, the owner of copyright under this title has the exclusive rights to do and to

should be reached for works created by creative robots.²²⁴ We claim that, when discussing human beings as creators, we cannot determine originality (based on subjective criteria) with complete certainty, a conclusion that is also true for discussing creative robots as creators.

IV. THE CURRENT-TRADITIONAL APPROACH TO WORKS CREATED BY CREATIVE ROBOTS

Our conclusion is that the objective approach to originality is necessary to considering creative robots as authors of artworks they produce, once meeting the other criteria of fixation and creativity. This conclusion returns us to the question of the traditional approach regarding inventions made by AI systems.²²⁵ According to our view, the works produced by creative robots are original in their objective meaning. Therefore, policymakers might grant the copyright to the creative robot, much as would happen if a human or a firm were the only author. But is this conclusion consistent with United States law? Can creative robots be considered “authors”? Can the works produced by creative robots be entitled to copyright protection?

The United States Constitution explicitly refers to individuals as authors.²²⁶ By its plain language, the Constitution never considered non-human inventors. Precedents in related intellectual property fields have not accepted non-humans, such as machines or animals, as “creators” within the meaning of copyright law. For example, a district court refused to find that Naruto, a crested macaque, was the creator or author of the “Monkey Selfies” at issue.²²⁷ The court stated that copyright laws have no application to non-humans:

authorize any of the following: (1) to reproduce the copyrighted work in copies or phonorecords.”).

224. This argument assumes that the work created by a creative robot meets all other criteria of copyrightable works (aside from the subjective perspective of intention, which is also immeasurable in works created by humans).

225. Yanisky-Ravid & Moorhead, *supra* note 40.

226. See U.S. CONST. art. I, § 8, cl. 8.

227. See *Naruto v. Slater*, No. 15-CV-04324, 2016 WL 362231, at *1 (N.D. Cal. Jan. 28, 2016) (“The complaint, filed by the People for the Ethical Treatment of Animals (PETA) and Antje Engelhardt as ‘Next Friends,’ alleges that defendants Slater, Blurb, Inc. (the ‘publisher’ of a book by Slater containing the Monkey Selfies), and Wildlife Personalities, Ltd. (a United Kingdom

[T]he Copyright Act does not ‘plainly’ extend the concept of authorship or statutory standing to animals. To the contrary, there is no mention of animals anywhere in the Act. The Supreme Court and Ninth Circuit have repeatedly referred to ‘persons’ or ‘human beings’ when analyzing authorship under the Act . . . I have not found, a single case that expands the definition of authors to include animals . . . Specifically, the Copyright Office will not register works produced by ‘nature, animals, or plants’ including, by specific example, a ‘photograph taken by a monkey.’ . . . Naruto is not an “author” within the meaning of the Copyright Act.²²⁸

We disagree with this approach. In order to avoid nullifying copyright laws we have to modify the laws to adopt new technologies. We think that the conclusion on whether or not creative robots should be entitled to copyright in the works they produce depends on whether one views originality from a subjective or objective perspective. Our conclusion is that the objective perspective of originality is a more measurable and efficient tool than the subjective approach. This conclusion implies that originality may not be a hurdle to recognizing works created by autonomous creative robots as copyrightable.

CONCLUSION

The new realities of artificial intelligence have led us to question the originality of works created by creative robots, which might be copyrightable had they been made by humans. This question invites us to rethink the concept of originality generally. We argue that formalizing the concept of originality will improve accuracy in analyzing which artworks merit copyright protection in the digital era. Creating a uniform standard of originality starts at the international level. The Berne Convention was an important step for achieving uniformity in copyright protection. However, the Berne Convention contains broad language regarding the most important requirement for copyright protection—originality.

This lack of a clear, specific definition of “originality” at the international level provides countries with leeway to employ

company that, along with Slater, ‘falsely’ claims authorship of the Monkey Selfies) violated Naruto’s copyright by displaying, advertising, and selling copies of the Monkey Selfies.”). The district court dismissed the case, an appeal was submitted, and a hearing was scheduled for June 2017. *See id.*, appeal docketed, No. 16-15469 (9th Cir. Mar. 21, 2016).

228. *Id.*

their own national definitions of originality. The United States legal system faces an additional, self-imposed constraint: “Notwithstanding the need for monopoly protection of intellectual creators to stimulate creativity and authorship, excessively broad protection would stifle, rather than advance, the objective.”²²⁹ Although the Constitution mandates copyright protections for “useful arts,”²³⁰ Congress, through the Copyright Act of 1976, maintained an undefined concept of originality.²³¹ The judiciary has therefore been left to create its own standard for originality: a minimum level of creativity is not sufficient to confer originality in artworks.²³²

We have argued that originality should be determined by a formal, objective approach.²³³ Under United States copyright law, private property is protected because of the value it possesses,²³⁴ but considering only value, not the level of creativity and originality invested in the work, is unjust. Appreciating the value more than the labor could lead to a purely aesthetic analysis.²³⁵ United States jurisprudence specifically deals with aesthetics in artwork.²³⁶ In proposing a more formal, descriptive framework for artwork, this article suggests avoiding the aesthetic approach (i.e. appreciation for beauty) currently employed by judges.²³⁷ Judge Posner explains the aesthetic

229. Leval, *supra* note 145 (discussing reciprocity between creators and society, the monopoly benefit conferred, and responding to the question, “If copyright protection is necessary to achieve this goal, then why allow fair use?”). Although Judge Leval discusses “fair use,” his legal reasoning in establishing a permanent framework on excessively broad protection is similar to this article’s aim in discussing the originality requirement. *See id.*

230. U.S. CONST. art. 1, § 8, cl. 8.

231. 17 U.S.C. § 102 (2012).

232. *See Feist Publ’ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340, 345 (1991).

233. *See STOKES, supra* note 216, at 16 (“The general knowledge is that principles of labor and skills invested in artwork create private property.”).

234. *See id.* at 16–17.

235. *See PARKER, supra* note 193, at 2 (“Without feeling for the values of sensation, men may be sympathetic and intelligent, but they cannot be lovers of the beautiful. They may, for example, appreciate the profound or interesting ideas in poetry, but unless they can connect them with the rhythm-values of the sounds of the words, they have only an intellectual or emotional, not an aesthetic experience.”).

236. *See Feist Publ’ns*, 499 U.S. 340.

237. *See Gracen v. Bradford Exch.*, 698 F.2d 300, 304 (7th Cir. 1983).

approach: “artistic originality is not the same thing as the legal concept of originality in the Copyright Act. Artistic originality indeed might inhere in a detail, a nuance, a shading too small to be apprehended by a judge.”²³⁸ The quantum of originality in artworks should be determined by a descriptive analysis that evaluates the expression without ignoring the effort.²³⁹

Applying our proposed framework to the facts of the *Ecce Mono* demonstrates its soundness. From the subjective perspective, Ms. Gimenez’s intent was to “restore” and not to “create.” By contrast, from the objective perspective, the audience did not consider her work to be a “restoration.” The audience deemed her creation to be an entirely new artwork that added value to the first work. “Many of the best value intangibles are the results of moments of inspiration that involve little or no apparent effort on the part of the person claiming the intangible. The work of the perspiring, but not the inspired, ‘creator’ would be protected by law.”²⁴⁰ The objective perspective thus captures the external relationship between the expression, the audience’s interpretation of the artwork, and the resemblance of the expression to other works.

In addition to providing guidance to judges and juries, a descriptive approach will pave the way for an impartial originality standard. A formal, descriptive analysis is capable of adapting to the specific facts of a case, including a digital author. Due to the uncertainty, if not the complete lack of a formal originality requirement in artworks, this article encourages countries to implement permanent guidelines for assessing originality in artworks. Such guidelines would produce more uniform and just outcomes for artists, which would, in turn, foster their continued creativity.²⁴¹ Moreover, such a framework

238. *Id.*

239. Tushnet, *supra* note 171, at 723 (“I would add that it is the interaction between aesthetics and truth or reality that generates so much of the difficulty, which is why the problems are worst for images. Because we understand how pictures work so poorly, yet experience them so powerfully, aesthetic choices unpredictably appear either as creative (non-reality-based) decisions or as simple transmissions of truth or facts.”).

240. See STOKES, *supra* note 216, at 13; Michael Spence, *Passing Off and the Misappropriation of Valuable Intangibles*, 112 L.Q.R. 472, 487 (1996).

241. Tushnet, *supra* note 171, at 731 (“If we think painters, writers, and other artists should be able to continue in their own style despite transferring one or more copyrights, we need to revisit this conclusion. Both abstract ideas

would make it possible, in case we would like to keep rather than nullify copyright laws in the future, for the works produced by creative robots to be copyrightable.²⁴²

This conclusion is just the first step. Once we recognize that the works produced by creative robots might be copyrightable, we must ask who, if anyone, should be entitled to hold the copyright protection on behalf of the robots. Should we apply traditional copyright laws to works created by creative robots or should we create new legal tools? If the latter, should the tools be international or national? What would happen in the case of infringement by a creative robot? Can creative robots follow ethical rules? Who should be responsible for pressing the stop button on such machines? These questions reflect just the tip of the iceberg of the new era we have entered. New studies and further research are needed in order to avoid putting the cart before the horses.

(styles) and specific subjects should remain available to all creators, because representing the internal (such as the ideal bird, even if the ideal was formed with reference to earlier paintings) is a key way of representing (the artist's understanding of) the world." The facts of the example discussed in this article demonstrated that both artists depicted Jesus in their own style; one depicted realism and the other depicted the artist's own reality, which was inspired by the earlier artwork (i.e. her own vision of Jesus).

242. Samuelson, *supra* note 50.
