PROMPTING PROGRESS: AUTHORSHIP IN THE AGE OF AI

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Abstract

This Article examines a question of profound importance today: do the works people create using artificial intelligence (AI) qualify for copyright? This Article explains why the Copyright Office's 2023 guidance excluding AI-generated works from copyright is wrong. The Office's newfound requirement of the so-called "traditional elements of authorship"—including sufficient control, avoidance of random elements in the creative process, prediction of the final work ahead of time, and dictation of the specific results—finds no support in the text, history, or structure of the Progress Clause, Supreme Court precedent, or the Copyright Act, past or present. It limits "Authors" to "traditional elements" that "Inventors" in the same Progress Clause do not face. And it thwarts experimentation, trial-and-error, and new creative techniques. Nothing in the original public meaning of "Progress" or "Authors" support the Copyright Office's anomalous restriction.

Focusing on the first principles of authorship under the Progress Clause and the Framers' overriding objective to "promote progress," the sole test of authorship examines whether the person contributes at least a minimal level of creativity in the origination of the work, which may be satisfied simply by a person's selection or arrangement of uncopyrightable elements in the work. The requisite level is, as the Supreme Court recognized, "extremely low," or what this Article calls the *bare minimum for authorship*. Many, but not all, AI prompt-engineered works will easily pass the test, but works that are entirely autonomously generated will not. This bare minimum approach is not only more faithful to the Progress Clause but also preserves Congress's power to decide how best to promote progress in the twenty-first century. The recommended approach aligns with the general approach emerging in other countries, including the European Union

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(EU), China, and South Korea. Harmonizing U.S. copyright law with the approach of major trading partners itself advances progress.

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.[1]

– Justice Holmes, *Bleistein v. Donaldson Lithographing Co.*

INTRODUCTION

ChatGPT's launch was historic,[2] hailed as "the start of the [artificial intelligence (AI)] revolution."[3] The new generative AI technology offered mindboggling capabilities: enabling people to find information simply by chatting with AI. ChatGPT's responses make it seem like a person; as a large-language model (LLM),[4] it answers questions by predicting a sequence of words in response to the words in the query, a capability honed through deep learning on vast amounts of data.[5] After ChatGPT's launch, it soon became apparent that generative AI

1. Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251 (1903).

2. *See* Bernard Marr, *A Short History of ChatGPT: How We Got To Where We Are Today*, FORBES (May 19, 2023, 1:14 AM), https://www.forbes.com/sites/ bernardmarr/2023/05/19/a-short-history-of-chatgpt-how-we-got-to-where-we-are-today/ [https://perma.cc/EJC2-BMKZ].

3. Stephanie Roth & Bruno de la Sota, *ChatGPT: The Start of the AI Revolution*, JP MORGAN PRIV. BANK (Apr. 26, 2023), https://privatebank.jpmorgan.com/gl/en/insights/investing/chatgpt-the-start-of-the-ai-revolution [https://perma.cc/FG7M-Q3BW].

4. *See* Kevin Roose, *How Does ChatGPT Really Work?*, N.Y. TIMES (Apr. 4, 2023), https://www.nytimes.com/2023/03/28/technology/ai-chatbots-chatgpt-bing-bard-llm.html [https://perma.cc/EV7L-TE25].

5. *See* Torsten Volk, *ChatGPT Is Revolutionary – but it Calculates One Word at a Time*, MEDIUM (Mar. 9, 2023), https://torstenvolk.medium.com/chatgpt-is-revolutionary-but-it-calculates-one-word-at-a-time-694bc2c951ed [https://perma.cc/8QNG-JEBH] (quoting ChatGPT's answer).

would upend not only online searches but also civilization as we know it.[6]

The remarkable capabilities of AI do not end there. As the name implies, *generative* AI can quickly produce new content—articles, artworks, books, computer programs, images, music, slides, spreadsheets, charts, designs, videos, websites, you name it—based on a person's text instructions, or "prompts." This "prompt engineering," or use of words to generate new works, has sparked an explosion of creativity.[7] Everyone can create visual works, music, videos, and other media simply through words. The disruption to creative industries and businesses will accelerate as generative AI programs continue to advance at breakneck speed.[8]

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6. *See* MUSTAFA SULEYMAN, THE COMING WAVE 78 (2023) ("We really are at a turning point in the history of humanity."); Bill Gates, *The Age of AI Has Begun*, GATESNOTES (Mar. 21, 2023), https://www.gatesnotes.com/The-Age-of-AI-Has-Begun [https://perma.cc/8QNG-JEBH] (predicting that AI "will change the way people work, learn, travel, get health care, and communicate with each other"); Wang Chao, *The Fourth Revolution*, UNESCO COURIER (Oct. 16, 2023), https://courier.unesco.org/en/articles/fourth-revolution [https://perma.cc/E4E8-T2U6] (interviewing Yang Qiang, an international expert in AI and data mining). Recognizing the threat to its search engine, the source of more than half its revenues, Google called a "code red" and enlisted its retired cofounders, Sergey Brin and Larry Page, to plan the company's strategy to compete with ChatGPT. *See* Gennaro Cuofano, *Google Revenue Breakdown*, FOUR WK. MBA (Feb. 4, 2024), https://fourweekmba.com/google-revenue-breakdown/ [https://perma.cc/SH3X-6LSF]; Nico Grant & Cade Metz, *A New Chat Bot is a 'Code Red' for Google's Search Business*, N.Y. TIMES (Dec. 21, 2022), https://www.nytimes.com/2022/12/21/technology/ai-chatgpt-google-search.html [https://perma.cc/BN72-K747]; Nico Grant, *Google Calls in Help from Larry Page and Sergey Brin for A.I. Fight*, N.Y. TIMES (Feb. 23, 2023), https://www.nytimes.com/2023/01/20/technology/google-chatgpt-artificial-intelligence.html [https://perma.cc/NZ3T-BX4N].

7. *See* Alice Cai et al., *DesignAID: Using Generative AI and Semantic Diversity for Design Inspiration*, 23 ACM COLLECTIVE INTEL. CONF. PROC. 1, 10, https://doi.org/10.1145/3582269.3615596 [https://perma.cc/2VQN-PLMY] (finding that "participants felt the image generation tool was more inspirational, enjoyable, and useful than the image search tool"); *Best Practices for Prompt Engineering with OpenAI API*, OPENAI, https://help.openai.com/en/articles/6654000-best-practices-for-prompt-engineering-with-openai-api [https://perma.cc/QDV2-9WVN]; Nik Popli, *The AI Job that Pays Up to $335K—and You Don't Need a Computer Engineering Background*, TIME (Apr. 14, 2023, 2:20 PM), https://time.com/6272103/ai-prompt-engineer-job/ [https://perma.cc/J8VZ-VVFX].

8. *See generally* Michael Chui & Lareina Yee, *AI Could Increase Corporate Profits by $4.4 Trillion a Year, According to New Research*, MCKINSEY GLOB. INST. (July 7, 2023), https://www.mckinsey.com/mgi/overview/in-the-news/ai-could-increase-corporate-profits-by-4-trillion-a-year-according-to-new-research [https://perma.cc/NA9N-2JJ4] (describing the large potential profit AI will add to corporations);

These advances are not without controversy. AI has sparked backlash—and fear. By October 2024, thirty-two copyright lawsuits were filed against companies that offer generative AI, including Big Tech companies Alphabet, Meta, and Microsoft; AI-chip maker Nvidia; startups OpenAI, Anthropic, Stability AI, Midjourney, DeviantArt, Runway, Suno, and Udio.[9] Many of the lawsuits allege infringement in (i) the input stage, or training AI with copies of potentially billions of works without permission from the copyright owners, and (ii) the output stage, or the generation of new works alleged to be substantially similar to copyrighted works.[10] Given the fear of AI's potential to replace human workers, members of the Writers Guild of America and the Screen Actors Guild went on strike in 2023, seeking an agreement from the Alliance of Motion Picture and Television Producers that limits the uses of AI, including restrictions that AI "can't write or rewrite literary material" and that "writers' work can't be used to train AI."[11] Critics have voiced concerns about AI's potential displacement of human workers.[12] Goldman Sachs estimated that AI might displace

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David De Cremer et al., *How Generative AI Could Disrupt Creative Work*, HARV. BUS. REV. (Apr. 13, 2023), https://hbr.org/2023/04/how-generative-ai-could-disrupt-creative-work [https://perma.cc/JT82-NJV7] (explaining how AI may take many creative jobs); Simon Torkington, *How Might Generative AI Change Creative Jobs?*, WORLD ECON. F. (May 9, 2023), https://www.weforum.org/agenda/2023/05/generative-ai-creative-jobs/ [https://perma.cc/RCU5-FZYA] (explaining that AI may take many creative jobs but overall will increase productivity); Cade Metz, *OpenAI Unveils A.I. that Instantly Generates Eye-Popping Videos*, N.Y. TIMES (Feb. 15, 2024), https://www.nytimes.com/2024/02/15/technology/openai-sora-videos.html [https://perma.cc/SLY4-JY9E] (describing how AI creates high quality movies in seconds).

9. *Status of All 32 Copyright Lawsuits v. AI (Oct. 7, 2024): David Boies Firm Takes Lead for Kadrey. But Farnsworth Attorneys Want in.*, CHATGPT IS EATING THE WORLD (Oct. 7, 2024), https://chatgptiseatingtheworld.com/2024/10/07/status-of-all-32-copyright-lawsuits-v-ai-oct-7-2024-david-boies-firm-takes-lead-for-kadrey-plaintiffs-but-farnsworth-attorneys-want-in/ [https://perma.cc/ZA9Q-CFWN].

10. *See* Andres Guadamuz, *Authors Sue OpenAI for Copyright Infringement*, TECHNOLLAMA (July 8, 2023), https://www.technollama.co.uk/authors-sue-openai-for-copyright-infringement [https://perma.cc/DS6E-H2KN].

11. Samantha Murphy Kelly, *TV and Film Writers are Fighting to Save Their Jobs from AI. They Won't Be the Last*, CNN BUS. (May 4, 2023) (internal quotations omitted), https://www.cnn.com/2023/05/04/tech/writers-strike-ai/index.html [https://perma.cc/7W4N-JUVG]; *see also* Sarah Whitten, *Actors Union Joins Writers on Strike, Shutting Down Hollywood*, CNBC (July 14, 2023, 11:24 AM), https://www.cnbc.com/2023/07/13/sag-actors-union-goes-on-strike-joining-hollywood-writers.html [https://perma.cc/3JY9-G9LV] (explaining the unions' demands and their rationale for striking).

12. *E.g.*, Daniel Gervais, *Self-Driving Culture*, KLUWER COPYRIGHT BLOG (Nov. 25, 2021), https://copyrightblog.kluweriplaw.com/2021/11/25/self-driving-culture/ [https://perma.cc/6NAS-MUTV].

300 million jobs globally.[13] Some critics even suggest that copyright should be used as a form of "resistance" to protect humans from job displacement—and even to stop AI's deployment to save humanity.[14]

If these controversies were not enough,[15] another major controversy—the focus of this Article—is whether the works people create using generative AI can qualify for copyright. This issue raises a fundamental question of authorship in the age of AI: what does it mean to be an author when using AI?

Legal scholars have debated the copyrightability of computer-generated works for decades,[16] although, because most of the literature was written before ChatGPT, it did not address prompt-engineered AI works, which require some

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13. Jan Hatzius et al., *The Potentially Large Effects of Artificial Intelligence on Economic Growth (Briggs/Kodnani)*, (Mar. 26, 2023, 9:05 PM), https://www.key4biz.it/wp-content/uploads/2023/03/Global-Economics-Analyst_-The-Potentially-Large-Effects-of-Artificial-Intelligence-on-Economic-Growth-Briggs_Kodnani.pdf [https://perma.cc/9JNR-2VBK].

14. *See* Kate Knibbs, *Meet the Lawyer Leading the Human Resistance Against AI*, WIRED (Nov. 22, 2023, 6:00 AM), https://www.wired.com/story/matthew-butterick-ai-copyright-lawsuits-openai-meta/ [https://perma.cc/55UJ-C5W4]; Gervais, *supra* note 12; Christopher Reid, *Will AI Make Creative Workers Redundant? Software Has Turned Human Language Translators into Editors. ChatGPT and Other Programs May Do Something Similar to Writers and Other Artists*, WALL ST. J. (Jan. 9, 2023, 6:15 PM), https://www.wsj.com/articles/will-ai-make-creative-workers-redundant-machine-learning-artificial-intelligence-technology-human-art-1167330 3015 [https://perma.cc/44UR-JQLF].

15. The greatest concern is the fear that humans will lose control over AI or will use it for nefarious purposes—a fear that many AI scientists have. *See* Billy Perrigo, *AI Is as Risky as Pandemics and Nuclear War, Top CEOs Say, Urging Global Cooperation*, TIME (May 30, 2023, 8:29 AM), https://time.com/6283386/ai-risk-openai-deepmind-letter/ [https://perma.cc/JMT4-FHCH]; Will Douglas Heaven, *Geoffrey Hinton Tells us Why He's Now Scared of the Tech He Helped Build*, MIT TECH. REV. (May 2, 2023), https://www.technologyreview.com/2023/05/02/1072528/geoffrey-hinton-google-why-scared-ai/ [https://perma.cc/C7L5-CSML].

16. In 1986, Professor Pamela Samuelson's analysis of the issue was prescient—and brilliant. *See generally* Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 U. PITT. L. REV. 1185 (1986) [hereinafter Samuelson, *Ownership Rights*] (analyzing copyright implications of works composed by computers). Although written before the advent of AI, Samuelson's article identified the various possibilities of who may qualify as the author of a computer-generated work and favored the approach that recognized the user of the program as the author if the user satisfied originality by making a selection or arrangement of elements. *See id.* at 1200–02. Samuelson advanced the same approach in her joint comment to the Copyright Office in its study of AI. *See* PAMELA SAMUELSON ET AL., COMMENTS IN RESPONSE TO THE COPYRIGHT OFFICE'S NOTICE OF INQUIRY ON ARTIFICIAL INTELLIGTENCE AND COPYRIGHT (Oct. 30, 2023), https://www.regulations.gov/comment/COLC-2023-0006-8854 [https://perma.cc/PL7L-KFSQ].

human involvement in their creation.[17] But, within months of ChatGPT's launch, the U.S. Copyright Office addressed the technology in a controversial decision. Upon learning that Kristina Kashtanova used an AI generator to create the images in their[18] graphic novel *Zarya of the Dawn*, the Office canceled the registration for the work.[19] While recognizing the

17. Contemporary debate about the intersection of AI and copyright law centers on the level of human activity required to confer copyright protections onto a machine's works. *See, e.g.*, Haochen Sun, *Redesigning Copyright Protection in the Era of Artificial Intelligence*, 107 IOWA L. REV. 1213, 1230, 1250 (2022); Carys Craig & Ian Kerr, *The Death of the AI Author*, 52 OTTAWA L. REV. 31, 67 (2021); Daniel J. Gervais, *The Machine as Author*, 105 IOWA L. REV. 2053, 2083–84 (2020); Jane C. Ginsburg & Luke Ali Budiardjo, *Authors and Machines*, 34 BERKELEY TECH. L.J. 343, 417 (2019); Shlomit Yanisky-Ravid & Luis Antonio Velez-Hernandez, *Copyrightability of Artworks Produced by Creative Robots and Originality: The Formality-Objective Model*, 19 MINN. J.L. SCI. & TECH. 1, 4–7 (2018); Margot E. Kaminski, *Authorship, Disrupted: AI Authors in Copyright and First Amendment Law*, 51 U.C. DAVIS L. REV. 589, 592 (2017); Robert Denicola, *Ex Machina: Copyright Protection for Computer-Generated Works*, 69 RUTGERS U. L. REV. 251, 270–71 (2016); Annemarie Bridy, *The Evolution of Authorship: Work Made by Code*, 39 COLUM. J.L. & ARTS 395, 398 (2016); James Grimmelmann, *There's No Such Thing as a Computer-Authored Work – and it's a Good Thing, too*, 39 COLUM. J.L. & ARTS 403, 403–04 (2016); Bruce E. Boyden, *Emergent Works*, COLUM. J.L. & ARTS 377, 377–79 (2015); Annemarie Bridy, *Coding Creativity: Copyright and the Artificially Intelligent Author*, 5 STAN. TECH. L. REV. 1, 21 (2012); Sam Ricketson, *The 1992 Horace S. Manges Lecture - People or Machines: The Bern Convention and the Changing Concept of Authorship*, 16 COLUM.-VLA J.L. & ARTS 1, 11 (1992); Evan H. Farr, *Copyrightability of Computer-Created Works*, 15 RUTGERS COMPUT. & TECH. L.J. 63, 65 (1989); Samuelson, *Ownership Rights*, *supra* note 16; Timothy L. Butler, *Can a Computer be an Author—Copyright Aspects of Artificial Intelligence*, 4 HASTINGS COMM. & ENT. L.J. 707, 729 (1981); Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU*?, 106 HARV. L. REV. 977, 1043 (1993); Karl F. Milde, Note, *Can a Computer Be an Author or an Inventor*, 51 J. PAT. OFF. SOC'Y 378, 393 (1969). Recent scholarship started to address generative AI. *See, e.g.*, Mark Lemley, *How Generative AI Turns Copyright Law on its Head*, 25 SCI. & TECH. L. REV. 21, 42 (2024); Ryan Benjamin Abbott & Elizabeth Rothman, *Disrupting Creativity: Copyright Law in the Age of Generative Artificial Intelligence*, 75 FLA. L. REV. 1141, 1149 (2023); Dan Burk, *Cheap Creativity and What It Will Do*, 57 GA. L. REV. 1669, 1672 (2023); P. Bernt Hugenholtz & Joao Pedro Quintais, *Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output?*, 52 IIC – INT'L R. INTELL. PROP. & COMP. L. 1190, 1197 (2021); Andres Guadamuz, *Artificial Intelligence and Copyright*, WIPO MAG. (Oct. 2017), https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html [https://perma.cc/3HVP-NBU5].

18. Kashtanova identifies as non-binary and uses the pronouns "they/them." Kris Kashtanova (@icreatelife), X (Feb. 17, 2023, 12:54 PM), https://x.com/icreatelife/status/1626641202048036864 [https://perma.cc/7AH2-EWZH].

19. Letter from Robert J. Kasunic, Assoc. Reg. of Copyrights and Dir. of Registration Pol'y and Prac., U.S. Copyright Office, to Van Lindberg, Couns. for Kris

copyrightability of graphic novel based on Kashtanova's original selection and arrangement of written and visual elements, the Office ruled that the individual images were not copyrightable.[20] In the Office's view, the images did not satisfy the so-called "traditional elements of authorship" because, while using the AI platform Midjourney, Kashtanova supposedly lacked sufficient control over the images, did not dictate the specific results in each image, and could not predict ahead of time the image rendered on Midjourney due to its reliance on random noise in the process of generation.[21]

Afterwards, the Copyright Office issued a Guidance on Works Containing Material Generated by Artificial Intelligence (AI Guidance) that imposed, on *all* authors seeking registration for all works created with AI tools, a new duty to disclose any AI-generated content and *to exclude* such content from copyright.[22] Under the Copyright Office's sweeping approach, creators must *disclaim* all AI-generated content from copyright.[23]

This Article explains why the Copyright Office's restrictive approach to AI-generated works is wrong. It is based on an untenable view of authorship, one that straitjackets authorship into a rigid formula. Instead of the dynamic process that authorship entails, the Office reduces it to a regimented task that proceeds rigidly in lockstep, allowing no experimentation, interplay, or serendipity in the creative process. The Copyright Office's rigid view of authorship finds no support in the text of the Progress Clause or the Copyright Act, much less any empirical studies that show how such a rigid view describes what authors do in practice. The Office's rigid view conflicts with the liberal construction of the "Writings" of "Authors" in the Progress Clause and ignores its overriding objective to

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Kashtanova, Taylor English Duma LLP (Feb. 21, 2023) [hereinafter *Zarya of the Dawn* decision], https://www.copyright.gov/docs/zarya-of-the-dawn.pdf [https://perma.cc/X2FA-8TX3] (discussing ZARYA OF THE DAWN, Registration No. VAu001480196).

20. *Id.*

21. *Id.* at 8–10.

22. Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16190, 16193 (Mar. 16, 2023) [hereinafter Registration Guidance] (to be codified at 37 C.F.R. § 202). The statutory basis for requiring such information is 17 U.S.C. § 409(10), a catchall provision that gives the Register of Copyrights the power to require "any other information regarded by the Register of Copyrights as bearing upon the preparation or identification of the work or the existence, ownership, or duration of the copyright." 17 U.S.C. § 409(10).

23. Registration Guidance, *supra* note 22, at 16193.

promote progress in the United States by incentivizing creators to create and disseminate their works to the public.[24] The Office's view of "Authors" also renders the Progress Clause at odds with its own patent portion, which imposes no restriction on the manner by which "Inventors" invent.[25]

Part I explains generative AI and prompt-engineering, and summarizes the circuitous evolution of the Copyright Office's position regarding human authorship and its newfound requirement of the so-called "traditional elements of authorship," a term no federal court has ever used in a copyright decision in over two centuries of U.S. copyright law.

Part II returns to the first principles of authorship under the Progress Clause and its overriding objective to "promote progress." Under these first principles, the proper test of authorship examines whether the person contributes a minimal level of creativity in the origination of the work, which may be satisfied simply by an individual's selection or arrangement of elements in the work.[26] The requisite level is, as the Supreme Court emphasized, "extremely low."[27] There is no constitutional restriction imposed on the process of authorship, much less any expectation of a set path that all authors must take in lockstep. But the scope of copyright for works whose originality lies in the selection of its elements is thin, only protecting against identical copies.[28] Under this approach, works created with a minimal level of creativity such as in the selection or arrangement of elements are eligible for copyright, while works created autonomously and without human input in the creation of the specific works are ineligible. This approach is more faithful to the Progress Clause and Supreme Court precedent, and it preserves Congress's power to decide how best to promote progress. It also aligns with the developing approaches to the copyrightability of AI-assisted works in China, the EU, and South Korea based on a person's selection, arrangement, or creative input. By avoiding disadvantaging U.S. authors, such harmonization itself promotes progress.

Part III critiques the Copyright Office's position on AI-generated works and shows why its approach is wrong and

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24. *See* Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 58 (1884).

25. *See id.* at 56, 59.

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

27. *Id.*

28. *Id.* at 349 (noting that the thin copyright in a factual compilation is not infringed if "the competing work does not feature the same selection and arrangement").

ultimately unworkable. It runs counter to the Supreme Court's liberal construction of the "Writings" of "Authors" and misunderstands the creative process.

Ultimately, the Office's approach puts American creators, especially the movie industry, at a serious disadvantage compared to foreign authors, who are exempt from the registration requirement for works of foreign origin.[29] The Copyright Office's position is not only unworkable, but also obsolete, given new AI tools, such as inpainting, that already enable people to edit and control every aspect of images in near limitless ways. The burden of the Copyright Office reviewing every registration application involving any generative-AI content—potentially hundreds of thousands each year—is a task simply not worth its cost. And it will entangle the Office in making subjective distinctions between hundreds of thousands, if not millions, of artistic works based on the content in the works, which will raise serious First Amendment problems.

I. THE COPYRIGHT OFFICE'S REQUIREMENT OF TRADITIONAL ELEMENTS OF AUTHORSHIP TO QUALIFY AS A HUMAN AUTHOR

This Part traces the development of the Copyright Office's so-called "traditional elements of authorship." Under this rigid view of authorship, creators must avoid randomness, must exercise sufficient control to dictate the specific results in the final work, and must be able to predict ahead of time, at time one, or conception, the specific piece that will result at time two, or production. Because the Office's doctrine is a constitutional interpretation of "Authors" in the Progress Clause, it will, if embraced by the courts, leave no room for Congress ever to adopt a more liberal construction.

A. *Generative AI: Creating Through Text Prompts*

Before examining the Copyright Office's requirement of the traditional elements of authorship, it is helpful to have a basic understanding of the models that underlie AI generators.[30]

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29. Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, as revised at Paris, July 24, 1971, art. 5(2), 828 U.N.T.S. 221 [hereinafter Berne Convention] ("The enjoyment and the exercise of these rights shall not be subject to any formality . . . .").

30. For a more detailed discussion, see generally Katherine Lee et al., *Talkin' 'Bout AI Generation: Copyright and the Generative-AI Supply Chain*, J. COPYRIGHT SOC'Y USA (forthcoming 2024).

1. LLMs and Diffusion Models

LLMs, such as ChatGPT, consist of artificial neural networks, which mimic how neurons in the brain transmit signals to send information to each other.[31] A neural network relies on a transformer, a deep-learning model[32] that processes "vast amounts of text, spot[s] patterns in how words and phrases relate to each other, and then make[s] predictions about what words should come next."[33] GPT stands for generative pre-trained transformer.[34] LLMs are typically trained on vast amounts of data and content, much of it copyrighted, often derived from the scraping of online content compiled by various entities into large datasets.[35]

For LLMs, the AI training involves a process called *tokenization*, in which the model itself breaks down the text from the materials on which it is trained and translates the text into tokens (i.e., units of text that may be short words, sub-words divided from a word, and punctuation).[36] During this

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31. *See* David Nield, *How ChatGPT and Other LLMs Work—and Where They Could Go Next*, WIRED (Apr. 30, 2023, 7:00 AM), https://www.wired.com/story/how-chatgpt-works-large-language-model/ [https://perma.cc/4QEP-X7MG]; *What is a Neural Network?*, IBM, https://www.ibm.com/topics/neural-networks [https://perma.cc/KBJ4-8CCG].

32. The key breakthrough for generative AI was the transformer, which relied on a "self-attention" mechanism, allowing the LLM to learn on its own. *See* Nirodya Pussadeniya, *Attention is the Key: Understanding the Transformer Architecture*, MEDIUM (Feb. 14, 2023), https://medium.com/@Nirodya_Pussadeniya/attention-is-the-key-understanding-the-transformer-architecture-38f6acc2c313 [https://perma.cc/NTD3-8J6A].

33. Nield, *supra* note 31.

34. *See* Ryan Chacon, *What Does GPT Stand For?*, IOT FOR ALL (June 8, 2023), https://www.iotforall.com/what-does-gpt-stand-for [https://perma.cc/4D4D-DJNK].

35. Sorab Ghaswalla, *Navigating Uncharted Legal Waters: Copyright Concerns Surrounding Large Language Models*, MEDIUM (Nov. 28, 2023), https://sorabg.medium.com/navigating-uncharted-legal-waters-copyright-concerns-surrounding-large-language-models-87d18ddbcbcd [https://perma.cc/3JBL-9G4N]; *see* Bernard Marr, *20+ Amazing (And Free) Data Sources Anyone Can Use To Build AIs*, FORBES (May 17, 2023, 2:18 AM), https://www.forbes.com/sites/bernardmarr/2023/05/17/20-amazing-and-free-data-sources-anyone-can-use-to-build-ais/ [https://perma.cc/5JTM-43D9].

36. *See* Vijayarajan Alagumalai, *Demystifying the Architecture of ChatGPT: A Deep Dive*, LINKEDIN (Mar. 10, 2023), https://www.linkedin.com/pulse/demystifying-architecture-chatgpt-deep-dive-vijayarajan-a/ [https://perma.cc/8N76-53BK]. Google Brain scientists invented the transformer and published an article about it in 2017, which, ironically, led to the key insight for OpenAI scientists to develop ChatGPT, now a competitor or threat to Google's search engine. *See How Google Gave the Key Breakthrough Technology for ChatGPT to OpenAI*, CHATGPT IS EATING THE WORLD

process of tokenization, the LLM assigns each token various weights (or numerical values) based on the LLM's assessment of the relative importance of each token in a sentence and the statistical relationships among tokens.[37] From these assigned weights, or *embeddings*, the LLM predicts what words should come next, such as in response to a person's query or prompt.[38] The AI researcher and entrepreneur Mustafa Suleyman likens this process to the AI "autocomplet[ing] what might come next."[39] But, instead of just autocompleting a word or sentence, LLMs can autocomplete entire essays and more.

Diffusion models offer a way to generate visual works, such as images and other media. Similar to LLMs, diffusion models involve training on large datasets that include visual works paired with corresponding text descriptions (i.e., image-text pairs).[40] The diffusion model's training involves "destroying training data through the successive addition of Gaussian noise, and then learning to recover the data by *reversing* this noising process."[41] During the forward diffusion process, the model adds random noise in successive steps in a Markov chain, which is a "sequence of variables in which the state of one variable depends only on the state of the previous variable."[42] Then, in the reverse process to generate a new image, the model does not rely on the original images involved at the start of the forward process but instead, "goes to some new point in the

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(Aug. 15, 2023), https://chatgptiseatingtheworld.com/2023/08/15/how-google-gave-the-key-breakthrough-technology-for-chatgpt-to-openai/ [https://perma.cc/S4S5-ZCWH].

37. *See* Ruhma Khawaja, *Demystifying Embeddings 101: The Foundation of Large Language Models*, DATA SCIENCE DOJO (Aug. 17, 2023), https://datasciencedojo.com/blog/embeddings-and-llm/ [https://perma.cc/GMR3-RBCC]; Jon Evans, *Attention is All You Need to Understand*, GRADIENT ASCENDANT (Apr. 19, 2023), https://aiascendant.substack.com/p/attention-is-all-you-need-to-understand [https://perma.cc/7YZF-8N3Z].

38. *See* Evans, *supra* note 37.

39. SULEYMAN, *supra* note 6, at 63.

40. *See* Ryan O'Connor, *Introduction to Diffusion Models for Machine Learning*, ASSEMBLYAI (May 12, 2022), https://www.assemblyai.com/blog/diffusion-models-for-machine-learning-introduction/ [https://perma.cc/2B3N-CCMT]; Naman Soni, *Midjourney: Bridging LLM and Diffusion Models for Smarter Images*, LINKEDIN (May 26, 2023), https://www.linkedin.com/pulse/midjourney-bridging-llm-diffusion-models-smarter-images-naman-soni/?trk=pulse-article_more-articles_related-content-card [https://perma.cc/CY6R-VCXR].

41. O'Connor, *supra* note 40.

42. *See* Rostyslav Demush, *How Midjourney and Other Diffusion Models Create Images from Random Noise*, DZONE (Apr. 22, 2023), https://dzone.com/articles/how-midjourney-and-other-diffusion-models-create-i [https://perma.cc/ZG52-JVHN].

distribution . . . , thus producing a new image."[43] These new points exist in the so-called "latent space"[44] and are called *latent or random seeds*.[45] The AI text-to-image generators Midjourney and Stable Diffusion utilize diffusion models.[46] Image generators also typically incorporate a pretrained model (e.g., CLIP, or Contrastive Language-Image Pre-training) to process a person's text prompts to create images and, conversely, to describe a person's uploaded images by text.[47]

2. Random Noise to Ensure Uniqueness versus Seed Numbers for Control Over AI Image Generation

A key feature of text-to-image generators is the inclusion of random noise in the training of the model and the generation of an image from a random seed. This approach is designed to produce unique images, even if they are similar in many aspects to other images produced by the same text prompt.[48] Some platforms, such as Midjourney and Stable Diffusion enable creators to control the image by designating the random seed. If a creator knows the seed number on Stable Diffusion, the creator can generate the exact same image by using the same prompt with the seed number.[49] For example, including the

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43. Nick Ball, *Stable Diffusion with Self-Attention Guidance: Improve Your Images with No Extra Work*, PAPERSPACE, https://blog.paperspace.com/stable-diffusion-with-self-attention-guidance/ [https://perma.cc/2B73-6HMB].

44. *See* Ian Stenbit et al., *A Walk Through Latent Space with Stable Diffusion*, KERAS.IO (Sept. 28, 2022), https://keras.io/examples/generative/random_walks_with_stable_diffusion/ [https://perma.cc/U4RG-7NVS]; Jay Alammar, *The Illustrated Stable Diffusion*, JAY ALAMMAR (Nov. 2022), https://jalammar.github.io/illustrated-stable-diffusion/ [https://perma.cc/6KAW-KCZK].

45. *See Seeds*, MIDJOURNEY, https://docs.midjourney.com/docs/seeds [https://perma.cc/VZN3-LDVE]; *Diffusion Models: A Practical Guide*, SCALE, https://scale.com/guides/diffusion-models-guide [https://perma.cc/C3J2-H3N7].

46. Soni, *supra* note 40; Jared Newman, *ChatGPT? Stable Diffusion? Generative AI Jargon, Explained*, FAST CO. (Dec. 27, 2022, 8:00 AM), https://fastcompanyme.com/technology/chatgpt-stable-diffusion-generative-ai-jargon-explained/ [https://perma.cc/3APJ-K5AK].

47. *See* Onkar Mishra, *Stable Diffusion Explained*, MEDIUM (June 8, 2023), https://medium.com/@onkarmishra/stable-diffusion-explained-1f101284484d [https://perma.cc/9Z2E-DMEN]; Yuxuan Ding et al., The CLIP Model is Secretly an Image-to-Prompt Converter 10 (Feb. 15, 2024), https://arxiv.org/pdf/2305.12716v2 [https://perma.cc/D83K-ZPVL].

48. *See* Matthew Sag, *Copyright Safety for Generative AI*, 61 HOUS. L. REV. 295, 324 (2023) ("The introduction of noise at t=0 (before the first step) means that the unpacked image at t=T (the final step) will be different every time.").

49. *See Does Stable Diffusion Always Produce the Same Picture if the Same Seed is Used?*, UNI MATRIX ZERO (May 2, 2023), https://unimatrixz.com/blog/latent-space-

seed number 438233955 with a prompt for a beautiful girl with red hair produces the same character in the image each time.[50] The seed number enables the creator to know ahead of time what the image will be.

Midjourney offers a similar functionality with seed numbers, although Midjourney states that the images generated will be "similar" but not identical.[51] By using prompts with seed numbers, creators resemble computer programmers giving specific instructions to computers. Under copyright law, computer programmers are considered authors of both the program and the visual display elements.[52] Some in the technology sector describe prompt engineering as a new kind of programming.[53]

3. Rapid Development of New Functionalities, Including Inpainting

AI platforms are rapidly developing and adding new functionalities with the release of each new version. These advances often are more impressive with each iteration. The rapidly developing nature of AI platforms militates in favor of a cautious approach when fashioning new legal rules.[54] To echo Justice David Souter's admonition at the advent of the World

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stable-diffusion-seed-deterministic/ [https://perma.cc/2MYN-S58G]; *Guide: What is a Stable Diffusion Seed and How to Use It*, ONCE UPON AN ALGORITHM (Mar. 14, 2023), https://onceuponanalgorithm.org/guide-what-is-a-stable-diffusion-seed-and-how-to-use-it/ [https://perma.cc/QPW5-QLSL]. *See generally Diffusion Models: A Practical Guide*, *supra* note 45 (providing examples of how images can change or stay the same based on a creator's use of a seed number and prompt in Stable Diffusion); Calvin Wankhede, *What is Midjourney AI and How Does it Work?*, ANDROID AUTH. (Mar. 6, 2024), https://www.androidauthority.com/what-is-midjourney-3324590/ [https://perma.cc/9ASG-5DA8] (providing examples of how images can change or stay the same based on a creator's use of a seed number and prompt in Midjourney).

50. *Guide to Using Seed in Stable Diffusion*, GETIMG.AI, https://getimg.ai/guides/guide-to-seed-parameter-in-stable-diffusion [https://perma.cc/CVK9-3NZ5].

51. *See Seeds*, *supra* note 45 ("If you use the same seed number and prompt, you will get similar final images.").

52. *See* Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 81 (D. Mass. 1990).

53. *See* Etienne Oosthuysen, *What is Prompt Engineering?*, MAKING MEANING OF DATA (May 4, 2023), https://www.makingmeaning.info/post/what-is-prompt-engineering [https://perma.cc/Z7KL-QTRU]; Liat Ben-Zur, *Prompt Engineering: The Future of Non-Programming Languages*, LINKEDIN (Nov. 29, 2022), https://www.linkedin.com/pulse/prompt-engineering-future-non-programming-languages-liat-ben-zur/ [https://perma.cc/HM8A-KWMZ].

54. *See* Edward Lee, *Rules and Standards for Cyberspace*, 77 NOTRE DAME L. REV. 1275, 1307–08 (2002).

Wide Web, "we should be shy about saying the final word today about what will be accepted as reasonable tomorrow."[55]

In August 2023, Midjourney added an inpainting function that enables creators to change or edit any element within an image generated on Midjourney.[56] The inpainting functionality has been aptly called a "game-changer."[57] Using text prompts, creators can change, edit, and rearrange every aspect of an image; this process is similar to photoshopping an image simply by using text prompts.[58] Stable Diffusion and DALL-E also have inpainting.[59] In 2024, Midjourney launched a new feature for users to create the same character across multiple images,[60] as well as new functions for style references and personalization, which both enable creators to develop styles and repeat them across images.[61] In fall 2024, Midjourney provided an impressive suite of editing capabilities on its own dedicated platform.[62]

We can expect similar advances in text-to-video generators. OpenAI previewed its new text-to-video generator Sora to much

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55. Denver Area Educ. Telecomm. Consortium v. FCC, 518 U.S. 727, 777 (1996) (Souter, J., concurring).

56. *See* Keisha Oleaga, *Inpainting in Midjourney: A Comprehensive Guide*, NFTNOW (Aug. 30, 2023), https://nftnow.com/ai/inpainting-in-midjourney-a-comprehensive-guide/ [https://perma.cc/5YLK-KZBE].

57. *Id.*

58. *See* Yubin, *Beginner's Guide to Stable Diffusion Inpainting*, AITUTS (Aug. 28, 2023), https://aituts.com/inpainting/ [https://perma.cc/NKH6-9SM6].

59. *See id.*; *DALL·E Editor Guide*, OPENAI, https://help.openai.com/en/articles/6516417-dall-e-editor-guide [https://perma.cc/M99U-MQYY].

60. *See* Carl Franzen, *Midjourney Debuts Feature for Generating Consistent Characters Across Multiple Gen AI Images*, VENTUREBEAT (Mar. 11, 2024, 7:10 PM), https://venturebeat.com/ai/midjourney-debuts-feature-for-generating-consistent-characters-across-multiple-gen-ai-images/ [https://perma.cc/K35P-2M9D].

61. *See Personalization*, MIDJOURNEY, https://docs.midjourney.com/docs/personalization [https://perma.cc/SJE9-TRNN]; sprinkleofai, *How To Use the New Midjourney Style Reference -Sref + 3 Gorgeous Aesthetic Style to Test It!*, SPRINKLE OF AI (Feb. 1, 2024), https://sprinkleofai.com/how-to-use-the-new-midjourney-style-reference/ [https://perma.cc/9N69-K7TT].

62. Lance Whitney, *Midjourney Now Lets You Edit Your AI-Generated Images. Here's How*, ZDNET (Aug. 19, 2024, 8:46 AM), https://www.zdnet.com/article/midjourney-now-lets-you-edit-your-ai-generated-images-heres-how/ [https://perma.cc/BBZ5-GYAN]; Woolyfern, *Midjourney's NEW Image Editor! Repaint, Zoom (Out AND In?), Pan, and Edit | Complete Guide*, YOUTUBE (Aug. 20, 2024), https://youtu.be/n4apjbyNfGE?si=4lZ_xVpcFglfIYWB [https://perma.cc/8DBQ-EGR9].

fanfare.[63] Then Adobe and Meta did.[64] Runway, a startup company, has already offered a versatile video generator.[65] Based on the past two years, AI generators will increase rapidly in capability and quality, a development Hollywood Studios recognizes as discussed later below.

B. *The U.S. Copyright Office's Position on Human Authorship and AI*

This Section summarizes the Copyright Office's position requiring human authorship.[66] The Office has required that works contain the so-called "traditional elements of authorship."[67] To qualify, it must be shown that "the traditional elements of authorship in the work (literary, artistic, or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed" by a human, not by machine.[68] Applying these requirements, the Copyright Office has denied the copyrightability of not only autonomously generated works but also prompt-engineered works made with human contributions.[69]

1. The Copyright Office's Requirement of Human Authorship Is Its Constitutional Interpretation

The Copyright Office's requirement of "human authorship" is its *constitutional* interpretation of "Authors" in the Progress Clause.[70] The Office bases its human authorship requirement

63. *See* Katie Kilkenny, *Tyler Perry Puts $800M Studio Expansion on Hold After Seeing OpenAI's Sora: "Jobs Are Going to Be Lost,"* THE HOLLYWOOD REP. (Feb. 22, 2024, 4:07 PM), https://www.hollywoodreporter.com/business/business-news/tyler-perry-ai-alarm-1235833276/ [https://perma.cc/Q2LC-VB5D].

64. *See* Brody Ford, *Adobe Launches AI Video Generator in Race with OpenAI, Meta*, YAHOO! FIN. (Oct. 14, 2024, 9:00 AM), https://finance.yahoo.com/news/ adobe-launches-ai-video-generator-130000682.html [https://perma.cc/H3S8-JQ2N].

65. *See* Eric Hal Schwartz, *Forget Sora, Runway Is the AI Video Maker Coming To Blow Your Mind*, TECHRADAR (July 2, 2024), https://www.techradar.com/ computing/artificial-intelligence/forget-sora-runway-is-the-ai-video-maker-coming-to-blow-your-mind [https://perma.cc/MY3J-TPSK].

66. *See generally* U.S. COPYRIGHT OFF., COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES §§ 306, 313.2 (3d ed. 2021) [hereinafter 2021 COMPENDIUM], https://www.copyright.gov/comp3/docs/compendium.pdf [https://perma.cc/ENK4-KB9U].

67. *Id.* § 313.2.

68. *Id.*

69. *See id.*

70. U.S. CONST. art. I, § 8, cl. 8.

on *The Trade-Mark Cases*[71] and *Burrow-Giles Lithographic Co. v. Sarony*.[72] Both cases examine congressional power to grant exclusive rights to "Authors" for their "Writings" under the Progress Clause.[73] The Office cites to *The Trade-Mark Cases* and *Burrow-Giles* as the basis for its human authorship requirement.[74] In its cancellation of registration to Kashtanova, the Office based its decision on *Burrow-Giles*'s definition of author.[75] And, in issuing its new AI Guidance, the Office expressly recognized a constitutional basis for its view: "[*T*]*he term 'author,' which is used in both the Constitution and the Copyright Act, excludes non-humans*."[76] However, the Copyright Office's requirement of human authorship and traditional elements of authorship is entitled to no deference in the courts.[77]

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71. 100 U.S. 82 (1879).

72. 111 U.S. 53 (1884); *see* 2021 COMPENDIUM, *supra* note 66, §§ 306, 313.2.

73. *See In re* Trade-Mark Cases, 100 U.S. 82, 94 (1879); Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 58 (1884).

74. *See* 2021 COMPENDIUM, *supra* note 66, § 306.

75. *Zarya of the Dawn* decision, *supra* note 19, at 3. Indeed, the Copyright Office's discussion of the legal standards is replete with references to the Supreme Court's constitutional decisions in *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345 (1991); *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 57–59 (1884); and *In re Trade-Mark Cases*, 100 U.S. 82, 94 (1879). *See Zarya of the Dawn* decision, *supra* note 19, at 3–4 & n.4.

76. Registration Guidance, *supra* note 22, at 16,191–92.

77. *See* First Nat'l Bank in Sioux Falls v. Nat'l Bank of S. Dakota, 667 F.2d 708, 711 (8th Cir. 1981) (stating that agency interpretations of the Constitution are reviewed de novo); Jarita Mesa Livestock Grazing Ass'n v. U.S. Forest Serv., 58 F. Supp. 3d 1191, 1232 (D.N.M. 2014) ("[C]ourts afford agencies no deference in interpreting the Constitution."); 33 CHARLES ALAN WRIGHT, ARTHUR R. MILLER, & EDWARD H. COOPER, FED. PRAC. & PROC. JUDICIAL REV. § 8363 (2008) ("Courts are free to conduct de novo review of an administrative resolution of a constitutional issue."); David Zaring, *Reasonable Agencies*, 96 VA. L. REV. 135, 136 (2010) (stating that review of agency legal determinations sometimes triggers "no deference at all—such as when an agency is interpreting the Constitution"). Courts have not clearly explained the type of deference under the Supreme Court's approach, if any, that the positions of the Copyright Office should be given. *See* Joshua Beldner, Note, *Charlie Daniels and "The Devil" in the Details: What the Copyright Office's Response to the Termination Gap Foreshadows About the Upcoming Statutory Termination Period*, 18 B.U. J. SCI. & TECH. L. 199, 233–37 (2012). "This is particularly true when the decision of the agency is based on an interpretation of a judicial decision that in turn construes the Constitution . . . ." Charter Limousine, Inc. v. Dade Cnty. Bd. of Cnty. Comm'rs, 678 F.2d 586, 588 (5th Cir. 1982).

2. The Evolution of the Copyright Office's Requirement of Human Authorship and the "Traditional Elements of Authorship"

The Copyright Office developed its requirement of human authorship and the traditional elements of authorship to address sundry concerns, including naturally occurring and discovered materials, products of nature, animal creations, putative creations by a higher or divine being, random elements, mechanical processes, and now AI. The Office's precise test of human authorship is difficult to identify, given that it was developed across different editions of the Compendium, the Office's non-precedential decisions denying registration, and the Office's new AI Guidance. And, until recently, the Compendium made no mention of the traditional elements of authorship at all. This Subsection summarizes the evolution.

The Copyright Office first mentioned its human authorship requirement in the first edition of the Compendium as revised in 1973.[78] In denying registration of "a novelty item consisting of transparently clear plastic sheets bonded together around their periphery" with "a small amount of colored liquid petroleum in the air space" between the sheets, the Copyright Office explained that "the specific outlines and contours of the patterns and shapes formed by the liquid petroleum *do not owe their origin to a human agent*."[79] In 2014, the Office further explained that denial was proper because the patterns and shapes "were created by a *naturally occurring phenomenon*."[80] The Compendium's second edition in 1984 provided a general formulation of the human authorship requirement: "The term 'authorship' implies that, for a work to be copyrightable, it must owe its origin to a human being. Materials produced *solely* by nature, by plants, or by animals are not copyrightable."[81] The

78. U.S. COPYRIGHT OFF., COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 2.8.3 (1st ed. 1973) [hereinafter 1973 COMPENDIUM], https://www.copyright.gov/history/comp/compendium-one.pdf [https://perma.cc/L7QV-MMWV].

79. *Id.* (emphasis added).

80. U.S. COPYRIGHT OFF., COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 906.7 (3d ed. 2014) [hereinafter 2014 COMPENDIUM] (emphasis added), https://www.copyright.gov/comp3/docs/compendium-12-22-14.pdf [https://perma.cc/GYR4-FMPH].

81. U.S. COPYRIGHT OFF., COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 202.02(b) (2d ed. 1984) [hereinafter 1984 COMPENDIUM] (emphasis added), https://www.copyright.gov/history/comp/compendium-two.pdf [https://perma.cc/7FWW-H32V].

1984 Compendium also examined creations by mechanical and random processes:

> 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.[82]

The Office's human authorship policy did not require much—just some human contribution to the creation of the work. To be eligible for registration, the work must not be "*solely*" produced by nonhuman agency.

In 2014, the third edition of the Compendium added Supreme Court precedent as the basis for the Office's approach to human authorship.[83] It quoted *Trade-Mark Cases* and *Burrow-Giles*.[84] It also discussed human authorship in greater detail, adding many sections devoted to its application to different types of works.[85]

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82. *Id.* § 503.03(a) (emphasis added).

83. *See* 2014 COMPENDIUM, *supra* note 80, § 306.

84. *See id.*

85. *See id.* ("Because copyright law is limited to 'original intellectual conceptions of the author,' the Office will refuse to register a claim if it determines that a human being did not create the work."); *id.* § 313.2 (explaining examples of works that do not satisfy human authorship, including "works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author"); *id.* § 802.5(C) ("Nor could a musical composition created solely by a computer algorithm be registered."); *id.*, 803.5(C) ("The registration of a sound recording that involves no human performance, such as a recording of nature sounds, is only possible if there is sufficient human production authorship present."); *id.* § 803.6(B) ("Where the changes made to the preexisting sound recording are the result of a purely mechanical process rather than creative human authorship, or where only a few slight variations or minor additions have been made, registration will be refused."); *id.* § 805.4(c) ("Dances performed or intended to be performed by animals, machines, or other animate or inanimate objects are not copyrightable and cannot be registered with the U.S. Copyright Office."); *id.* § 806.4(c) ("Pantomimes performed by animals,

Then, in 2021, the Office revised the Compendium's third edition to include language referring to, for the first time in the Compendium, the so-called "traditional elements of authorship."[86] This language originally appeared in the 1965 annual report by the Register of Copyrights, Abraham Kaminstein, though the report was more tentative than the Compendium in merely suggesting the inquiry for computer-generated works focused on traditional elements of authorship.[87] The Register, concerned with the potential increase in works being "proximately produced" or "written" by computers, stated:

> The crucial question *appears* to be whether the "work" is basically one of human authorship, with the computer merely being an assisting instrument, or whether the *traditional elements of authorship in the work (literary, artistic, or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed not by man but by a machine*.[88]

In 2021, the Office turned this tentative statement into a legal requirement. However, beyond this bare statement and a list of seven examples, the 2021 Compendium did not explain what the traditional elements of authorship are.[89] And no federal

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robots, machines, or any other animate or inanimate object are not copyrightable and cannot be registered with the U.S. Copyright Office."); *id.* § 807.5(c) (discussing audiovisual works); *id.* § 808.7(C) ("A motion picture created by a non-human author, created by a purely mechanical process, or generated solely by preexisting software is not copyrightable."); *id.* § 905 (explaining visual art works); *id.* § 906 (finding no human authorship in works not fixed by a human); *id.* § 906.1 (finding no human authorship in a smooth marble sphere perfectly sculpted by a person); *id.* § 906.7 (finding no human authorship in naturally occurring materials and works whose visual appearances are due to naturally occurring processes); *id.* § 906.6 (finding no human authorship in "[w]orks made through purely mechanical processes or with an automated selection and arrangement"); *id.* § 924.3(D) (finding no human authorship in X-rays or medical images).

86. 2021 COMPENDIUM, *supra* note 66, § 313.2.

87. U.S. COPYRIGHT OFF., SIXTY-EIGHTH ANNUAL REPORT OF THE REGISTER OF COPYRIGHTS FOR THE FISCAL YEAR ENDING JUNE 30, 1965 at 5 (1966), https://www.copyright.gov/reports/annual/archive/ar-1965.pdf [https://perma.cc/58E2-4C9M].

88. *Id.* (emphasis added).

89. *See* 2021 COMPENDIUM, *supra* note 66, § 313.2.

court has ever used "traditional elements of authorship" in a copyright decision.[90]

Yet, an examination of Register Kaminstein's statement provides helpful clues on what he meant.[91] The Register mentions at least two different ways to become an author: (1) by composing the "expression" *or* (2) by "selection" or "arrangement" of the elements. As explained below, in its review of prompt-engineered images, the Copyright Office has all but ignored authorship by selection or arrangement, while imposing rigid "traditional" requirements.

3. Copyright Office's Denial of Registrations to AI-Generated Works

After revising the Compendium, the Copyright Office applied its inchoate human authorship requirement in three decisions rejecting copyright registration for AI-generated works. These works, however, differed in degree of human contribution and involvement in creation. The visual work "A Recent Entrance to Paradise," produced by Steven Thaler's Creativity Machine, was autonomously generated by AI with no asserted human contribution by Thaler.[92] By contrast, the images in Kashtanova's graphic novel and Jason Allen's artwork were created with some human contribution—their prompt engineering involved writing hundreds of prompts on Midjourney, which effectuated their selections or arrangements

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90. The Copyright Office did not even use the term in its 2023 brief to the district court to support its denial of registration of an autonomously-generated AI work. *See* Defendants' Response to Plaintiff's Mot. for Summ. J. and Cross Motion for Summ. J., Thaler v. Perlmutter, No. 22-CV-01564 (D.D.C. filed Feb. 7, 2023) (mentioning only "traditional human authorship" when quoting plaintiff's brief), https://storage.courtlistener.com/recap/gov.uscourts.dcd.243956/gov.uscourts.dcd.243956.17.0.pdf [https://perma.cc/RR3N-CYKD]. Only later, in the appeal of this decision in 2024, did the Copyright invoke the "traditional elements of authorship." Brief for Appellees, Thaler v. Perlmutter, No. 23-5233 (D.C. Cir. filed Mar. 6, 2024), at 11, 13, 33, 39, https://www.copyright.gov/ai/docs/us-brief-for-appellees.pdf [https://perma.cc/Q4TW-E87P].

91. In testimony before Congress that same year, Kaminstein admonished the need for a "strong, practical copyright" to ensure that "creative activity will continue." *Copyright Law Revision: Hearings Before the Subcomm. on Pats., Trademarks, and Copyrights of the Comm. On the Judiciary*, 89th Cong. 65 (1965) (testimony of Abraham Kaminstein, Register of Copyrights, U.S. Copyright Office).

92. U.S. COPYRIGHT OFF. REV. BD., SECOND REQUEST FOR RECONSIDERATION FOR REFUSAL TO REGISTER A RECENT ENTRANCE TO PARADISE SPATIAL at 2 (Feb. 14, 2022), [hereinafter A RECENT ENTRANCE decision], https://www.copyright.gov/rulings-filings/review-board/docs/a-recent-entrance-to-paradise.pdf [https://perma.cc/D2NF-ZSUG].

of elements in their images.[93] Yet, notwithstanding their respective human contributions, the Office rejected the registration of all their images as putatively lacking the traditional elements of authorship.[94]

a. *Thaler*: Autonomously Generated AI Works

In 2022, the Copyright Office rejected the copyright registration of the autonomously generated artwork "A Recent Entrance to Paradise," produced by Steven Thaler's Creativity Machine.[95] The *only* author identified on the application was the computer program, the Creativity Machine.[96] Thaler did not assert any contribution from a human author, much less that he or any human created the work.[97] Instead, as a test case for autonomously generated AI works, Thaler told the Copyright Office that the work "was *autonomously* created by a computer algorithm running on a machine" and that he was "seeking to register this computer-generated work as a work-for-hire to the owner of the Creativity Machine."[98] In denying Thaler's first request for reconsideration, the Office explained that Thaler "provided no evidence on sufficient creative input or intervention by a human author in the Work."[99] The Office relied on its longstanding policy requiring human authorship for registration.[100]

Because the work "A Recent Entrance to Paradise" involved no asserted human authorship, the Copyright Office said it did "not need to determine under what circumstances human involvement in the creation of machine-generated works would meet the statutory criteria for copyright protection."[101] The Office was therefore equivocal on the test of human authorship.

Some passages in the decision suggest a "minimal level of creativity" requirement. The Office quoted a passage from the

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93. *See Zarya of the Dawn* decision, *supra* note 19, at 1; U.S. COPYRIGHT OFF. REV. BD., SECOND REQUEST FOR RECONSIDERATION FOR REFUSAL TO REGISTER THÉÂTRE D'OPÉRA SPATIAL at 2 (Sept. 5, 2023) [hereinafter THÉÂTRE D'OPÉRA SPATIAL decision], https://fingfx.thomsonreuters.com/gfx/legaldocs/byprrqkqxpe/AI%20COPYRIGHT%20REGISTRATION%20decision.pdf [https://perma.cc/XF48-N468].

94. *See Zarya of the Dawn* decision, *supra* note 19, at 1; THÉÂTRE D'OPÉRA SPATIAL decision, *supra* note 93, at 1.

95. A RECENT ENTRANCE decision, *supra* note 92, at 1.

96. *Id.* at 2.

97. *Id.*

98. *Id.* (emphasis added).

99. *Id.*

100. *Id.* at 3–4.

101. *Id.* at 3 n.3.

1978 report of the National Commission on New Technological Uses of Copyrighted Works (CONTU), which was issued as a study before the passage of the 1976 Copyright Act: "[T]he eligibility of any work for protection by copyright depends not upon the device or devices used in its creation, but rather upon the presence of *at least minimal human creative effort at the time the work is produced*."[102] Notably, the CONTU report took the position that the Copyright Act did not need an amendment for works generated with computers, an emerging technology at the time, to be protected under existing copyright law.[103] But other passages in the Copyright Office's decision suggest a higher requirement of "the traditional element[s] of authorship."[104]

The district court upheld the Copyright Office's decision.[105] Judge Beryl A. Howell recognized that a work that involves some human contribution will present more difficult questions, such as "how much human input is necessary to qualify the user of an AI system as an 'author' of a generated work."[106] The next Subsection discusses the Office's answer to that question.

b. Human Prompt-Engineered AI Images: *Kashtanova* and *Allen*

In a subsequent case, the Copyright Office denied registration of images a creator made using AI text-to-image generation. The Office set a higher bar of human authorship by requiring human control over the entire creative process, including the creator's prediction of specific results before the final work is produced, the creator's dictation of the specific results, and the creator's avoidance of random elements. These requirements go far beyond a minimal level of creativity. They also ignore authorship through selection or arrangement. Even though the Office's 2023 AI Guideance recognizes that

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102. NAT'L COMM'N ON NEW TECH. USES OF COPYRIGHTED WORKS, FINAL REPORT ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, WASHINGTON, D.C. 111 (1978) [hereinafter CONTU] (emphasis added).

103. *Id.* at 2 ("Works created by the use of computers should be afforded copyright protection if they are original works of authorship within the Act of 1976. Consequently no amendment is needed.").

104. *Id.* at 108 (quoting U.S. COPYRIGHT OFF., SIXTY-EIGHTH ANNUAL REPORT OF THE REGISTER OF COPYRIGHTS FOR THE FISCAL YEAR ENDING JUNE 30, 1965 5 (1966)).

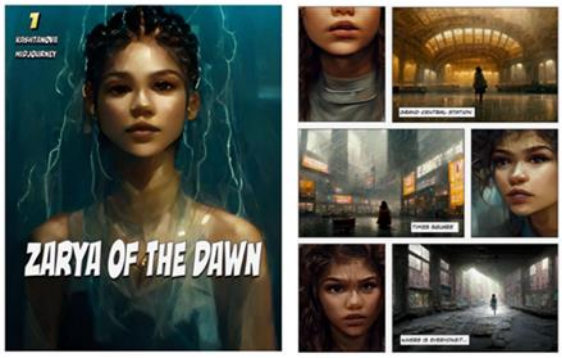
105. *See* Thaler v. Perlmutter, 687 F. Supp. 3d 140, 150 (D.D.C. 2023), *appeal filed*, No. 23-5233 (D.C. Cir. Oct. 18, 2023).

106. *Id.* at 149.

authorship can exist in a person's selection or arrangement,[107] the Office did not analyze this form of authorship with respect to the individual visual works at issue.

In 2022, Kristina Kashtanova, who identifies as non-binary,[108] created a short, eighteen-page graphic novel titled *Zarya of the Dawn*.[109] The story is about "[a]n adventure of a non-binary person [named Zarya, which means dawn in Russian,] in different worlds to gather mental health tools to be able to handle their emotions and thoughts and to find connection with other people and creatures."[110] Figure 1 shows the cover and a page from Kashtanova's graphic novel.[111]

Figure 1. The Cover and a Page from Kashtanova's Zarya of the Dawn



In partly denying the copyright registration of the work, the Copyright Office ruled: (1) "Kashtanova is the author of the Work's text as well as the selection, coordination, and arrangement of the Work's written and visual elements," but (2) "the images in the Work that were generated by the

107. Registration Guidance, *supra* note 22, at 16192.

108. *See supra* note 18.

109. Kris Kashtanova (@kris.kashtanova), INSTAGRAM (Sept. 23, 2022), https://www.instagram.com/p/Ci1rUY8O3Bu/ [https://perma.cc/MVD5-2ZED].

110. *See Zarya Of the Dawn by Kristina Kashtanova: Download Now!*, AICOMICBOOKS.COM, https://aicomicbooks.com/book/zarya-of-the-dawn-by-kristina-kashtanova-download-now/ [https://perma.cc/XM3D-WKBT]. Kashtanova first developed the character Zarya in September 2021 using Cinema4D after the deaths of their best friend and their grandmother. *See* Kris Kashtanova (@kris.kashtanova), INSTAGRAM (Sept. 23, 2022), https://www.instagram.com/p/Ci3EDTaJFKK/?img_index=1 [https://perma.cc/8GKY-HXCS].

111. To accomodate the print version of this Article, images in the print edition are in black and white; images in the online version are in color.

Midjourney technology are not the product of human authorship."[112] Therefore, Kashtanova was entitled to copyright in their text of the graphic novel, plus their selection, coordination, and arrangement of the combination of words and images.[113] But the images that Kashtanova created using an AI text-to-image generator were not copyrightable—and are, thus, free for everyone to copy.[114]

Unlike the visual work in the *Thaler* case, the images in Kashtanova's graphic novel were not autonomously generated. Instead, they involved works created by a person using the AI text-to-image generator Midjourney.[115] The generation involved *some contribution by a human*, at the very least in the selection of the elements. Kashtanova generated the images on Midjourney (and, for some images, edited them on Photoshop), through a process of trial-and-error using hundreds of text prompts.[116] But the Office found that these contributions by Kashtanova were not sufficient to satisfy the so-called "traditional elements of authorship."[117]

First, while recognizing that Kashtanova "expend[e]d significant time and effort" in the generation of the images, the Office dismissed it as irrelevant.[118] The Office characterized Kashtanova's creative effort as merely labor, or the "sweat of the brow," and cited its general approach, stated in the Compendium, that the Office "will not consider the amount of time, effort, or expense required to create the work" because such expenditures "have no bearing on whether a work possesses the minimum creative spark required by the Copyright Act and the Constitution."[119] Apparently, the Office sees no difference between the unimaginative, rote effort needed to compile phone numbers for a phone book and the *creative* effort needed to create a visual work for a new graphic novel about a new character. That conflation conflicts with one indicator of authorship that the CONTU report recognized: "*minimal human creative effort at the time the work is*

112. *Zarya of the Dawn* decision, *supra* note 19, at 1.

113. *Id.* at 5 ("Specifically, the Office finds the Work is the product of creative choices with respect to the selection of the images that make up the Work and the placement and arrangement of the images and text on each of the Work's pages.").

114. *Id.* at 10.

115. *Id.* at 8.

116. *Id.*

117. *See* Registration Guidance, *supra* note 22, at 16192; *Zarya of the Dawn* decision, *supra* note 19, at 12.

118. *Zarya of the Dawn* decision, *supra* note 19, at 10.

119. *Id.*

produced."[120] It also conflicts with Supreme Court precedent, which recognizes that the overriding goal of the Progress Clause is to incentivize "individual effort" to create works.[121]

More fundamentally, the Copyright Office disqualified Kashtanova's image from registration because of the creative process they used: it involved an element of randomness. As the Office explained, "Because Midjourney starts with randomly generated noise that evolves into a final image, there is no guarantee that a particular prompt will generate any particular visual output."[122] In rejecting Kashtanova's registration, the Office disqualified their images due to the AI's reliance on random noise:

> Rather than a tool that Ms. Kashtanova controlled and guided to reach her desired image, Midjourney generates images *in an unpredictable way*. Accordingly, Midjourney users are not the "authors" for copyright purposes of the images the technology generates. . . .
>
> The information in the prompt may "influence" generated image, but prompt text *does not dictate a specific result*. . . . Midjourney users *lack sufficient control over generated images* to be treated as the "master mind" behind them.
>
> The fact that Midjourney's specific output *cannot be predicted by users* makes Midjourney different for copyright purposes than other tools used by artists.[123]

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120. CONTU, *supra* note 102.

121. *See* Mazer v. Stein, 347 U.S. 201, 219 (1954) ("The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction *that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors* and inventors in 'Science and useful Arts.' *Sacrificial days devoted to such creative activities deserve rewards commensurate with the services rendered*." (emphasis added)); Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 429 (1984) ("[T]he limited grant is a means by which an important public purpose may be achieved. It is intended to motivate *the creative activity of authors* . . . by the provision of a special reward, and to allow the public access to the products of their genius after the limited period of exclusive control has expired." (emphasis added)).

122. *Zarya of the Dawn* decision, *supra* note 19, at 9–10.

123. *Id.* at 9 (emphasis added). The Copyright Office described Midjourney's generation of images as unpredictable. *See id.* Because the generation is unpredictable to the users, the Copyright Office explained that any one user is not

The Copyright Office's ruling in *Kashtanova* goes well beyond the requirement of minimal human contribution to the creation of a work. Instead, the Office required Kashtanova to satisfy the so-called "traditional elements of authorship" by exercising "sufficient control over generated images," by avoiding randomness in image generation, by using text prompts that "dictate a specific result," and by using text prompts in a manner that creators can predict, apparently even before using the AI generator. Because random visual noise is an inherent feature of Midjourney, the Copyright Office's restrictive approach would disqualify *all* unedited images generated on Midjourney from copyright. Indeed, the Office's rigid approach would likely disqualify from copyright all AI works created with any element of random noise.

The Office left open one sliver of hope for Kashtanova. If they edited an image generated on Midjourney with sufficient human contribution, the editing would constitute Kashtanova's authorship.[124] But the Office explained that Kashtanova's changes to Zarya's mouth were "too minor and imperceptible to supply the necessary creativity for copyright protection."[125]

In September 2023, the Copyright Office used its same "traditional elements of authorship" requirement to deny the copyrightability of "Théâtre D'opéra Spatial," an image created by Jason Allen using Midjourney.[126] Figure 2[127] shows Allen's edited and highly detailed final work (on the right), along with the original image that he created on Midjourney (on the left):

"the inventive or master mind" behind the formation of the picture. *Id.* at 9 (quoting Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 60–61 (1884)). The Copyright Office gave undue weight to the concept of "master mind" from *Burrow-Giles*. The Supreme Court quoted the word from the British Queen's Bench Division's decision in *Nottage v. Jackson* that recognized authorship in photographs. *See* Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 60–61 (1884) (referencing Nottage v. Jackson (1883) 11 QBD 627 (Eng.)). But, since the dicta in *Burrow-Giles*, the Court has never again used the word "master mind" to describe a requirement of authorship.

124. *See Zarya of the Dawn* decision, *supra* note 19, at 11–12.

125. *Id.* at 10–11.

126. THÉÂTRE D'OPÉRA SPATIAL decision, *supra* note 93, at 1.

127. *Id.* at 6.

Figure 2. Jason Allen's "Théâtre D'opéra Spatial"

Midjourney Image The Work

Allen's work won an award in the digital arts category at Colorado's State Fair, although not without some backlash from other artists.[128] Allen told the Copyright Office that he wrote and used at least 624 inputs and text prompts to create the image on Midjourney and then "used Adobe Photoshop to remove flaws and create new visual content and used Gigapixel AI to 'upscale' the image, increasing its resolution and size."[129] In applying its requirement of the traditional elements of authorship, the Office ruled that "Allen's claim that human authored 'visual edits' made with Adobe Photoshop contained a sufficient amount of original authorship to be registered" but that the initial image Allen created on Midjourney and his refinements on Gigapixel AI were authored by AI, not Allen.[130] Because Allen refused to disclaim the latter elements from his application, the Office denied the entire registration.[131]

128. *See* Sarah Kuta, *Art Made With Artificial Intelligence Wins at State Fair*, SMITHSONIAN MAG. (Sept. 6, 2022), https://www.smithsonianmag.com/smart-news/artificial-intelligence-art-wins-colorado-state-fair-180980703/ [https://perma.cc/UF6A-BKBH]; Kevin Roose, *An A.I.-Generated Picture Won an Art Prize. Artists Aren't Happy.*, N.Y. TIMES (Sept. 2, 2022), https://www.nytimes.com/2022/09/02/technology/ai-artificial-intelligence-artists.html [https://perma.cc/X3R5-BFZ2].

129. THÉÂTRE D'OPÉRA SPATIAL decision, *supra* note 93, at 2.

130. *Id.*

131. *Id.* at 3. In September 2024, Allen filed a lawsuit in district court seeking a reversal of the Copyright Office's decision and a declaration that his work is an original work of authorship. *Jason Allen v. Shira Perlmutter Complaint. Seeks Declaration AI-Prompted Théâtre D'opéra Spatial is Work of Authorship*, CHATGPT IS EATING THE WORLD (Sept. 27, 2024), https://chatgptiseatingtheworld.com/2024/09/27/jason-allen-v-shira-perlmutter-complaint-seeks-declaration-ai-prompted-theatre-dopera-spatial-is-work-of-authorship/ [https://perma.cc/DG8T-K5M9]. *See generally* Complaint, Allen v. Perlmutter, No. 24-cv-2665 (D. Colo. Sept. 26, 2024).

4. The Copyright Office's New AI Guidance: The Duty to Disclose and Exclude AI-Generated Content from Copyright

The sweeping nature of the Office's newfound requirements of human authorship soon became apparent. Less than a month after the Kashtanova decision, the Copyright Office issued new guidance applying to *all* applications for copyright registration of *all* AI-generated works.[132] Under the Office's new AI Guidance, applicants for copyright registration have a "duty to disclose the inclusion of AI-generated content in a work" and "provide a brief explanation of the human author's contributions to the work."[133] Works generated based on text prompts do not satisfy human authorship.[134] Therefore, in addition to the duty to disclose, registrants have a duty to exclude AI-generated content that is more than de minimis."[135]

The Copyright Office's new guidance reiterated its "traditional elements of authorship" requirement from the Compendium.[136] For AI, "[t]he answer will depend on the circumstances, particularly how the AI tool operates and how it was used to create the final work."[137] According to the Office, "[t]his is necessarily a case-by-case inquiry."[138] But that statement is belied by the broad sweep of the Copyright Office's own analysis, which excludes works generated by current technology using prompt engineering.[139] This is not a case-by-case analysis. Instead, it categorically rejects AI-generated works "when an AI technology receives solely a prompt from a human and produces complex written, visual, or musical works in response."[140]

The AI Guidance identifies two examples in which a human creator can qualify as an author for contributions beyond "the AI-generated material itself."[141]

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132. Registration Guidance, *supra* note 22, at 16191.

133. *Id.* at 16193.

134. *Id.* at 16192 ("For example, when an AI technology receives solely a prompt from a human and produces complex written, visual, or musical works in response, the 'traditional elements of authorship' are determined and executed by the technology—not the human user.").

135. *Id.* at 16193.

136. *Id.*

137. *Id.* at 16192.

138. *Id.*

139. *Id.*

140. *Id.*

141. *Id.* at 16193.

> For example, a human *may select or arrange AI-generated material* in a sufficiently creative way that "the resulting work as a whole constitutes an original work of authorship." Or an artist *may modify material originally generated by AI technology* to such a degree that the modifications meet the standard for copyright protection.[142]

Thus, the Office must engage in case-by-case review of any *additional* selection or editing a creator performed *after* creating the image through an AI generator, such as Kashtanova's compilation of text and images in their novel or Allen's editing of his image. But the AI-generated works themselves are not copyrightable.

In sum, the Copyright Office's approach to AI-prompt-generated works has two parts: (1) a creator using AI text-to-image generators will not satisfy the traditional elements of authorship if, as typical with AI generators, the final work was generated through a process incorporating a random element deemed by the Office to be "unpredictable," but (2) a creator can satisfy the traditional elements of authorship by editing the work with sufficient human contribution. Thus, the AI generation of an image through prompts is *never* eligible for copyright if, as is typical, random noise is involved in the image's creation.[143]

5. The Copyright Office's Notice of Inquiry and AI Study

During the writing of this Article, the Copyright Office issued a notice of inquiry for its study on AI that sought comments from the public about many issues related to AI and copyright law, including the issue of authorship.[144] The Office received over ten thousand public comments.[145] I submitted a

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142. *Id.* at 16192–93 (emphasis added).

143. Based on this approach, the Copyright Office also denied registration of digital work SURYAST, a photograph taken by Anki Sahni edited in the style of Van Gogh with an AI app. *See* SURYAST, # 1-11016599571 (Copyright Rev. Bd. Dec. 11, 2023) (final admin. review), https://www.copyright.gov/rulings-filings/review-board/docs/SURYAST.pdf [https://perma.cc/RUR4-8ZHX].

144. *See* Artificial Intelligence and Copyright, 88 Fed. Reg. 59942, 59943 (Aug. 30, 2023), https://www.govinfo.gov/content/pkg/FR-2023-08-30/pdf/2023-18624.pdf [https://perma.cc/5UZ3-G2UL].

145. *See* Cecilia Kang, *The Sleepy Copyright Office in the Middle of a High-Stakes Clash Over A.I.*, N.Y. TIMES (Jan. 26, 2024), https://www.nytimes.com/2024/01/25/technology/ai-copyright-office-law.html [https://perma.cc/R2DQ-H34Q].

comment summarizing my views on authorship.[146] In March 2024, the Copyright Office announced the schedule for its release of several reports from its study, including a report in the summer on "the copyrightability of works incorporating AI-generated material."[147] The Office stated that it will hold a period of notice and comment because it intends to revise its Compendium to provide "further guidance and examples relating to the registration of works containing AI-generated material."[148] Elsewhere, I explain why the Office's AI Guidance, promulgated before its study, likely violated the Administrative Procedure Act by recognizing new substantive rules for authorship without notice and comment.[149] It remains to be seen whether the Office revises its position on authorship.

C. *The Copyright Office Adopts a Rigid View of Authorship That Is Static and Deterministic*

Based on its view of the so-called "traditional elements of authorship," the Copyright Office has restricted authorship to a very narrow *static, deterministic* model. The Office requires authorship to always follow this same linear, unidirectional path: at time one, the creator conceives of the work, and at time two, the creator dictates the specific work that matches the creator's conception from time one. Under this rigid approach, the creator is not permitted to go back and forth between the two times, such as to adapt and refine the conception based on experimentation or trial-and-error. There is no interplay or iterations allowed in the creative process. Instead, if the work at time two does not perfectly match the original conception from time one, the creator *loses* any claim to authorship.

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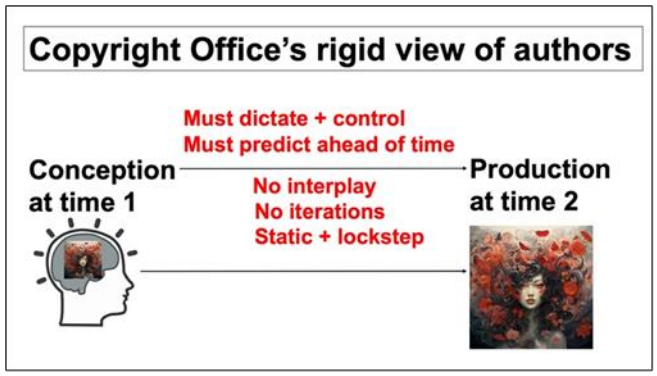
146. *See* EDWARD LEE, COMMENT OF PROFESSOR EDWARD LEE TO ARTIFICIAL INTELLIGENCE STUDY BY THE UNITED STATES COPYRIGHT OFFICE (Oct. 30, 2023), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4619118 [https://perma.cc/AAE2-5AQM].

147. Nora Scheland, *Looking Forward: The U.S. Copyright Office's AI Initiative in 2024*, LIBR. OF CONG. BLOGS (Mar. 26, 2024), https://blogs.loc.gov/copyright/2024/03/looking-forward-the-u-s-copyright-offices-ai-initiative-in-2024/ [https://perma.cc/SN9A-3M6E].

148. *Id.*

149. *See* Edward Lee, *The Code Red for Copyright Law*, 76 FLA. L. REV. F. 1, 9 (2024).

Figure 3. The Copyright Office's Static, Deterministic Model of Authorship



Thus, under the Copyright Office's requirement of the traditional elements of authorship, authorship is treated as two static acts: conception and production. Conception occurs first. Then production follows. The two works—conceived at time one and produced at time two—must be identical. If they are not, the creator is disqualified from being treated as an author.

This static, deterministic model of authorship is similar to how Professor Jane Ginsburg characterized authorship in two acts: (1) conception and (2) execution.[150] In an insightful article, Professor Ginsburg and her co-author Luke Budiardjo apply this atomistic view of authorship to conclude that the works created with "partially-generative AI" fail to satisfy human authorship if the creator using AI did not "sufficiently control[] the process through which the work came into being."[151] Their conclusion sounds similar to the Copyright Office's static, deterministic view of authorship, although Professor Ginsburg and Budiardjo published their article before the public launch of text-to-image generators and they, at times, appear to recognize greater flexibility in the process of authorship, including purely accidental creations.[152]

In any event, what is important to recognize is that the Copyright Office's view is based on a certain model of authorship—one that is static, linear, unidirectional, and deterministic. Anything that departs from that model is

150. Jane C. Ginsburg, *The Concept of Authorship in Comparative Copyright Law*, 52 DEPAUL L. REV. 1063, 1072 (2003) ("An 'author' conceives of the work and supervises or otherwise exercises control over its execution.").

151. Ginsburg & Budiardjo, *supra* note 17, at 426.

152. *Id.* at 353.

disqualified from copyright. Although the Office's static, deterministic model of authorship might sound appealing at first blush, given its apparent simplicity in reducing authorship to a simple formula (i.e., conception must dictate creation), the model adopts a view of authorship that is highly contestable. As the next two Parts show, the model is too rigid and restrictive to serve as a constitutional principle that promotes progress. Instead, it hinders it.

II. THE NEED TO RETURN TO THE FIRST PRINCIPLES OF THE PROGRESS CLAUSE

The Copyright Office's position with respect to human prompt-engineered works is wrong. It undervalues the creative contribution of humans in prompt engineering and ignores authorship through prompt engineering of images based on a person's selection or arrangement of elements with a minimal level of creativity. Indeed, if the Copyright Office's approach were applied to photography, most point-and-shoot photographs would not be copyrightable—an untenable position, which the federal courts have long rejected. A return to first principles renders a more faithful reading of the Progress Clause and Supreme Court precedent, one that incentivizes humans to create new works and, ultimately, promotes progress and learning in the United States.

Under the proper test of authorship, the works people produce using generative AI should qualify as copyrightable works if the person has shown at least a minimal level of creativity—the bare minimum—in the selection or arrangement of elements in the work. No rigid requirements of the kind the Copyright Office devised—the elimination of random elements, the exercise of "sufficient control" to "dictate specific results," and the prediction "ahead of time" of those results—should be imposed on authors or the creative process they use. Such restrictions are nowhere to be found in the Progress Clause. And they conflict with the goal of progress, as well as the Clause's lack of any such restrictions on "Inventors."

A. *The Text of the Progress Clause and the Supreme Court's Broad Interpretation of the "Writings" of "Authors"*

The Copyright Office's restrictions on AI-prompted works run counter to the Progress Clause, Supreme Court precedent, and two centuries of copyright law, which favor a broad, "liberal" approach to the "Writings" of "Authors" to accommodate advances in technologies of creative production.

This broad, flexible understanding is best suited to promote progress in the United States by not restricting how authors create—or the technologies they can use.

1. The Framers and the Text of the Progress Clause

a. Identifying the First Principles

This Article adopts an approach to interpreting the Constitution advanced by Professor Akhil Amar. This approach focuses on the text, structure, and history of a constitutional provision, and, importantly, identifies the values that the provision seeks to protect.[153] Professor Amar encapsulates these elements as a provision's "first principles."[154] This approach is consonant with Alexander Hamilton's view of the Constitution as establishing "the first principles of the [federal] system."[155] This method also considers whether an interpretation renders a sensible approach or is, instead, a doctrinal "mess"—confusing, overly complex or technical, or contradictory.[156]

Professor Amar's interpretative approach is particularly apt for the Progress Clause, which expressly designates its overall objective ("[t]o promote the Progress of Science" in the United States) and the method for doing so ("by securing for limited [t]imes to authors . . . the exclusive [r]ight to their respective [w]ritings").[157] The Progress Clause refers generally to the "Writings" of "Authors," without the limitations of the more restrictive language proposed by James Madison or contained in the Statute of Anne, the first copyright act in England.[158] Likewise, the structure of the Clause—with its express objective "to promote progress" in the United States—supports

153. *See* Akhil Reed Amar, *The Future of Constitutional Criminal Procedure*, 33 AM. CRIM. L. REV. 1123, 1133 (1996).

154. *See* Akhil Reed Amar, *Foreword: Sixth Amendment First Principles*, 84 GEO. L.J. 641, 711 (1996).

155. THE FEDERALIST No. 23 (Alexander Hamilton), https://avalon.law.yale.edu/18th_century/fed23.asp [https://perma.cc/J39V-SZTS]; *see also, e.g.*, Seila Law LLC v. Consumer Fin. Prot. Bureau, 591 U.S. 197, 228 (2020) ("[T]ext, first principles, the First Congress's decision in 1789, *Myers*, and *Free Enterprise Fund* all establish that the President's removal power is the rule, not the exception.").

156. *See* Amar, *supra* note 153, at 1126.

157. U.S. CONST. art. I, § 8, cl. 8.

158. *See* Statute of Anne 1710, 8 Ann. c. 19 (Eng.), https://avalon.law.yale.edu/18th_century/anne_1710.asp [https://perma.cc/2LNS-Q263]; Karl Fenning, *The Origin of the Patent and Progress Clause of the Constitution*, 17 GEO. L.J. 109, 112–13 (1929) (explaining Madison's restrictive views on copyrights).

a broad understanding of authorship, which can encompass new ways of producing works with the continual advances in technologies for creative expression. This broad understanding was incorporated into the Copyright Act to expressly accommodate new technologies "now known or later developed."[159]

b. The "Writings" of "Authors"

The historical record related to the Progress Clause from the Constitutional Convention is scant. However, the record contains helpful clues about the Clause's scope, and the Clause itself states its purpose of promoting progress.

On August 18, 1787, Charles Pinckney, a South Carolina delegate, proposed that the Constitution grant Congress the power (1) "[t]o secure to *authors* exclusive rights for a certain time," (2) "[t]o grant patents for useful inventions," and (3) "[t]o establish seminaries *for the promotion of literature and the arts & sciences*."[160] By contrast, Madison proposed: (1) "[t]o secure to *literary authors* their copyrights for a limited time," (2) "[t]o secure to the inventors of useful machines and implements the benefits thereof for a limited time," (3) "[t]o encourage by proper premiums and provisions *the advancement of useful knowledge* and discoveries."[161] The Committee on Detail considered these proposals in a closed session, and returned with its own

159. *See* 17 U.S.C. § 101 (defining "copies" as "material objects, other than phonorecords, in which a work is fixed by any method now known or later developed"); *id.* ("A 'device', 'machine', or 'process' is one now known or later developed."); *id.* ("'Phonorecords' . . . are fixed by any method now known or later developed . . . ."); *id.* § 102(a) ("Copyright protection subsists, in accordance with this title, in original works of authorship fixed in any tangible medium of expression, now known or later developed . . . .").

160. Dotan Oliar, *The (Constitutional) Convention on IP: A New Reading*, 57 UCLA L. REV. 421, 436 (2009) (emphasis added); L. Ray Patterson & Craig Joyce, *Copyright in 1791: An Essay Concerning the Founders' View of the Copyright Clause*, 52 EMORY L.J. 909, 937 (2003); AMERICAN MEMORY: THE JAMES MADISON PAPERS, JAMES MADISON, ORIGINAL NOTES ON DEBATES IN THE FEDERAL CONVENTION (1787), *in Primary Sources on Copyright (1450-1900)*, COPYRIGHT HISTORY (L. Bently & M. Kretschmer eds.) [hereinafter MADISON PAPERS], https://www.copyrighthistory.org/cam/tools/request/showRepresentation.php?id=representation_us_1787b&pagenumber=1_1&show=transcription [https://perma.cc/22QY-U7GX].

161. Edward C. Walterscheid, *To Promote the Progress of Science and Useful Arts: The Background and Origin of the Intellectual Property Clause of the United States Constitution*, 2 J. INTELL. PROP. L. 1, 46 (1994) (emphasis added); *see also* Fenning, *supra* note 158, at 112–13 (outlining Madison's proposed clauses).

formulation of a singular Progress Clause, which the Framers later unanimously approved.[162]

Rejecting Madison's limitation, the Progress Clause uses general terms. Notably, the subject matter of copyright—i.e., the "Writings" of "Authors"—was not limited to *literary* authors.[163] Although "literary" may have had several meanings depending on the context, one understanding of the word was that it referred only to book authors (authors of "literature"[164]), and not to various other creators such as music composers and visual artists.[165] The Statute of Anne of 1710, the first copyright act in England, protected only books and the "liberty of printing" them through the printing press.[166] The same concerns about printing manuscripts arose in the early United States.[167] In 1787, Madison identified the "want of uniformity in the laws concerning . . . *literary* property" as one of the problems the country faced.[168] Pre-ratification state copyright

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162. Fenning, *supra* note 158, at 114.

163. U.S. CONST. art. I, § 8, cl. 8.

164. *See* THOMAS SHERIDAN, A COMPLETE DICTIONARY OF THE ENGLISH LANGUAGE (3d ed. 1790) (defining "literary" as "[r]especting letters; regarding learning"), https://archive.org/details/acompletedictio01shergoog/page/n31/mode/2up?q=literary [https://perma.cc/2ABF-UJQV]; *id.* (defining "plagiarism" as "[t]heft, literary adoption of the thoughts or works of another"); *id.* (defining "scholarship" as "[l]earning, literature, knowledge; literary education").

165. *See* Michael W. Carroll, *The Struggle for Music Copyright*, 57 FLA. L. REV. 907, 934 (2005) (discussing the history of the Statute of Anne's application to "books" and the Engravers' Copyright Act of 1735's application to engravings); *id.* (discussing the distinction between literary authors and music composers under the Statute of Anne).

166. Statute of Anne 1710, 8 Ann. c. 19 (Eng.), https://avalon.law.yale.edu/18th_century/anne_1710.asp [https://perma.cc/2LNS-Q263]. The preamble mentioned "books and other writings," but the provision for copyright applied solely to books. *Id.* §§ I, II.

167. *See* Thomas Paine, *Letter to the Abbe Raynal* (1782), THE THOMAS PAINE NATIONAL HIST. ASS'N, https://www.thomaspaine.org/works/major-works/letter-to-the-abbe-raynal.html [https://perma.cc/WH34-DDYB] ("[I]t is nevertheless a breach of civil manners and *literary justice* . . . that[,] because the countries are at war, *literature* shall be entitled to depradation.") (emphasis added).

168. James Madison, *Vices of the Political System of the United States*, (Apr. 30, 1787), TEACHING AMERICAN HISTORY (emphasis added), https://teachingamericanhistory.org/document/vices-of-the-political-system/ [https://perma.cc/3LE3-Y5DR]. The concept of "literary property" arose in the seventeenth century in England from the asserted common law or natural rights of authors to publish their manuscripts through the printing press. *See* MARK ROSE, AUTHORS AND OWNERS: THE INVENTION OF COPYRIGHT 35–36 (1993); Alina Ng, *Literary Property and Copyright*, 10 NW. J. TECH. & INTELL. PROP. 531, 533–39 (2012); Justin Hughes, *Copyright and Incomplete Historiographies: Of Piracy, Propertization, and Thomas Jefferson*, 79 S. CAL. L. REV.

statutes, modeled on the Statute of Anne, also focused on the protection of books.[169] Three states specified the protection of "books, treatises, and other *literary* works."[170] These statutes used "literary works" to refer to works for printing.[171] For example, New Hampshire's act began, "An ACT for the encouragement of literature and genius, and for securing to authors the exclusive right and benefit of *publishing their literary productions for twenty years*."[172] Other than maps and charts, no state copyright act covered visual or artistic works, nor did any act recognize just "writings" as the general subject matter for copyright.[173] Against this backdrop, the Progress Clause is unique. The Framers did *not* limit the Progress Clause to "literary property" or limit authors to "literary Authors" who create works for printing.

The Framers' choice of the general language "authors"—not "literary authors"—was significant. The Framers did not limit authors to a certain type, much less to a single process of authorship, whose rights were tied to the printing press. The Progress Clause was not limited to the literary authors of "printed books," the sole subject matter of the Statute of Anne of 1710, which influenced the Framers in their drafting of the Progress Clause.[174] Nor was the Clause limited to the authors

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993, 1011–12 (2006); *see also* GEORGE TICKNOR CURTIS, A TREATISE ON THE LAW OF COPYRIGHT IN BOOKS, DRAMATIC AND MUSICAL COMPOSITIONS, LETTERS AND OTHER MANUSCRIPTS, ENGRAVINGS AND SCULPTURE 26–27 (Charles C. Little & James Brown eds. 1847), https://archive.org/details/treatiseonlawofc00curt/page/n43/mode/2up?q=%22literary+property%22 [https://perma.cc/254J-ADLN] (explaining how the common law right of literary property in England originated from the right to print, publish, and sell a written composition of a book).

169. *See* Oren Bracha, *Commentary on the Connecticut Copyright Statute (1783)*, *in* PRIMARY SOURCES ON COPYRIGHT (1450–1900) (L. Bently & M. Kretschmer eds., 2008), https://www.copyrighthistory.org/cam/commentary/us_1783a/us_1783a_com_672007191141.html [https://perma.cc/DG7Y-96HR].

170. *Id.* (emphasis added) (naming Massachusetts, New Hampshire, and Rhode Island as the states with statutes offering this specific scope of protection).

171. *See, e.g.*, *Massachusetts Copyright Statute (1783)*, *in* PRIMARY SOURCES ON COPYRIGHT (1450–1900) (L. Bently & M. Kretschmer eds., 2008), https://www.copyrighthistory.org/cam/tools/request/showRecord.php?id=record_us_1783d [https://perma.cc/48DB-4APK].

172. *New Hampshire Copyright Statute (1783)*, *in* PRIMARY SOURCES ON COPYRIGHT (1450–1900) (L. Bently & M. Kretschmer eds., 2008) (emphasis added), https://www.copyrighthistory.org/cam/tools/request/showRepresentation.php?id=representation_us_1783g [https://perma.cc/6YJZ-ENHX].

173. *See* Bracha, *supra* note 169.

174. Tyler T. Ochoa & Mark Rose, *The Anti-Monopoly Origins of the Patent and Copyright Clause*, 49 J. COPYRIGHT SOC'Y U.S.A. 675, 677 (2002); L. Ray Patterson,

of books, engravings, designs, and prints, which were later protected with the "sole right and liberty of printing" in England in 1735.[175] Instead, the Clause uses two general terms: "Authors" and "Writings."[176] Instead of limiting the type of author or the type of works eligible for copyright, the Framers left it to Congress to decide.[177] This broad approach to the "Authors" of "Writings" gives Congress great discretion in the exercise of its power to grant copyright to promote progress. There is nothing to suggest that the Framers intended to limit Congress's power to a traditional, rigid, or static view of authorship, much less a traditional creative process confined to dissemination only through the printing press. Instead, by rejecting Madison's proposed limitation, the Framers' adoption of the general term "Authors" signaled a far more expansive approach to accommodate future advances in creative production.[178]

This choice in broad language was consistent with the general approach advanced by Edmund Randolph, an influential member of the Committee on Detail, "[t]o insert *essential principles only*, lest the operations of government should be clogged by rendering those provisions permanent and unalterable, *which ought to be accommodated to times and events*."[179] The broader understanding of "Authors" is also consistent with the tenor of Pinckney's other proposal to "[t]o establish seminaries for the promotion of literature and the arts & sciences."[180] Although the proposal for seminaries failed, it takes a similarly broad view of the pursuit of knowledge as Pinckney's proposal for "Authors."[181]

Understanding the Copyright Clause, 47 J. COPYRIGHT SOC'Y U.S.A. 365, 366 (2000) ("[T]he framers adopted the English solution for the U.S. Constitution.").

175. Engraving Copyright Act 1735, 8 Geo. 2 c. 13 (Eng.), https://statutes.org.uk/site/the-statutes/eighteenth-century/1735-8-george-2-c-13-engraving-copyright-act/ [https://perma.cc/N2RP-TVFT].

176. U.S. CONST. art. I, § 8, cl. 8.

177. Professor Karl Fenning noted that the Framers chose "exclusive right," a general term, instead of "copyright" and "patent," specific terms. Fenning, *supra* note 158, at 116.

178. *Cf.* Atwater v. City of Lago Vista, 532 U.S. 318, 336–37 (2001) (explaining that no evidence exists in the historical record that the Framers "sought to limit peace officers' warrantless misdemeanor arrest authority to instances of actual breach of the peace").

179. Walterscheid, *supra* note 161, at 32 (emphasis added).

180. *See* MADISON PAPERS, *supra* note 160; Patterson & Joyce, *supra* note 160.

181. *Cf.* Patterson & Joyce, *supra* note 160, at 938 ("Both proposals manifested an interest in having the federal government promote knowledge, and both provided

The more general terms of the "Authors" of "Writings" thus enabled the Progress Clause to accommodate future advances in producing works of authorship through new technologies beyond the printing press.[182] That broad approach has worked remarkably well as copyright law has expanded to include technological advances over two centuries, including photographs, motion pictures, sound recordings, synthesized music, and computer programs.[183]

c. "To Promote the Progress of Science and Useful Arts"

Another distinctive element of the Progress Clause is its structure: the clause formulates the general power "[t]o promote the Progress of Science and useful Art" by the specified means of "securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[184] According to historian Edward Walterscheid, "It is unique in being the only instance wherein the delegates prescribed a specific mode of accomplishing the particular authority granted."[185] Indeed, as the Supreme Court recognized, "The clause . . . describes both the *objective* which Congress may seek and the *means* to achieve it."[186] Promoting progress is the objective, and granting copyright, the exclusive right, to authors is the means to achieve it.

At the time of the Framing, "Science" meant knowledge.[187] Contemporaneous dictionaries defined "science" as "[k]nowledge; certainty grounded on demonstration; art attained by precepts, or built on principles; any art or species of knowledge."[188] Likewise, "useful arts" referred to inventions, or

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for the author's copyright in addition to other provisions for this specific purpose—Madison by 'premiums and provisions' and the creation of a national university, Pinckney by establishing seminaries.").

182. *See* Goldstein v. California, 412 U.S. 546, 561–62 (1973), *superseded by statute as stated in* Crow v. Wainwright, 720 F.2d 1224 (11th Cir. 1983); Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 430 (1984) ("From its beginning, the law of copyright has developed in response to significant changes in technology.").

183. *See* Peter S. Menell, *Envisioning Copyright Law's Digital Future*, 46 N.Y.L. SCH. REV. 63, 64 (2003).

184. U.S. CONST. art. I, § 8, cl. 8.

185. Walterscheid, *supra* note 161, at 33.

186. *Goldstein*, 412 U.S. at 555 (emphasis added).

187. Walterscheid, *supra* note 161, at 51.

188. THOMAS SHERIDAN, A GENERAL DICTIONARY OF THE ENGLISH LANGUAGE 811 (1780), https://play.google.com/books/reader?id=mCY-AAAAcAAJ&pg=GBS.PT746&hl=en [https://perma.cc/49W6-UNCN]; SAMUEL JOHNSON, 2 A DICTIONARY OF THE ENGLISH LANGUAGE 296 (1756), https://archive.org/details/English_Dictionary_1756/page/n295/mode/2up [https://perma.cc/Q364-SLZD].

"helpful or valuable trades"—what Madison referred to as "useful machines."[189] "Promote" meant "[t]o forward, to advance; to elevate, to exalt, to prefer."[190] "Progress" meant "advancement, motion forward; intellectual improvement."[191]

Thus, the Clause gives Congress the power to advance knowledge and innovation in the United States. How? By securing copyrights and patents to authors and inventors, respectively, for limited durations. "In other words, *to encourage people to devote themselves to intellectual and artistic creation*, Congress may guarantee to authors and inventors a reward . . . ."[192] By its own terms, the Progress Clause is forward-looking. The grant of congressional power is to *promote progress*. When we speak of "progress," we are referring to a *future* improvement or advancement.[193]

The Copyright Office's restrictions on authorship to "traditional elements" run counter to the text of the Progress Clause and its forward-looking goal of advancing progress.

2. Supreme Court Precedent: The Liberal Construction of "Writings" and "Authors" and the Great Latitude to Congress

The Supreme Court's precedents have correctly embraced a liberal construction of the Progress Clause and a very broad interpretation of the "Writings" of "Authors."

a. "Writings" of "Authors" "May Be Liberally Construed"

The Supreme Court has interpreted the "Writings" of "Authors" broadly since its decision in *The Trade-Mark Cases* in 1879. Indeed, the Court recognized an interpretive principle that "the word writings may be *liberally construed*."[194]

Accordingly, "writings" extends beyond books, "to include original designs for engravings, prints, [etc.]"[195] In striking down a federal trademark act as beyond Congress's power under the Progress Clause, the Court held that "Writings" encompasses "only such as are original . . . and are founded in

189. Walterscheid, *supra* note 161, at 46, 52.

190. SHERIDAN, *supra* note 188, at 734.

191. *Id.* at 733.

192. Goldstein v. California, 412 U.S. 546, 555 (1973) (emphasis added).

193. The Supreme Court has interpreted interstate "commerce" in analogous fashion under the Commerce Clause. *See* Exxon Corp. v. Governor of Maryland, 437 U.S. 117, 127 (1978) (rejecting a restrictive interpretation of "commerce" confined to "the particular structure or methods of operation").

194. *In re* Trade-Mark Cases, 100 U.S. 82, 94 (1879) (emphasis added).

195. *Id.*

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."[196]

Five years later, in *Burrow-Giles Lithographic Co. v. Sarony*, the Court reinforced its very broad interpretation of the "Writings" of "Authors."[197] In a case recognizing that photographs *can* constitute the writings of authors, the Court rejected the defendant's argument that the "Writings" of "Authors" should be limited to a "book and its author."[198] Instead, the Court recognized that the words "Writings" and "Authors" "are susceptible of a *more enlarged* definition."[199]

The Court quoted a dictionary definition of author: "he to whom anything owes its origin; originator; maker; one who completes a work of science or literature."[200] The Court itself defined "writings" as "the literary productions of those authors, and Congress 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*."[201] Notably, the Court did not rely on the same dictionary it used for "author," which included narrower definitions for "writings."[202]

From these two seminal cases, we can glean some of the first principles of authorship:

> (1) An "author" is the "originator" or "maker" of a writing, or a work; and
>
> (2) A "writing" broadly encompasses "all forms . . . by which the ideas in the mind of the author are given visible expression."

To be the originator of a work, a creator must exercise "the creative powers of the mind" to make or produce "the fruits of

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196. *Id.*

197. Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 57–58 (1884) (quoting JOSEPH E. WORCESTER, A DICTIONARY OF THE ENGLISH LANGUAGE 99 (1860)).

198. *Id.* at 57.

199. *Id.* at 56–58. Had the Framers adopted Madison's proposal of "literary Authors," the defendant's argument would have had greater force. *See supra* notes 160–163 and accompanying text.

200. *Burrow-Giles Lithographic Co.*, 111 U.S. at 57–58 (quoting JOSEPH E. WORCESTER, A DICTIONARY OF THE ENGLISH LANGUAGE 99 (1860)).

201. *Id.* at 58 (emphasis added).

202. *See* JOSEPH E. WORCESTER, A DICTIONARY OF THE ENGLIGH LANGUAGE 1687 (1860) (defining "writing" as either "[a]ny thing written; any written composition; a written paper of any kind" and "[a] book; a work"), https://archive.org/details/cu31924027443393/page/1686/mode/2up [https://perma.cc/P8CB-D6PU].

intellectual labor,"[203] which can be embodied in "all forms . . . by which the ideas in the mind of the author are given visible expression."[204]

Napoleon Sarony's staged photograph of Oscar Wilde in *Burrow-Giles* showed that the embodiment can even involve a mechanical process, or machine, which captures elements not created by the author. Sarony did not make Oscar Wilde, but Sarony was still deemed the author of the photograph of Wilde.

Sarony's authorship derived from his *selection and arrangement of existing elements* for the photograph:

> [H]e gave visible form by posing the said Oscar Wilde in front of the camera, *selecting and arranging* the costume, draperies, and other various accessories in said photograph, *arranging* the subject so as to present graceful outlines, *arranging* and disposing the light and shade, suggesting and evoking the desired expression, and from such disposition*, arrangement,* or representation, made entirely by [him], *he produced the picture*.[205]

This recognition of selection and arrangement of existing elements as a form of authorship foreshadowed the Court's analysis over a century later in *Feist Publications, Inc. v. Rural Telephone Service Co*.[206]

The Supreme Court's broad understanding of the "Writings" of "Authors" is consistent with the text, structure, history, and stated objective of the Progress Clause. A broad understanding of "Writings" of "Authors" serves the constitutional objective to incentivize people to use their minds, their creativity, to create works for the public's enjoyment. Copyright is intended "*to encourage people to devote themselves to intellectual and artistic creation*."[207] Copyright law does so by granting exclusive rights.

Contrary to the Copyright Office's suggestion, a person's intellectual labor is *not* the "sweat of the brow" but instead is the "economic philosophy behind the clause empowering Congress to grant patents and copyrights," as the Supreme Court recognized in *Mazer v. Stein*.[208] The Progress Clause is based on "the conviction that encouragement of *individual*

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203. *In re* Trade-Mark Cases, 100 U.S. 82, 94 (1879).
204. *Burrow-Giles Lithographic Co.*, 111 U.S. at 58.
205. *Id.* at 55 (emphasis added).
206. 499 U.S. 340, 345 (1991).
207. Goldstein v. California, 412 U.S. 546, 555 (1973) (emphasis added).
208. 347 U.S. 201, 219 (1954).

effort by personal gain is the best way to advance public welfare through the talents of authors."[209] Accordingly, "creative activities deserve rewards commensurate with the services rendered."[210]

b. *Feist*: Authorship by Selection or Arrangement of Elements as a Distinct Form of Authorship

The Court's expansive view of the "Writings" of "Authors" in *Burrow-Giles* and *The Trade-Mark Cases* was reaffirmed in 1991 and applied to a telephone book—i.e., a compilation of factual information—in the seminal case of *Feist Publications, Inc. v. Rural Telephone Service Co.* The case articulates the test for the constitutional requirement of originality.[211]

The *Feist* Court stressed that originality is "the touchstone of copyright protection" and the "bedrock principle of copyright": indeed, it is "the *sine qua non* of copyright."[212] Citing its discussion of "Writings" of "Authors" in *The Trade-Mark* Cases and *Burrow-Giles*, the Court described originality as a constitutional requirement that derives from these two words in the Progress Clause.[213] Nothing in *Feist* suggests there is any other *sine qua non* of copyright.

Feist laid out two conditions that a work must meet to satisfy the originality requirement and qualify for copyright protection.[214] First, "the work [must be] independently created by the author (as opposed to copied from other works)."[215] Second, the work must "possess[] at least some minimal degree of creativity."[216] If these two conditions are met, originality is satisified, and the work receives copyright protection.

Other than the first principles outlined above, the Progress Clause does not restrict the processes by which authors can create. There is no mention that an author must dictate specific results, predict ahead of time the work produced, or maintain exacting control during the creative process. Nor is there any

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209. *Id.* (emphasis added).

210. *Id.* This distinction supports the CONTU report's recognition that authorship when using computers can arise if there is "*minimal human creative effort at the time the work is produced*." CONTU, *supra* note 102.

211. *See* 499 U.S. 340, 345 (1991).

212. *Id.* at 347–48.

213. *Id.* at 346–47.

214. *See id.* at 345. I explain the aspects of the *Feist* test of originality in greater depth in Edward Lee, *Digital Originality*, 14 VAND. J. ENT. TECH. L. 919, 936–43 (2012).

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

216. *Id.*

suggestion that all authors must create by a set process or "traditional" path conceived by judges, let alone lawyers.

The Copyright Office's requirement of traditional elements of authorship is also at odds with the Supreme Court's analysis of compilations. The Court set forth the minimum level of creativity required for compilations of uncopyrightable elements to qualify for copyright; authorship can exist merely in a person's selection or arrangement of uncopyrightable elements that the person did not even create (just as Sarony did not create Wilde but instead a photograph of Wilde). This principle of authorship by selection or arrangement is different from authorship by composition, in which a person creates or composes the elements in a work, such as writing a novel or a musical work with lyrics.[217] A person does not, by definition, dictate or control the creation of the underlying elements in authorship by selection or arrangement. Instead, the person *selects* or *arranges* them.

As the Court explained, a phonebook, which is a compilation of uncopyrightable facts, can qualify for copyright if it "features an original selection or arrangement of facts, but the copyright is limited to the particular selection or arrangement."[218] In *Feist*, the producer of the phonebook failed to meet even a "minimal degree of creativity" in either the selection of listings (names, towns, and telephone numbers) or their arrangement (alphabetical by last name).[219] The phonebook's selection and arrangement followed the industry standard—it was "a garden-variety white pages directory, devoid of even the slightest trace of creativity."[220]

But the *Feist* Court stressed that "the requisite level of creativity is *extremely low*; even a slight amount will suffice. The vast majority of works make the grade quite easily, as they possess some creative spark, 'no matter how crude, humble or obvious' it might be."[221]

Thus, even a compiler of uncopyrightable preexisting elements can be an author simply by selecting or arranging the elements in a minimally creative way—meeting what this Article calls the *bare minimum* for authorship. Indeed, this

217. As discussed above, I believe these two distinct forms of authorship were recognized by Register Kaminstein in the so-called "traditional elements of authorship." *See supra* notes 87–91 and accompanying text.

218. *Feist*, 499 U.S. at 350–51.

219. *Id.* at 362–63.

220. *Id.* at 362.

221. *Id.* at 345 (emphasis added).

bare minimum is so low that it does not even require any novelty or new expression.[222] As the Court explained, if two poets independently composed the exact same poem, "[n]either work is novel, yet both are original and, hence, copyrightable."[223] By allowing identical but independently created works to be copyrighted, the *Feist* Court adopted an exceedingly low standard of originality for works of authorship.

It is important to adhere to this bare minimum. When on the D.C. Circuit, then-Judge Ruth Bader Ginsburg wrote an instructive decision reversing the Copyright Office's denial of registration of Atari's Breakout video game.[224] In the case, the Register argued that Atari's audiovisual work lacked originality and was ineligible for copyright because it consisted of colorful rectangles and a circle, which are "familiar symbols or designs."[225] However, the D.C. Circuit recognized the importance of considering authorship by selection or arrangement in the new medium of video games and remanded the case to the Copyright Office for reconsideration.[226]

On remand, the Copyright Office again refused the registration and, on appeal, the D.C. Circuit reversed again.[227] Citing *Feist*'s minimal level of creativity, Judge Ginsburg admonished: "It is not the Register's task to shape the protection threshold or ratchet it up beyond the 'minimal creative spark required by the Copyright Act and the Constitution.'"[228]

c. Supreme Court Rejects Constitutionalizing Other Restrictions

In other cases dealing with the Progress Clause, the Supreme Court has followed a deferential approach that gives Congress broad authority to decide the scope of copyright. Beyond the requirements of originality and a limited term, the First Amendment safeguards of fair use and idea-expression dichotomy, and a bar against copyrighting functional

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222. *See id.* at 345–46.

223. *Id.*

224. Atari Games Corp. v. Oman, 888 F.2d 878 (D.C. Cir. 1989).

225. *Id.* at 883; *see also Breakout (video game)*, WIKIPEDIA, https://en.wikipedia.org/wiki/Breakout_(video_game) [https://perma.cc/R6ES-HFEC].

226. *Atari Games Corp.*, 888 F.2d at 883–84 ("[W]e note that simple shapes, when selected or combined in a distinctive manner indicating some ingenuity, have been accorded copyright protection both by the Register and in court.").

227. Atari Games Corp. v. Oman, 979 F.2d 242, 247 (D.C. Cir. 1992).

228. *Id.*

systems,[229] court decisions,[230] and government edicts,[231] the Court has deferred to Congress to impose any other limits on copyright.[232] As the Court recognized in *Eldred v. Ashcroft*,[233] in an opinion written by Justice Ginsburg, "As we read the Framers' instruction, the Progress Clause *empowers* Congress to determine the intellectual property regimes that, overall, in that body's judgment, will serve the ends of the Clause."[234] Indeed, as summarized in Table 1, in *every* case after *Feist* in which the Supreme Court was asked to recognize a constitutional restriction or requirement under the Progress Clause, the Court declined to do so. These cases all reject an interpretation of the Progress Clause that curb Congress's discretion in deciding copyright law.[235]

Table 1. Supreme Court Precedent Rejecting Constitutionalizing Restrictions on Congress's Progress Clause Power

Case	Rejected Constitutionalizing Other Restrictions
Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53 (1884).	Argument that photographs were not writings of authors
Bleistein v. Donaldson Lithographing Co., 188 U.S. 239 (1903).	Argument that advertisements were not writings of authors and did not serve the purpose of the Progress Clause, and that real-life

229. *See* Baker v. Selden, 101 U.S. 99, 100–01 (1879).

230. *See* Wheaton v. Peters, 33 U.S. 591, 668 (1834).

231. *See* Georgia v. Public.Resource.Org., Inc., 140 S. Ct. 1498, 1506–07 (2020).

232. *See* Eldred v. Ashcroft, 537 U.S. 186, 208 (2003) (explaining that Congress's extension of copyright terms was "a rational enactment" and that the Court is "not at liberty to second-guess congressional determinations and policy judgments of this order, however debatable or arguably unwise they may be"); *id.* at 221 (explaining that there is no First Amendment review of a copyright law unless the law alters the traditional contours of copyright protection, because idea expression and fair use serve as First Amendment safeguards); Golan v. Holder, 565 U.S. 302, 318 & 335 (2012) (declining to recognize a constitutional bar against Congress granting copyrights to works in the public domain and explaining that the law doing so "lies well within the ken of political branches").

233. 537 U.S. 186, 208 (2003).

234. *Id.* at 222 (emphasis added).

235. *Baker* involved an interpretation of the scope of the Copyright Act. *See Baker*, 101 U.S. at 99–100. Although the Court relied on a lower court case that interpreted the Act in light of the Progress Clause, *Baker* apparently did not involve a constitutional challenge to the application of copyright to blank accounting forms that embodied a type of accounting system. *Id.* at 105.

	depictions did not fall within writings
Eldred v. Ashcroft, 537 U.S. 186 (2003).	Argument that extending terms of existing copyrights violates limited times, originality, and the First Amendment, and did not promote progress
Golan v. Holder, 565 U.S. 302 (2012).	Argument that removing works from the public domain violates limited times and the First Amendment

Because the Copyright Office's newfound requirements of human authorship are constitutional in nature, they would, if adopted by the courts, usurp Congress's power to adopt a more liberal construction of the term. This approach runs counter to the wide latitude granted to Congress.[236]

3. The Supreme Court's Avoidance of Case-by-Case Review of Creative Works

The Supreme Court has recognized a principle of judicial avoidance of entangling courts in case-by-case review of whether a work qualifies for copyright; such review would inevitably raise serious First Amendment problems because it would constitute content-based review of many different creators' expressions.[237]

Underlying this principle of judicial avoidance is the Supreme Court's recognition of the danger of judging (especially new) artistic expression. This principle of judicial avoidance

236. Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 429 (1984) ("As the text of the Constitution makes plain, it is Congress that has been assigned the task of defining the scope of the limited monopoly that should be granted to authors or to inventors in order to give the public appropriate access to their work product.").

237. *See* Edward Lee, *Technological Fair Use*, 83 S. CAL. L. REV. 797, 840 (2010); Edward Lee, *Fair Use Avoidance in Music Cases*, 59 B.C. L. REV. 1873, 1908–09 (2018); Kaminski, *supra* note 17, at 601 (explaining that the aesthetic nondiscrimination principle "is to prevent the censorship of (or really, the disincentivizing of) works that judges do not like"); *cf.* Iancu v. Brunetti, 588 U.S. 388, 390–91 (2019) (explaining the Trademark Office's denials and allowances of trademark registration under the "immoral" and "scandalous" bar); Matal v. Tam, 582 U.S. 218, 223 (2017) (explaining the Trademark Office's denials and allowances of trademark registration under the "may disparage" living person bar).

was first articulated by Justice Oliver Wendell Holmes, Jr., in *Bleistein*, a case involving chromalithographs of circus ads:

> 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 of the narrowest and most obvious limits. *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. . . . 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 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.[238]

Although the first sentence quoted above, often referred to as the aesthetic nondiscrimination principle,[239] is the most famous line, Justice Holmes's reasons for adopting that principle are even more important. Justice Holmes astutely recognized that art is not static, but ever evolving. New styles and approaches to artistic creation may lead to public backlash because "[t]heir very novelty would make them repulsive until the public had learned the new language in which their author spoke."[240]

Justice Holmes's insight was soon validated by the inception of modern art, especially Cubism in the early 1900s.[241] The novelty of modern art broke from the artistic conventions of the Italian Renaissance, which led to tremendous public backlash and vehement attacks against modern art as "degenerate" and against modern artists as mentally ill or "freaks," a view even

238. Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251–52 (1903).

239. *See, e.g.*, Robert A. Gorman, *Copyright Courts and Aesthetic Judgments: Abuse or Necessity?*, 25 COLUM. J.L. & ARTS 1, 1 (2001) ("This philosophy has subsequently been characterized by courts and scholars as one of aesthetic nondiscrimination.").

240. *Bleistein*, 188 U.S. at 251–52.

241. *See generally* EDWARD LEE, CREATORS TAKE CONTROL 79–85 (2023); HUGH EAKIN, PICASSO'S WAR: HOW MODERN ART CAME TO AMERICA 51–54, 145–51 (2022).

endorsed by the leading U.S. physicians.[242] A *New York Times* editorial condemned modern art as a "false art."[243]

At the time, people did not understand Cubism as a true art because it did not follow the then-prevailing approach to artistic representation—a single-point, linear perspective of the Renaissance.[244] The New York Academy of Design perpetuated this artistic tradition by expecting its artist members to adhere to the traditional techniques for art.[245] Cubism shattered the very notion of artistic convention. Instead of convention or tradition, "[a]rtists were freed to develop their own views of the world through their creations."[246] Modern art's lesson is that creation dies with restrictions.

Had the Supreme Court interpreted "fine arts" as a restriction in *Bleistein*, no works of modern art would have qualified for copyright because people did not view such works as true art. Instead, as a *New York Times* editorial lamented, Cubism was "a part of the general movement . . . to disrupt and degrade, if not to destroy, not only art, but literature and society, too."[247] To borrow Holmes's words, "when seen for the first time," modern artworks were not considered art because "the public had [not] learned the new language in which their author spoke."[248] The United States missed appreciation of some works of genius, such as Pablo Picasso's, because of their very novelty.[249] Tragically, Nazi Germany later capitalized on the backlash and confiscated thousands of modern artworks as "degenerate art" to sell them to fund Germany's horrific campaign in World War II.[250]

History has borne out the wisdom of Justice Holmes's approach. The Supreme Court chose to interpret both the Progress Clause and the Copyright Act as imposing no limitations on pictorial illustrations eligible for copyright. The

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242. Park West Gallery, *These Early Reviews of Picasso's Art are Adorably Hysteric*, MEDIUM (Aug. 23, 2019), https://medium.com/@parkwestgallery/park-west-gallery-review-picasso-147efeccdf31 [https://perma.cc/N5RT-ZCXV] (including an illustration of *Medical Science's Protest Against New 'Art'*, WASH. TIMES 4 (Oct. 9, 1921)).

243. *Cubists of All Sorts*, N.Y. TIMES 6 (Mar. 16, 1913), https://www.nytimes.com/1913/03/16/archives/cubists-of-all-sorts.html [https://perma.cc/CRF6-EX7A].

244. *See* LEE, *supra* note 241, at 81–82.

245. *See* ELIZABETH LUNDAY, THE MODERN ART INVASION 4–6 (2015).

246. LEE, *supra* note 241, at 82.

247. *Id.* at 83.

248. Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251–52 (1903).

249. *See* EAKIN, *supra* note 241, at 51–54, 145–51.

250. LEE, *supra* note 241, at 85.

Court rejected the argument that visual advertisements were not "fine art" within the protection of the Copyright Act of 1870.[251] The Court interpreted the phrase "fine arts" to have only the limits expressly stated by Congress.[252] Even though, as the lower court concluded, the ordinary meaning of "fine arts" might impose a greater restriction on which visual creators qualify as authors (i.e., the fine artists),[253] the Court rejected this elitist reading of "fine arts" that would exclude from copyright "works of little merit or of humble degree, or illustrations addressed to the less educated classes."[254] Such an exclusionary copyright law was untenable: "the taste of *any* public is not to be treated with contempt."[255]

The Court also rejected the argument that paintings and engravings of existing things in the world did not fall within the scope of the Progress Clause.[256] The objection, suggested by the lower court's narrow interpretation of *Burrow-Giles*, was that real-life depictions did not constitute authorship, given that the things depicted already existed.[257] Justice Holmes, however, found no such restriction in the Progress Clause, explaining that a person's representations of existing things are "the personal reaction of an individual upon nature," which "always contains something unique."[258]

By rejecting these restrictions, the Supreme Court rendered a very broad scope to the Progress Clause—copyright was available to creators of all kinds and a broad universe of works. Justice Holmes's principle of avoidance later influenced the federal courts' permissiveness in recognizing the copyrightability of virtually all photographs.[259]

The *Bleistein* Court foreshadowed the *Feist* decision by recognizing that directories can be copyrighted, citing the

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251. *Bleistein*, 188 U.S. at 249.

252. *Id.* at 250 (discussing 18 Stat. 78, 79, c. 301, § 3).

253. Bleistein v. Donaldson Lithographing Co., 98 F. 608, 610–11 (D. Ky. 1899).

254. *Bleistein*, 188 U.S. at 251.

255. *Id.* at 252 (emphasis added).

256. *Id.* at 249.

257. Courier Lithographing Co. v. Donaldson Lithographing Co., 104 F. 993, 995 (6th Cir. 1900) ("[T]he [*Burrow-Giles* C]ourt found that a photograph might be something more than a mere mechanical and chemical product, and might rise to the dignity of art, through the blending of the mechanical parts of the process with the original intellectual conceptions of an artist.").

258. *Bleinstein*, 188 U.S. at 250.

259. Jewelers' Circular Pub. Co. v. Keystone Pub. Co., 274 F. 932, 934 (S.D.N.Y. 1921), *aff'd*, 281 F. 83 (2d Cir. 1922).

circuit court decision in *Henderson v. Tompkins*.[260] In that case, Judge William LeBaron Putnam recognized a principle of judicial avoidance that the Supreme Court cited favorably: "With reference to [copyright], the courts have not undertaken to assume the functions of critics, or to measure carefully the degree of originality, or literary skill or training involved."[261]

Justice Holmes's approach has been called a principle of aesthetic nondiscrimination, but its application goes beyond aesthetics to explain other important doctrines that avoid entangling courts in searching review of the creative aspects of works.[262] For originality, the Court set the bar of creativity at an "extremely low" level, with the "vast majority of works . . . quite easily" surpassing it.[263] For subject matter, the federal courts recognize that nearly all photographs satisfy originality.[264] The Court in *Star Athletica, L.L.C. v. Varsity Brands, Inc.*[265] cited the avoidance principle to reject giving weight to the marketability of a work when conducting the separability analysis of pictorial, graphic, or sculptural features in useful articles.[266] The Court even quoted Justice Holmes's principle of avoidance when describing the courts' very limited form of review of parodies under fair use.[267] And the Court cited it again when discussing the principle's application to how courts should analyze transformative purpose for fair use.[268] As evidenced by the Supreme Court's repeated invocations, this

260. *Bleistein*, 188 U.S. at 250.

261. Henderson v. Tompkins, 60 F. 758, 764 (D. Mass. 1894).

262. *See* Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991) ("To be sure, the requisite level of creativity is extremely low; even a slight amount will suffice. The vast majority of works make the grade quite easily, as they possess some creative spark, 'no matter how crude, humble or obvious' it might be."); Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 582 (1994) ("The threshold question when fair use is raised in defense of parody is whether a parodic character may reasonably be perceived. Whether, going beyond that, parody is in good taste or bad does not and should not matter to fair use. As Justice Holmes explained, '[i]t would be a dangerous undertaking for persons trained only to the law to constitute themselves final judges of the worth of [a work], outside of the narrowest and most obvious limits. . . .'").

263. *See Feist*, 499 U.S. at 345.

264. *See infra* notes 367–72 and accompanying text.

265. 580 U.S. 405 (2017).

266. *Id.* at 423 ("[A]sking whether some segment of the market would be interested in a given work threatens to prize popular art over other forms, or to substitute judicial aesthetic preferences for the policy choices embodied in the Copyright Act.").

267. *Campbell*, 510 U.S. at 582–83.

268. Andy Warhol Found. for the Visual Art, Inc. v. Goldsmith, 598 U.S. 508, 544 (2023) ("A court should not attempt to evaluate the artistic significance of a particular work.").

avoidance constitutes a first principle of copyright law—a principle that keeps courts from engaging in highly subjective, content-based discrimination of works of expression "outside the narrowest and most obvious limits."

Justice Holmes's insight about society's tendency to miss appreciation of new forms of art due to their novelty, especially when seen for the first time, resonates today with the tremendous backlash against the emerging class of AI-generated works, including prompt engineered works.[269] Courts should follow Justice Holmes's approach in *Bleistein* and avoid imposing restrictions on authors that do not exist in the text of the Progress Clause or the Copyright Act. As Justice Holmes admonished, a dose of judicial humility is necessary to avoid rendering broad swaths of works unprotected by copyright.

This principle of judicial avoidance of case-by-case review of works of authorship ultimately serves the First Amendment.[270] There's a danger of entangling courts and the Copyright Office in content-based review. Courts should not restrict authorship to a rigid, static view devised by persons only trained to the law. Otherwise, "some works of genius would be sure to miss appreciation."[271] Such a rigid, static view is contrary to the Progress Clause's goal of "promoting progress" and spurring authors to create now and in the future.

4. The Federal Courts Have Adopted a Permissive Approach to Authorship That Includes Accidental, Unintended Creations

Existing case law in the lower federal courts has embraced a permissive approach to the process of authorship. In an opinion written by Judge Jerome Frank, the Second Circuit recognized that authors may claim authorship of elements in a work that resulted by accident, without any prior conception, intention, or prediction by the authors.[272] The tale of Plutarch revealed an accidental creation: "A painter, enraged because he could not

269. *See, e.g.*, Sarah Shaffi, *'It's The Opposite of Art': Why Illustrators are Furious about AI*, THE GUARDIAN (Jan. 23, 2023, 1:00 PM), https://www.theguardian.com/artanddesign/2023/jan/23/its-the-opposite-of-art-why-illustrators-are-furious-about-ai [https://perma.cc/2ZRJ-99JC]; Brian Contreras, *AI is Causing Panic for Authors. Now the Courts are Involved*, L.A. TIMES (Oct. 20, 2023, 3:00 AM), https://www.latimes.com/entertainment-arts/business/story/2023-10-20/authors-ai-lawsuits-douglas-preston-george-rr-martin-michael-connelly [https://perma.cc/32A5-YHPU].

270. *See supra* note 237 and accompanying text.

271. Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251–52 (1903).

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

depict the foam that filled a horse's mouth from champing at the bit, threw a sponge at his painting; the sponge splashed against the wall—and achieved the desired result."[273] The authors of works are those who "originate[]" or "make them," even if done unintentionally or accidentally.[274]

In support of this broad approach to authorship, Judge Frank cited patent cases that recognize accidental inventions as patentable.[275] Indeed, as explained in Subsection B, patent law does not scrutinize the manner of invention but instead allows inventors near complete freedom to invent.

Ginsburg and Budiardjo describe Judge Frank's approach as authorship by adoption, which they agree should be allowed under copyright law.[276] Yet, they would allow it "only if the 'adopter' also performed or directed the work's execution."[277] Because they wrote their article before the public launch of text-to-image generators, it is unclear whether they would accept a creator's prompts as sufficient direction. I do.[278] If Judge Frank's example of accidental authorship is sufficient, a prompt-engineered image should be too. Prompt engineers are providing far more direction than throwing sponges at a canvas in frustration. The process of prompt engineering is iterative, with the creators refining an image through iterations or revisions to achieve the selection or arrangement they prefer.

5. Congress Recognized a Broad, Unrestrictive Approach to Authors Including by Iterations with No Limit on Technology

Consistent with the first principles of the Progress Clause, Congress has embraced a broad, unrestrictive approach to authors in the Copyright Act. Indeed, nowhere in the Copyright Act is there any suggestion that authors are restricted in *how* they create. The Copyright Act imposes no conditions that

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273. *Id.* at 105 n.23.

274. *Id.* at 104.

275. *Id.* at 105 n.25; *see also* Chamberlin v. Uris Sales Corp., 150 F.2d 512, 513 n.4 (2d Cir. 1945) ("It is not easy to ascertain what is intended and what [is] inadvertent in the work of genius: That a man is color-blind may make him a master of black and white art; a painter's unique distortions, hailed as a sign of his genius, may be due to defective muscles. Consider the great scientific discoveries—such as the X-ray and the galvanic circuit—which resulted from accidents.").

276. *See* Ginsburg & Budiardjo, *supra* note 17, at 367–68.

277. *Id.* at 368.

278. *See also* Samuelson, *Ownership Rights*, *supra* note 16, at 1198–99 (recognizing that the Second Circuit's low standard of originality in *Alfred Bell* might be applied to computer-generated works).

authors must eliminate random elements, must dictate specific results, or must predict the final work ahead of time.

Section 102(a) of the Copyright Act instead takes an expansive approach to "original works of authorship" by recognizing that such works may be "fixed in any tangible medium of expression, *now known or later developed*, from which they can be perceived, reproduced, or otherwise communicated, either directly or *with the aid of a machine or device*."[279] The House Report explains that this "broad language" was "intended to avoid the *artificial and largely unjustifiable distinctions*" in copyright decisions based on technical differences in technologies, such as in *White-Smith Publishing Co. v. Apollo Co.*[280] An author can use any technology "now known or later developed" to fix the work.[281] The Copyright Act is technology-neutral and expressly accommodates future technologies.[282]

The Copyright Office's rigid view of authorship conflicts with the Copyright Act's recognition that authorship may involve an iterative process over time, instead of just conception and then production in lockstep. The definition of "created" states: "where a *work is prepared over a period of time*, the portion of it that has been fixed at any particular time constitutes the work as of that time, and where the work has been prepared in different versions, each version constitutes a separate work."[283] If the Act recognizes each version as a separate work, then imposing a requirement that the author must predict the work "ahead of time" is mistaken. Why would authors ever need to predict the work ahead of time when they are expressly permitted by the Copyright Act to make revisions and different versions? The Copyright Act's text recognizes a far more dynamic process than the Copyright Office allows for.

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279. 17 U.S.C. § 102(a).

280. 209 U.S. 1 (1908); H.R. REP. NO. 94-1476, at 52 (1976) (emphasis added) (discussing White-Smith Publ'g Co. v. Apollo Co., 209 U.S. 1 (1908)).

281. 17 U.S.C. § 102(a).

282. *See, e.g.*, 17 U.S.C. § 102(a) ("Copyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression, now known or later developed . . . ."); *see also* Brad A. Greenberg, *Rethinking Technology Neutrality*, 100 MINN. L. REV. 1495, 1496 (2016) (describing the Copyright Act's application "to all technologies, even those that did not exist").

283. 17 U.S.C. § 101 (emphasis added). "Fixed" is further defined as "when [the work's] embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration." *Id.*

B. *"Inventors" in the Progress Clause Has No Restrictions of the Kind the Copyright Office Imposes on "Authors"*

A first principle approach examines the structure of the Progress Clause, which combines both copyright and patent aspects. Although copyright and patent law are different, the Framers saw close parallels between "Authors" and "Inventors," who both would receive "the exclusive right to their respective writings and discoveries."[284] When examining the meaning of the Progress Clause, particularly for putative constitutional restrictions, the Supreme Court has turned to the Clause's treatment of inventions for guidance.[285] Indeed, in 1854, the Supreme Court viewed authorship and inventorship as involving parallel pursuits:

> After an *author* has printed his book, or map, in performance of the contract of copyright with the public, and it has thus passed from the condition of a thought or conception still under deliberation, as well as after a patented machine has been completed and sold by the *inventor*, in fulfilment of the contract of his letters-patent, and he has, in any manifest form, clothed his incorporeal right with a valuable corporeal substance, and, abstracting other values for the purpose, has brought it into the condition of property . . . .[286]

In its decision against Thaler, the Copyright Office even relied on a district court ruling denying the patentability of an autonomously generated invention.[287]

Yet, despite the use of patent law as a guide,[288] inventors are not subject to the kind of restrictive requirements that the Copyright Office has imposed on authors—the elimination of "random" elements, the exercise of "sufficient human control" to dictate specific results, and the prediction "ahead of time" of

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284. U.S. CONST. art. I, § 8, cl. 8.

285. *See, e.g.*, Eldred v. Ashcroft, 537 U.S. 186, 201 (2003); Golan v. Holder, 565 U.S. 302, 324 (2012); United States v. Paramount Pictures, 334 U.S. 131, 156–57 (1948).

286. Stevens v. Gladding, 58 U.S. 447, 449 (1854) (emphasis added).

287. A RECENT ENTRANCE decision, *supra* note 92, at 5 n.7.

288. For an insightful analysis of the Court's "patent-copyright borrowing," see Mark Bartholomew & John Tehranian, *Historical Kinship & Categorical Mischief: The Use and Misuse of Doctrinal Borrowing in Intellectual Property Law*, 109 IOWA L. REV. (forthcoming 2024), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4426386 [https://perma.cc/EW77-UCQB].

the specific results. Instead, patent law rejects the imposition of any requirement on the manner in which invention occurs.

The Federal Circuit recognizes that inventors can reduce an invention to practice without conceiving of it during the process but still satisfy the conception requirement when they later recognizes what the invention is.[289] As the Federal Circuit explained: "In some instances, an inventor is unable to establish a conception until he has reduced the invention to practice through a successful experiment. This situation results in a simultaneous conception and reduction to practice."[290] In other words, patent law does *not* examine the manner of invention, much less require inventors to predict ahead of time the specific results, which the Copyright Office requires for authors. Serendipitous inventions may be patented.[291] And an inventor might not conceive the invention until after it has already been reduced to practice.[292] Conception may come second. Patent law rejects the type of static, deterministic model that the Copyright Office adopts for authors. Such a restrictive view of inventorship would straitjacket inventors and stifle innovation as well as "Progress."

Congress rejected an attempt to restrict the process of invention to a rigid, formulaic path. In *Cuno Engineering Corp. v. Automatic Devices Corp.*,[293] the Supreme Court described the obviousness requirement for patentability as requiring "the flash of creative genius."[294] The Court held that the inventor's contribution must reach a sufficient level of inventive genius.[295] Subsequently, Congress enacted Section 103 of the Patent Code to avoid such restrictions on the inventive process.[296] As the Court recognized in *Graham v. John Deere Co.*,[297] Congress eliminated the "flash of creative genius" requirement for inventors and instead *left the process of inventorship open-*

289. *See* Amgen, Inc. v. Chugai Pharm. Co., Ltd., 927 F.2d 1200, 1206 (Fed. Cir. 1991); Dan L. Burk, *AI Patents and the Self-Assembling Machine*, *in* THE FUTURE OF INTELLECTUAL PROPERTY 129, 135 (Daniel J. Gervais ed., 2021).

290. *Amgen*, 927 U.S. at 1206.

291. Burk, *supra* note 289, at 135; Sean B. Seymore, *Serendipity*, 88 N.C. L. REV. 185, 190 (2009).

292. *Amgen*, 927 U.S. at 1206.

293. 314 U.S. 84 (1941).

294. *Id.* at 91.

295. *Id.*; *see* Ryan Abbott, *Everything Is Obvious*, 66 UCLA L. REV. 2, 11–14 (2019) (describing the history of the "flash of genius" requirement).

296. 35 U.S.C. § 103.

297. 383 U.S. 1 (1966).

ended.[298] The Court explained that "[Section 103] states that patentability . . . is not to be negatived by the manner in which the invention was made[,] . . . it is immaterial whether it resulted from long toil and experimentation or from a flash of genius."[299]

The Progress Clause's recognition of "inventors" eschews a narrow view of inventorship. As Professor David Schwartz and Max Rogers explain while tracing the history of the English practice of granting "patents of importation" to "inventors" who merely imported inventions known abroad, the Framers of the U.S. Constitution may have viewed the Patent Clause as authorizing Congress to grant importation patents as well.[300] The First Congress considered adopting such a provision, with support from Hamilton and George Washington, but Madison's opposition apparently led to its rejection.[301] Although the historical record concerning the Framers' views is inconclusive,[302] Congress later enacted a geographical limitation to prior art based on the knowledge of and uses by others in the United States; the restriction provided that prior art was not novelty-defeating and an inventor could receive a patent even though the invention already existed in other parts of the world.[303] Although this geographical limitation did not allow a full-blown importation patent, a U.S. inventor could satisfy novelty despite the same invention being known or publicly used by others in foreign countries. In 2011, Congress eliminated this geographical limitation in the America Invents

298. *Id.* at 15 (emphasis added).

299. *Id.* at 16 n.9 (quoting STAFF OF S. SUBCOMM. ON PATENTS, TRADEMARKS, AND COPYRIGHTS, 85TH CONG., EFFORTS TO ESTABLISH A STATUTORY STANDARD OF INVENTION, STUDY NO. 7, SENATE SUBCOMMITTEE ON PATENTS, TRADEMARKS, AND COPYRIGHTS (Comm. Print, 1958); *Hearing on H.R. 3760 Before the Subcomm. 3 of the H. Comm. on the Judiciary*, 82d Cong., 1st Sess. (1951)).

300. See David L. Schwartz & Max Rogers, *"Inventorless" Invention? The Constitutional Conundrum of AI-Produced Inventions*, 35 HARV. J.L. & TECH. 531, 545–57 (2022).

301. *Id.* at 558–59.

302. *See* Malla Pollack, *The Multiple Unconstitutionality of Business Method Patents: Common Sense, Congressional Consideration, and Constitutional History*, 28 RUTGERS COMPUT. & TECH. L.J. 61, 83–84 (2002) (discussing the history of the debate over importation patents); Edward C. Walterscheid, *Patents and the Jeffersonian Mythology*, 29 J. MARSHALL L. REV. 269, 314 n.206 (1995); Edward C. Walterscheid, *Novelty in Historical Perspective (Part II)*, 75 J. PAT. & TRADEMARK OFF. SOC'Y 777, 783 (1993).

303. *See* Camille M. Barr, *The Section 201 Grace Period Under the America Invents Act*, 4 NO. 6 LANDSLIDE 46, 47 (2012) (discussing § 102 in original Patent Code of 1952).

Act.[304] This historical example shows that Congress has considerable discretion in defining "inventor" and the conditions of patentability. No specific inventive process is expected, much less required. Under prior law, one could have even "invented" something publicly known and used in other countries.

In 2024, the U.S. Patent Office followed a similar flexible approach to inventorship by recognizing that *AI-assisted inventions* with significant human contributions to the invention can qualify for patents.[305] Although the requirements for patents and copyrights differ, the requirements for patents, such as novelty and nonobviousness, typically are *harder to meet* than those for copyrights. Against this backdrop, the Patent Office's flexible approach to AI-assisted inventions stands in stark contrast to the Copyright Office's restrictive approach to AI-generated works. As the Patent Office noted, its approach

> explains that while *AI-assisted inventions are not categorically unpatentable*, the inventorship analysis should focus on human contributions, as patents function to incentivize and reward human ingenuity. Patent protection may be sought for inventions for which a natural person provided a significant contribution to the invention, and the guidance provides procedures for determining the same.[306]

The Patent Office's approach is consonant with the first principles approach advanced by this Article. The Patent Office interprets "inventor" in accord with the Progress Clause's overriding objective:

> Focusing the patentability of AI-assisted inventions on the human contributions supports th[e] policy objective [of the Progress Clause] by incentivizing human-centered activities and contributions, and by providing patent protections to inventions with significant human contributions while prohibiting

304. *Id.* at 47–48.

305. *See* U.S. Patent Office, Inventorship Guidance for AI-Assisted Inventions, 89 Fed. Reg. 10043, 10045–46 (Feb. 13, 2024), https://www.govinfo.gov/content/pkg/FR-2024-02-13/pdf/2024-02623.pdf [https://perma.cc/YSJ7-4QWZ].

306. *Id.* at 10044 (emphasis added).

> patents on those that are not invented by natural persons.[307]

The Patent Office's guidance provides five principles to guide inventors on how they can qualify for patents while developing AI-assisted inventions.[308]

The Copyright Office's approach creates an untenable divergence from patent law's recognition of inventorship, which includes serendipitous creations unforeseen to the inventor during the inventive process. Indeed, patent law puts *no* restrictions on the manner of invention—certainly none of the kind the Copyright Office has imposed on authors. The Office offers no valid reason why it denies copyright based simply on the manner of creation when patent law grants patents *irrespective* of the manner of invention. Indeed, it is anomalous that copyrights, which are granted automatically upon fixation of a work without any agency review, would nonetheless require authors to follow a rigid process of authorship, even though patents, which require agency review before their grant, do not require any such rigid process for inventors to follow at all.

C. *The First Principles of Authorship and the Progress Clause*

1. Summary

The first principles of authorship are summarized in Table 2. The first three principles relate to the requirements for a person to qualify as an author: (1) the person must *originate* or make a work and not copy it from other works;[309] (2) the person must embody the work in any "form[] . . . by which the ideas in the mind of the author are given visible expression"[310]; and (3) the work must have a *minimal level of creativity*, showing the exercise of the creative powers of the person's mind, which can even be satisfied in the person's mere *selection or arrangement* of uncopyrightable elements.[311] The fourth principle applies to the review of the author's work: "outside of the narrowest and most obvious limits," courts and agencies must avoid entangling themselves in case-by-case review of works to determine their eligibility.[312]

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307. *Id.* at 10046–47.
308. *Id.* at 10048–49.
309. Alfred Bell & Co. v. Catalda Fine Arts, 191 F.2d 99, 104 (2d Cir. 1951).
310. Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 58 (1884).
311. Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991).
312. Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251–52 (1903).

Table 2. The First Principles of Authorship in Progress Clause

Authorship	**Values of the Progress Clause**
1. Originate or create a work, and do not copy it from other works (independently create)	A. Promote progress and learning in the United States
2. Work embodied in "all forms … by which the ideas in the mind of the author are given visible expression" (work embodied in form)	B. Incentivize people "to devote themselves to intellectual and artistic creation" for the public's benefit by granting copyrights as "rewards commensurate with the services rendered"
3. Work has a minimal level of creativity, which can even be satisfied in the selection or arrangement of uncopyrightable elements (minimal level of creativity, or bare minimum)	C. Liberal construction of "Writings" of "Authors"
4. Judicial avoidance of case-by-case review to determine if works qualify for copyright "outside of the narrowest and most obvious limits"	D. Copyright should be available to creators of all kinds of work so that society does not miss appreciation of new forms of art.

These four requirements should be applied in ways that serve the overriding values and goals of the Progress Clause to promote progress and learning in the United States and to incentivize people to create and disseminate works for the public's benefit by granting copyright as the "rewards commensurate with the services rendered." These values favor a broad or "liberal" construction to the "Writings" of "Authors"—one that prefers inclusiveness and avoids judicial discrimination of works.[313] As Part III explains in depth, the Copyright Office's restrictive approach imposes requirements (avoidance of random elements, prediction of results ahead of time, and dictation of specific results) that go far beyond these first principles. They ignore the values of the Progress Clause, especially its overriding goal, "to encourage people to devote themselves to intellectual and artistic creation."

Under these first principles, there is no specific manner, path, process, or theory of authorship that creators must follow.

313. *Id.* at 251.

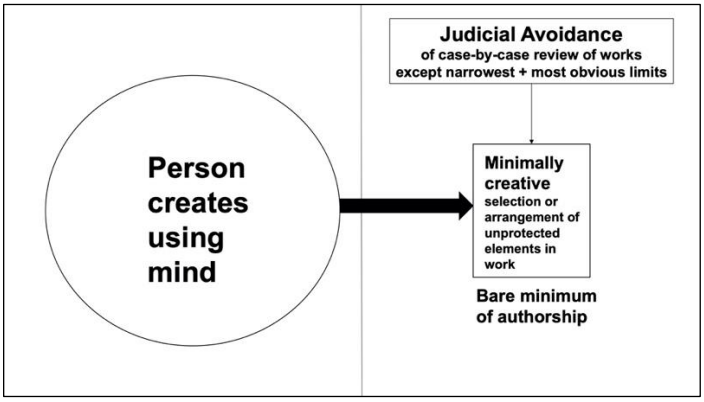
Just as the Progress Clause does not require inventors to conceive first and then reduce to practice, the same Clause does not require authors to conceive first and then produce the work. There can be interplay and synergy between the two. Authors may develop iterations or "different versions" to produce the final work, a dynamic process that the Copyright Act expressly contemplates. And, as the Supreme Court has recognized, one type of authorship exists in simply making either a selection or arrangement of elements that satisfies the bare minimum level of creativity. An author is *not* required to create the individual elements or to engage in both selection and arrangement. Either suffices.[314]

This bare minimum approach to authorship eschews courts imposing a certain way in which authorship must occur. Authors are free to use the creative powers of their mind in whatever way they choose. This freedom of authorship is represented by the circle in Figure 4. Under judicial avoidance, depicted at the top of Figure 4, courts must refrain from reviewing the process of creation (other than potential copying) and the work itself, outside of the narrowest and most obvious limits. To qualify as authors, creators must at least select or arrange elements in a minimally creative way. Creators can go beyond the bare minimum, such as in composing the elements or expression. But, as long as the bare minimum is met, the creators' works qualify for copyright. This approach best encapsulates the first principles of authorship in the Progress Clause and avoids straitjacketing authorship into a rigid formula as in the Copyright Office's approach.[315]

314. *See* 2021 COMPENDIUM, *supra* note 66, at § 618.6 (recognizing selection authorship, coordination authorship, and arrangement authorship as separate kinds of authorship).

315. *See supra* Figure 3.

Figure 4. The Bare Minimum Requirement for Authorship



2. Application of Bare Minimum to Works Created Using Prompt-Engineering

These first principles apply generally. But the type of work may affect the analysis. This Article focuses on the analysis of prompt-engineered images. I provide preliminary thoughts on how the test applies to other types of works.[316] Table 4 summarizes the analysis.

Table 4. Application of the Bare Minimum of Authorship to AI-generated works

Type of AI-generated work	**Bare Minimum Met?**	**Scope of copyright**
Prompt-engineered visual work	Yes, if a human made selection or arrangement of elements that is minimally creative	Thin copyright
Prompt-engineered musical work or sound recording	Yes, if a human made selection or arrangement of elements that is minimally creative	Thin copyright
Prompt-engineered audiovisual work or motion picture	Yes, if a human made selection or arrangement of	Thin copyright

316. *See generally* LEE, *supra* note 146 (discussing authorship requirements as they pertain to copyrightability).

	elements that is minimally creative	
Prompt-engineered chart, table, or other compilation of data	Yes, if a human made selection or arrangement of elements that is minimally creative	Thin copyright
Prompt-engineered essay, article, novel, or work of nonfiction	No, if a human did not compose any expression	No copyright
Work generated by simple prompt of one- or two-words (de minimis)	No, if a human did not make a minimally creative selection or arrangement of elements	No copyright
Randomly and autonomously generated by AI with no human selection or arrangement of elements in the origination of work	No	No copyright

a. Prompt-Engineered Images and Visual Works

If we apply the first principles of authorship to the images in Kashtanova's *Zarya of the Dawn*, the images easily pass the test of authorship. First, Kashtanova originated or made the images, including a selection or arrangement of elements within each image, by exercising the creative powers of their mind. Kashtanova used Midjourney to create the images of the non-binary character Zarya they envisioned for their book. There is no suggestion that Kashtanova copied the image from another work. As the Copyright Office summarized: "To obtain the final image, she describes a process of trial-and-error, in which she provided 'hundreds or thousands of descriptive prompts' to Midjourney until the 'hundreds of iterations [created] as perfect a rendition of her vision as possible.'"[317]

Although the Copyright Office discounted Kashtanova's creative effort both as mere "sweat of the brow" and as lacking sufficient control over the images,[318] the Office's view is erroneous. As explained above, there is a fundamental

317. *Zarya of the Dawn* decision, *supra* note 19, at 8.
318. *Id.* at 10.

difference between the sweat of the brow and an author's *creative effort*.[319] Indeed, the Supreme Court recognized that creative effort is what the Progress Clause is meant to promote.[320]

First, the Progress Clause does not forbid authors from relying on randomness during the creative process. But, even if it did, Kashtanova's images were not random. What is striking about Kashtanova's images is that they depict a *consistent* visual character, the non-binary Zarya. If the process were as random as the Office portrayed it, Kashtanova would not have been able to create the same, consistent visual character in different scenes or images. Instead, the characters would all look different. Kashtanova's success in producing a consistent character in twenty-four images, including some images of close-up portraits of Zarya's face, others featuring the character from the torso up, and a few with full-body shots of Zarya, demonstrates how creative Kashtanova was—and how much control they had—in using Midjourney, in part by Kashtanova's repeated use of the name "Zendaya" in prompts for the character.[321] The results are far from random.[322]

Second, Kashtanova's ideas were embodied in both digital and printed form as pictorial works included in a literary work.[323] Both pictorial works and literary works fall within the subject matter as the types of works Congress recognized as eligible for copyright in the Copyright Act.[324]

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319. *See supra* text accompanying notes 201–08.

320. *See* Mazer v. Stein, 347 U.S. 201, 219 (1954).

321. *Zarya of the Dawn* decision*, supra* note 19, at 8–9, n.13; *see* James Hookway, *AI Generated Art for a Comic Book. Human Artists Are Having a Fit.*, WALL ST. J. (Jan. 29, 2023, 11:11 AM), https://www.wsj.com/articles/ai-generator-art-midjourney-zarya-11674856712 [https://perma.cc/YBK6-8BNF]. Zendaya, the actor, has supported the use of gender-neutral words. *See* Jordyn Tilchen, *Zendaya Clapped Back at a Gendered Interview Question in the Best Way*, BUSTLE (Feb. 24, 2021), https://www.bustle.com/entertainment/zendaya-corrects-gendered-vanity-fair-question [https://perma.cc/8JBP-JP75].

322. As noted above, Midjourney launched a new function in 2024 that directly enables people to create consistent characters across images. *See* Franzen, *supra* note 60; *Midjourney Consistent Characters*, MIDJOURNEY V6 (Mar. 27, 2024), https://www.midjourney-v6.com/midjourney-consistent-characters/ [https://perma.cc/CR4N-FARH].

323. Kashtanova's use of prompts to generate the expression is analogous to a photographer's use of a camera to capture a photograph. Both Kashtanova and a photographer should be considered authors based, at least, on their creative selection of elements embodied in their final works.

324. 17 U.S.C. § 102.

Third, the images Kashtanova generated surpass a minimal level of creativity. Although Kashtanova did not draw or paint the images by hand, at the very least they *selected* key elements in the composition of each image, including which images featured Zarya and which did not, the contrasting use of darkness and light to convey the overall theme of *Zarya of the Dawn*, and the features and expressions of the non-binary protagonist. These selections created a consistent visual character appearing in twenty-four different images with different backgrounds, all of which were deserted.[325] Kashtanova selected having no other humans or living creatures depicted in New York City—to convey the feeling of loneliness and the unnerving possibility that everyone had vanished, leaving Zarya to fend for themselves. These are not random images strewn together.

The images embody Kashtanova's selection of key elements in the images, which individually and collectively tell the story of Zarya.[326] Kashtanova's selection is at least as creative as a street photographer snapping photographs of a stranger in New York City. Kashtanova's selection of elements in the images is what Justice Holmes aptly called the *ensemble* in pictures.[327] Kashtanova's creative selection is likely greater than the simple logos that the Copyright Office has routinely allowed for copyright registration.[328] It is also likely that Kashtanova *arranged* the elements within the images in a minimally creative way, such as by creating various iterations of the images to pick the locations and orientation of elements within them.

Finally, the grant of copyright to Kashtanova's images serves the overriding objective of the Progress Clause. It

325. *See* Kris Kashtanova, *supra* note 109 (@kris.kashtanova), INSTAGRAM (Sept. 23 2022), https://www.instagram.com/kris.kashtanova/p/Ci1rUY8O3Bu/ [https://perma.cc/6JQS-Z48G] (copy of *Zarya of the Dawn*).

326. *Cf.* Castle Rock Ent't, Inc. v. Carol Pub. Group, Inc., 150 F.3d 132, 138 (2d Cir. 1998) (analyzing the *Seinfeld* series as one aggregate work for the purposes of infringement analysis).

327. Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 250 (1903); *see also* 2021 COMPENDIUM, *supra* note 66, at § 710 ("[A] compilation may be registered if the selection, coordination, and/or arrangement as a whole would be considered a literary work, a musical work, or any other type of work listed in 17 U.S.C. § 102(a)."). For a critical review of the courts' recognition of authorship in the selection or arrangement of elements for a variety of works, see Dennis S. Karjala, *Copyright and Creativity*, 15 UCLA ENT. L. REV. 169, 193–200 (2008).

328. *See e.g.*, JUST DO IT, Registration No. 5,727,940 (providing the registered trademark of Nike's "Just Do It" logo as an example of a routinely allowed logo copyright registration).

incentivizes people to exercise the creative powers of their minds to create new works—including one about a new, non-binary character—which advances the public's learning and knowledge. By contrast, the Copyright Office's approach discourages creators from using AI lest they lose the copyrights for their creations.

b. De Minimis Human Selection or Arrangement

It is important to emphasize that the bare minimum approach does *not* permit everything generated through AI to be copyrighted. Many prompt-engineered works will *not* satisfy even the bare minimum of selection or arrangement for authorship. For example, a prompt consisting of only one or two words would be hard pressed to convey a minimally creative selection or arrangement by the human prompter, especially if the relationship between the word and the image is remote. In such case, the human selection or arrangement is *de minimis*. For example, I typed the prompt "love" on Midjourney and received the set of images shown in Figure 5.

Figure 5. Images from One-Word Prompt "Love"

Unless I made a minimally creative selection or arrangement of elements by further refining at least one of the Figure 5 images, such as through inpainting or changing or repositioning some of the elements, I would not satisfy the bare minimum. Further, works that are completely autonomously

generated by AI, without a minimally creative selection or arrangement by a human, such as the work in Thaler's case, also fails the bare minimum. The bare minimum approach incentivizes human creators to use their minds *more* when using AI. This approach is analogous to the Patent Office's approach to AI-assisted inventions, which is meant to "incentivize and reward human ingenuity."[329]

c. Prompt-Engineered Literary Works

As noted in Table 4 above, many individual literary works that are purely textual and that were generated entirely by prompts likely will not satisfy the bare minimum for copyright. The analysis of prompt-engineered texts is different than the analysis for visual works because the selection and arrangement of words in literary works often involves a different understanding of what can be copyrighted. An AI-generated essay or article falls within the category of literary works.[330] An AI-generated essay, article, or novel should not qualify for copyright based merely on a selection or arrangement of elements, as opposed to a person's writing of the actual words and sentences in the work (i.e., authorship by composition) or a person's compilation of *several* AI-generated works in an anthology, a collective work, or a combination of text and images (i.e., authorship by compilation).[331]

Someone who asks ChatGPT to "write an essay on Justice Holmes's influence on tort law and copyright law" cannot claim authorship of the generated essay because the conventions of sentence and essay structure are different from the conventions for photography or visual works.[332] Courts have long recognized that photographs, visual works, and other artworks can constitute authorship based on the person's selection or

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329. *See* U.S. Patent Office, *supra* note 305, at 10044.

330. *See* 17 U.S.C. § 101 ("'Literary works' are works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects, such as books, periodicals, manuscripts, phonorecords, film, tapes, disks, or cards, in which they are embodied.").

331. *See id.* ("A 'collective work' is a work, such as a periodical issue, anthology, or encyclopedia, in which a number of contributions, constituting separate and independent works in themselves, are assembled into a collective whole.").

332. In a probing article, Professor Rebecca Tushnet dissects the tensions within copyright law between its original construction based on a model for literary works and its extension to other media, including visual works. *See* Rebecca Tushnet, *Worth a Thousand Words: The Images of Copyright*, 125 HARV. L. REV. 683, 684–86 (2012).

arrangement of elements in the visual works.[333] By contrast, courts have not recognized that the selection or arrangement of sentences or paragraphs in an essay can constitute a copyrightable work, absent the author's own expression.[334] That is so because a sentence itself is a selection and arrangement of words and a paragraph is a selection and arrangement of sentences. Indeed, language itself is just a selection and arrangement of words. To recognize a copyright for a selection or arrangement of words in a sentence, paragraph, or essay would subsume, if not undermine, the copyright for the literary work itself. It would also likely undermine the idea-expression dichotomy,[335] which has greater salience for textual works than visual works.[336]

In short, authorship of essays and other literary works lies in the author's composing the words—i.e., the expression—in the work. Thus, the essays and writings created on a generative-AI program would not qualify as an author the prompter who did not write any expression.

By contrast, charts, forms, directories, catalogs, and other groupings of information, including preexisting facts, may

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333. *See, e.g.*, Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 60 (1884) (discussing Sarony's selection and arrangement); Rentmeester v. Nike, 883 F.3d 1111, 1119 (9th Cir. 2018) ("What *is* protected by copyright is the photographer's selection and arrangement of the photo's otherwise unprotected elements."); Satava v. Lowry, 323 F.3d 805, 811 (9th Cir. 2003) ("[A] combination of unprotectable elements is eligible for copyright protection only if those elements are numerous enough and their selection and arrangement original enough that their combination constitutes an original work of authorship.").

334. *See* Mary Minow, *Copyright Protection for Short Phrases – Rich Stim*, STAN. COPYRIGHT & FAIR USE BLOG (Sept. 9, 2003), https://fairuse.stanford.edu/2003/09/09/copyright_protection_for_short/ [https://perma.cc/NX5Y-JQU6].

335. Professor Mark Lemley contends that AI-prompted works confound the basic dichotomy of copyright law in protecting expressions but not underlying ideas. *See* Lemley*, supra* note 17, at 26–28. Creators using AI tools come up with the ideas, and, increasingly, AI generates the expression, turning "copyright law on its head." *Id.* at 28.

336. Courts have recognized that the idea–expression dichotomy, created for literary works, is a poor fit for visual works. *See, e.g.*, Mannion v. Coors Brewing Co., 377 F. Supp. 2d 444, 458–59 (S.D.N.Y. 2005) ("This Court is not the first to question the usefulness of the idea/expression terminology in the context of non-verbal media."). Synthesized music from preprogrammed tracks and beats raises a similar situation in which a computer helps to generate the expression with the involvement of human creators, who select and arrange the elements. *See Intro To Arranging in GarageBand on Mac*, APPLE INC.: APPLE SUPPORT, https://support.apple.com/guide/garageband/intro-to-arranging-gbndc51b6e32/mac [https://perma.cc/M86R-BYRB]. For each type of work, I believe the human creator who makes at least a minimally creative selection or arrangement of elements may qualify as the author.

constitute a compilation based on its selection or arrangement of information.[337] For these types of works, a person's selection or arrangement of the elements in the creation, while using an AI platform, may potentially satisfy the bare minimum for authorship, in which case the scope of copyright is thin.

d. Other Types of Prompt-Engineered Works

Other types of prompt-engineered works should be analyzed in similar fashion. If the type of work permits authorship through an original selection or arrangement of unprotected elements, then the bare minimum approach can apply to such a prompt-generated work. For example, courts have recognized that authorship can lie in an original selection or arrangement of unprotected musical elements.[338] For musical works and sound recordings created using generative AI, the creator can potentially make an original selection or arrangement if the person's text prompts correspond to the musical elements produced.[339] Other types of AI-generated works should be analyzed within the relevant type of work listed within the subject matter of copyright under section 102(a).[340] The conventions related to a type of work affect what can constitute a minimal level of creativity.

e. AI-generated works Beyond Prompt-Engineering

It goes beyond this Article's scope to analyze other types of AI-generated works that do not involve prompt-engineering. Novel questions will likely arise in other cases involving the

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337. *See*, *e.g.*, MyWebGrocer, LLC v. Hometown Info, Inc., 375 F.3d 190, 193 (2d Cir. 2004); Kregos v. Associated Press, 937 F.2d 700, 704–05 (2d Cir. 1991); *see also* Matthew Bender & Co. v. W. Pub. Co., 158 F.3d 674, 681–82 (2d Cir. 1998) (collecting cases).

338. *See, e.g.*, Three Boys Music Corp. v. Bolton, 212 F.3d 477, 485 (9th Cir. 2000) (explaining that copyright extends to "a combination of five unprotectible elements: (1) the title hook phrase (including the lyric, rhythm, and pitch); (2) the shifted cadence; (3) the instrumental figures; (4) the verse/chorus relationship; and (5) the fade ending").

339. For more on generative-AI music platforms, see Aayush Mittal, *Text-to-Music Generative AI : Stability Audio, Google's MusicLM and More*, UNITE.AI (Sept. 24, 2023), https://www.unite.ai/text-to-music-generative-ai-stability-audio-googles-musiclm-and-more/ [https://perma.cc/HCV3-ZH87]. Granted, the lyrics of a musical work raises a similar problem presented by literary works because they both involve words. For that reason, lyrics that are purely AI-generated without any expression of the human creator arguably should not be copyrightable apart from the entire musical work.

340. 17 U.S.C. § 102(a).

copyrightability of such AI works.[341] Innovative AI artists are already creating their own AI models, which generate breathtaking new artworks that have been exhibited in the leading museums of modern art.[342] The test for copyrightability should be the same for these works, too. For visual works, courts should examine if the artist made, at least, a minimally creative selection or arrangement of elements in the work. If so, the artist qualifies as an author of the work.

III. THE COPYRIGHT OFFICE'S RESTRICTIVE APPROACH TO AI-GENERATED WORKS IS WRONG

This Part explains why the Copyright Office's position on AI-generated works is wrong and how it disadvantages U.S. creators and businesses the most.

A. *The Copyright Office's Restrictive Approach, If Adopted by Courts, Will Eliminate Congress's Power to Adopt a More Liberal Construction*

The Copyright Office's view of human authorship is a *constitutional* interpretation of "Author" in the Progress Clause, derived from the Office's understanding of Supreme Court precedent.[343] Thus, if courts adopt the Copyright Office's approach to the so-called traditional elements of authorship, it not only will deny copyright to an entire class of creative works that involve AI generation but also will foreclose Congress's ability to adopt a more liberal construction. That drastic result would be unfortunate given the Supreme Court's repeated recognition of the need to defer to Congress in deciding how

341. For example, a novel question is raised if the artist selects all the elements that the AI program randomly arranges in numerous different ways in different works and the artist refines the selection consistent with her vision of the artworks. The number of works generated on AI platforms in one year alone was estimated to be fifteen billion. *See* Nadine Kahil, *GenAI Generated 15 Billion Images in One Year, a Feat that Took Photographers 150 Years to Achieve*, WIRED (Aug. 21, 2023), https://wired.me/culture/ai-image/ [https://perma.cc/WYY4-7CP3]. Instead of prompt engineering, one could write a program for AI to autonomously generate works without end. Although not an AI program, the algorithm for the generative artworks was programmed to create "billions of unique artworks." *Autoglyphs,* LARVA LABS, https://www.larvalabs.com/autoglyphs [https://perma.cc/2MFZ-K767].

342. *See, e.g.*, *Refik Anadol: Unsupervised*, MOMA, https://www.moma.org/calendar/exhibitions/5535 [https://perma.cc/BWX3-9SN8]; *Refik Anadol: Echoes of the Earth: Living Archive*, SERPENTINE GALLERIES, https://www.serpentinegalleries.org/whats-on/refik-anadol-echoes-of-the-earth-living-archive/.

343. *See supra* notes 85–86 and accompanying text.

copyright law can best promote progress.[344] The historical flexibility afforded to Congress is necessary to address "major technological innovations" in creative production, as now presented by generative AI.[345]

Any other requirement imposed on authorship—such as the avoidance of randomness, the exercise of sufficient control to dictate the specific results, and the prediction ahead of time of the specific results—that restricts authorship beyond the Progress Clause's express limits should be left for Congress to decide. The Copyright Act recognizes that "works of authorship" include "literary works," "pictorial, graphic, and sculptural works," and other types of works.[346] As long as the work falls within an existing category in section 102, the person who made the work while using AI is the work's author if she made a minimally creative selection or arrangement of elements.

The text of the Copyright Act indicates a broad, flexible approach to works of authorship created in iterations and by new technologies in the future.[347] The legislative history provides further indication of Congress's intent to accommodate new technologies for creative production. The Committee on the Judiciary Report recognized that

> [a]uthors are continually finding new ways of expressing themselves, but it is impossible to foresee the forms that these *new expressive methods* will take. *The bill does not intend either to freeze the scope of copyrightable technology* or to allow unlimited expansion into areas completely outside the present congressional intent. Section 102 implies neither that that subject matter is unlimited *nor that new*

344. *See, e.g.*, Eldred v. Ashcroft, 537 U.S. 186, 212 (2003) ("We have also stressed, however, that it is generally for Congress, not the courts, to decide how best to pursue the Copyright Clause's objectives."); Stewart v. Abend, 495 U.S. 207, 209 (1990) ("Absent an explicit statement of congressional intent that the rights in the renewal term of an owner of a pre-existing work are extinguished when his work is incorporated into another work, it is not the role of this Court to alter the delicate balance Congress has labored to achieve."); Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 429 (1984) ("[I]t is Congress that has been assigned the task of defining the scope of the limited monopoly that should be granted to authors . . . in order to give the public appropriate access to their work product."); *In re* Trade-Mark Cases, 100 U.S. 82, 94 (1879) ("And while 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.").

345. *Sony Corp. of Am.*, 464 U.S. at 431.

346. 17 U.S.C. § 102(5).

347. *See supra* notes 279–81 and accompanying text.

> *forms of expression within that general area of subject matter would necessarily be unprotected*.[348]

The "very broad" subject matter of copyright potentially encompasses works that fall within a listed type under Section 102, its "general area of subject matter," but that developed by future technologies offering authors "new ways of expressing themselves" or "new expressive methods."[349] The Copyright Act's coverage was not frozen to the technologies existing in 1976. The Committee Report's discussion of sound recordings, another type of work involving elements of mechanical creation, is instructive:

> *Aside from cases in which sounds are fixed by some purely mechanical means without originality of any kind*, the committee favors copyright protection that would prevent the reproduction and distribution of unauthorized phonorecords of sound recordings. . . .
>
> The copyrightable elements in a sound recording will usually, though not always, involve *"authorship"* both on the part of the performers whose performance is captured and *on the part of the record producer responsible for setting up the recording session, capturing and electronically processing the sounds, and compiling and editing them to make the final sound recording*. There may, however, be cases where the record producer's contribution is so minimal that the performance is the only copyrightable element in the work, and *there may be cases (for example, recordings of birdcalls, sounds of racing cars, et cetera) where only the record producer's contribution is copyrightable*.[350]

The Report offers the example of a recording of birdcalls. Birdcalls are not human-authored. Even though the record producer did not dictate what the birds would chirp, or predict ahead of time the specific sounds or sequence of sounds the birds would make, the Report states that the producer *can* be an author by contributing to the recording of bird calls, presumably by selecting which bird calls to include in the final recording or arranging them in a minimally creative way.[351]

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348. H.R. REP. NO. 94-1476, at 51 (1976).
349. *Id.*
350. *Id.* at 56.
351. *Id.*

The Report indicates that recordings "in which sounds are fixed by some *purely mechanical means without originality of any kind*" would not qualify for copyright.[352] However, that is not due to the use of mechanical means, or the inability of the record producer to predict ahead of time or to dictate how the birds will chirp. Instead, the disqualification from copyright is due to the recording's lack of "originality of any kind."[353] As with every work, the key question is originality: whether the person makes a creative or original contribution to the recording, such as through its selection or arrangement. Indeed, even the Copyright Office's Compendium recognizes the "bird song" example as a copyrightable sound recording: "the main or sole contribution may be production authorship (as in a recording of bird songs, where there is no human performance)."[354]

This same approach should apply to AI-generated works. The key question is whether the person makes a minimally creative contribution to the origination of the work, such as in its selection or arrangement of elements. No other requirement should be imposed on authorship.

B. *The Copyright Office's Approach Entangles It in Content-Based Review of AI Works, Which Raises First Amendment Problems*

By envisioning a case-by-case review of AI-generated works for whether they meet the Office's static, rigid view of authorship, the Office entangles itself in precisely the kind of government review of expressive works that Justice Holmes warned against.[355] It goes well beyond "the narrowest and most obvious limits" recognized in *Bleistein*.[356] Inevitably, these decisions will devolve into highly subjective and potentially arbitrary content-based, if not viewpoint-based, line-drawing that violates the First Amendment.[357]

As the Supreme Court noted in dicta in the analogous context of denying a trademark registration under the Trademark Office's vague test for disparagement, "[t]he admitted vagueness of the disparagement test and the huge

352. *Id.*

353. *Id.*

354. 2021 COMPENDIUM, *supra* note 66, at § 803.3.

355. Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251 (1903).

356. *Id.*

357. *See* Baggett v. Bullitt, 377 U.S. 360, 372 (1964) (applying the vagueness doctrine to protect free speech).

volume of applications have produced a haphazard record of enforcement."[358] The Court found a similar problem with the Trademark Office's inconsistent decisions under the "immoral or scandalous" marks bar.[359] Although the cases involved viewpoint discrimination and the provisions were held to be unconstitutional on that ground, the same concern of arbitrariness among government examiners arises with the Copyright Office's content-based decisions that attempt to draw lines among which works of expression generated from AI tools satisfy its vague concept of the "traditional elements of authorship."

C. *The Copyright Office's Restrictive Approach Would Deny Copyright Protection for Many Photographs*

A telltale sign of the drastic nature of the Copyright Office's restrictive approach is its misreading of dicta from *Burrow-Giles*. Under the Office's misreading, many "ordinary" photographs that lacked staging or that used automatic settings would be uncopyrightable—a drastic result that no federal court has ever embraced in nearly 150 years.

1. Copyright Office Misreads *Burrow-Giles*

If the Copyright Office's approach were the standard for authorship, many existing works would not qualify for copyright. The drastic nature of the Copyright Office's approach is evident in its quotation of *Burrow-Giles*'s dictum. In attempting to distinguish Kashtanova's activity in creating an AI-prompt-engineered image from a photographer's conduct in taking a photograph, the Office stated: "[The Court explained in *Burrow-Giles*] that if photography was a 'merely mechanical' process, 'with no place for novelty, invention or originality' by the human photographer, then 'in such case a copyright is no protection.'"[360]

But this misreads *Burrow-Giles*. The Office's quotation is from the Court's summary of the *defendant's argument*, not the Court's position.[361] On the issue of "ordinary production of a photograph," the Court stated: "*On the question as thus stated*

358. Matal v. Tam, 582 U.S. 218, 233 (2017).
359. Iancu v. Brunetti, 139 S. Ct. 2294, 2300–01 (2019).
360. *Zarya of the Dawn* decision, *supra* note 19, at 3–4 (citation omitted).
361. *See id.*

we decide nothing."[362] In this dictum, the Court *expressly* declined to speak on "ordinary" photographs, presumably those that lacked the staging present in *Burrow-Giles* but, instead, were simply "an [accurate] representation of some existing object" captured in a photograph.[363]

The Copyright Office thus erred by turning "nothing" into something. The Office elevated *Burrow-Giles*'s dictum—in which the Court decided "nothing"—into a legal principle. But, in subsequent cases, the federal courts rejected taking such a drastic approach. In 1921, Judge Learned Hand answered what the Court in *Burrow-Giles* had left open, the copyrightability of simple photographs:

> *Burrow-Giles Co. v. Sarony* left open an intimation that some photographs might not be protected, and this possibility was emphasized in *J. L. Mott Iron Works v. Clow*. I think that, even as to these, *Bleistein v. Donaldson Lithographing Co*. rules, because no photograph, however simple, can be unaffected by the personal influence of the author, and no two [photographs] will be absolutely alike.[364]

In this key passage, Judge Hand echoed what Justice Holmes stated about pictures in *Bleistein* in 1903.[365] What Holmes did for pictures, Hand did for photographs, embracing the copyrightability of nearly all photographs "because no photograph, however simple, can be unaffected by the personal influence of the author."[366] Holmes and Hand adopted a bare minimum approach for authorship that avoided entangling courts in scrutinizing the process by which works were created.

Judge Hand's permissive approach to photographs prevailed.[367] As Judge Lewis A. Kaplan summarized in 2005,

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362. Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 59 (1884) ("This may be true in regard to the ordinary production of a photograph, and that in such case, a copyright is no protection. On the question as thus stated we decide nothing.").

363. *Id.*

364. Jewelers' Circular Pub. Co. v. Keystone Pub. Co., 274 F. 932, 934 (S.D.N.Y. 1921), *aff'd*, 281 F. 83 (2d Cir. 1922) (internal citations omitted).

365. *Id.*; *see* Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 250 (1903).

366. *Jewelers' Circular Pub. Co.*, 274 F. at 934.

367. *See* Ets-Hokin v. Skyy Spirits, Inc., 225 F.3d 1068, 1076 (9th Cir. 2000) ("This approach, according to a leading treatise in the copyright area, 'has become the prevailing view,' and as a result, 'almost any[] photograph may claim the necessary originality to support a copyright merely by virtue of the photographers' [sic] personal choice of subject matter, angle of photograph, lighting, and determination of the precise time when the photograph is to be taken." (quoting 1

almost any photograph "may claim the necessary originality to support a copyright."[368] Indeed, even the Compendium recognizes that photographs of a rock, food, and a garden can be copyrighted.[369] An experiment that had six photographers photograph the same subject based on different descriptions and resulted in quite different portraits supports the courts' permissive approach to photography.[370] There is no copyright requirement that photographers eliminate random elements, exercise "sufficient human control," or predict "ahead of time" the photograph's specific results. Photographers often capture random elements over which they have absolutely no control.[371]

It is incorrect to treat Sarony's photograph in *Burrow-Giles* as providing the sole way in which a photograph can qualify as a work of authorship. The Supreme Court did not delineate all the ways in which photographs can be "representatives of original conceptions of the author."[372] The Court focused only on Sarony's staging of Wilde, shown in Figure 6 below.[373] That was understandable because staging was Sarony's unique skill.[374] Sarony was a trailblazer who helped the masses understand how the emerging medium of photography was artistic.[375]

MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 2.08[E][1], at 2–130 (1999))).

368. Mannion v. Coors Brewing Co., 377 F. Supp. 2d 444, 450 (S.D.N.Y. 2005) (quoting NIMMER & NIMMER, *supra* note 367, at 2–129).

369. 2021 COMPENDIUM, *supra* note 66, at §§ 311.1 (photograph of garden), 312.1 (photograph of a rock and food).

370. *See* Anna Gragert, *6 Photographers Invited to Photograph 1 Man Reveal the Power of Perspective*, MYMODERNMET (Nov. 5, 2015), https://mymodernmet.com/canon-decoy-experiment/ [https://perma.cc/W2JK-PZ8V].

371. *See infra* notes 475–78 and accompanying text.

372. Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 58 (1884).

373. *Id.* at 55.

374. *See* BEN L. BASSHAM, THE THEATRICAL PHOTOGRAPHS OF NAPOLEON SARONY 4 (1978).

375. *Id.* at 4.

Figure 6. Napoleon Sarony's Photograph of Oscar Wilde

However, it is debatable whether Sarony would satisfy the Copyright Office's newfound requirements. Sarony did not "actually form" the photograph.[376] Sarony relied instead on assistants to do most of the actual photographic work once he staged the subject. In fact, Sarony's assistant Benjamin Richardson typically took the photographs, while other assistants developed and printed the photographs.[377] In an interview, Sarony even referred to the camera as Richardson's.[378] While Sarony may have influenced what was shot on camera, Sarony likely did not dictate the specific result because he did not control the camera itself. If the photograph were blurry, ultimately Richardson would be the one who would have to adjust or control the camera to get a better shot. Indeed, today, we might call Richardson the photographer, although back then he was viewed as an assistant or the camera operator.[379] Sarony's staging, while creative, overlapped with

376. *Zarya of the Dawn* decision, *supra* note 19, at 9.

377. *Id.* at 15; Christine Haight Farley, *The Lingering Effects of Copyright's Response to the Invention of Photography*, 65 U. PITT. L. REV. 385, 434–35 (2004); *Studio, Sarony*, BROADWAY PHOTOGRAPHS, https://broadway.library.sc.edu/content/studio-sarony.html [https://perma.cc/FW8U-88AK].

378. *Some Interviews with Mr. Sarnoy*, WILSON'S PHOTOGRAPHIC MAG. 11 (Jan. 1893), https://play.google.com/books/reader?id=bPXNAAAAMAAJ&pg=GBS.PA11&hl=en [https://perma.cc/EW3P-HAJX] ("If I make a position and his camera is right, my long-time assistant here, Col. Richardson, is able to catch my ideas as deftly and quickly as necessary.").

379. Farley, *supra* note 377, at 434–35.

tasks that stylists today perform during photoshoots.[380] Although Sarony was the only one considered the "author" of the photograph, he arguably was not the one "who . . . actually formed" the photograph, given Richardson's control over the camera.[381]

If we apply the Copyright Office's newfound requirements for AI-generated works to photography, many photographs would fail the test. Whenever automatic focus is used on a camera, the photographer does not control, much less dictate, the most crucial aspect in a photograph: whether it is in focus or not.[382] Instead, the machine does—or, today, the camera's software does. For digital cameras, computer programs determine the auto focus based on the software's own evaluation of signals to the camera's sensor; newer cameras incorporate AI right into the camera's software to identify and focus quickly on certain elements, such as humans, animals, and eyes.[383] Thus, applying the Copyright Office's newfound requirements, photographs that depend on automatic focus lack the "traditional elements of authorship" because the most important aspect of the photograph, what gives it clarity of expression, was not "actually conceived and executed" by a human, but was instead executed by the camera's computer program. At least during Sarony's day, when box cameras were used, the photographer was responsible for focusing, either based on the distance between the camera and the subject of the photograph or by manual focus if the camera was equipped with it.[384] And, even beyond automatic focus, simple point-and-shoot photographs would likely fail the Copyright Office's traditional elements of authorship requirement based on its

380. *See What Is a Photo Stylist and How to Become One*, ZIPRECRUITER, https://www.ziprecruiter.com/career/Photo-Stylist/What-Is-How-to-Become [https://perma.cc/JW99-CADG]; *Photographic Stylist*, NAT'L CAREERS SERVS., https://nationalcareers.service.gov.uk/job-profiles/photographic-stylist [https://perma.cc/4ZJN-AFPV].

381. *See* Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 61 (1884).

382. *See Understanding Focus in Photography*, APOGEE PHOTO MAG. (May 23, 2019), https://www.apogeephoto.com/understanding-focus-photography/ [https://perma.cc/52D2-27KW].

383. Todd Vorenkamp, *How Focus Works*, B&H (Mar. 19, 2015), https://www.bhphotovideo.com/explora/photography/tips-and-solutions/how-focus-works [https://perma.cc/WJ57-DAUS]; Charlie Sorrel, *The AI Autofocus in Sony's Affordable New A6700 Is Utterly Fantastic*, LIFEWIRE (July 18, 2023, 1:00 PM), https://www.lifewire.com/sony-a6700-7562250 [https://perma.cc/RRZ8-RD6F].

384. *See Box Camera*, WIKIPEDIA, https://en.wikipedia.org/wiki/Box_camera [https://perma.cc/7WSM-VLFG]; *see also* BASSHAM, *supra* note 374, at 10–11 (describing Sarony's camera and his use of wet-plate or collodion photography).

misreading of *Burrow-Giles*.[385] That drastic result would impede progress.

The Copyright Office's restrictive approach cannot be squared with the federal courts' recognition that photographs are copyrightable based on the photographer's *selection* of unprotectable facts or elements that the photographer did not stage, much less create.[386] Indeed, nowhere in its decision regarding Kashtanova's images does the Office discuss Kashtanova's selection of elements *within* the images themselves. Instead, the Office likens Kashtanova's prompts to mere "suggestions," not "orders," and likens their involvement to the commissioning of the creation of an artwork to a human artist or, alternatively, conducting an image search online.[387] But the closest analogy—which the Office glosses over—is between a photograph and an AI-prompted image. The latter should be copyrightable under the same legal standard as the former.[388] Prompt-engineering also resembles computer programming, which, too, is a recognized form of authorship.[389]

2. The History of Photography Proves the Wisdom of the Courts' Approach

The wisdom of the federal courts' expansive approach to the copyrightability of photographs has been validated with the development of photography as a profession and an art form. This history of photography provides an invaluable lesson. Courts in the late 1800s faced the same type of question as we face today: the copyrightability of works generated with a new technology.

In fact, the arguments against recognizing authorship in photographs, plus the backlash against photography as an art form, were similar to the arguments against AI-generated works today.[390] The backlash went beyond copyright. Critics

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385. *See Zarya of the Dawn* decision, *supra* note 19, at 3–4 ("But the Court explained that if photography was a 'merely mechanical' process, 'with no place for novelty, invention or originality' by the human photographer, then 'in such case a copyright is no protection.'").

386. *See supra* notes 364–73 and accompanying text.

387. *Zarya of the Dawn* decision, *supra* note 19, at 10.

388. If Sarony is treated as the author of a photograph notwithstanding his reliance on a cameraman to take the photograph, Kashtanova should be treated as the author of their images notwithstanding their reliance on AI.

389. *See* Oosthuysen, *supra* note 53 and accompanying text; Ben-Zur, *supra* note 53.

390. *See* Lois Rosson, *What Is AI Doing to Art?*, NOEMA MAG. (Apr. 11, 2023), https://www.noemamag.com/what-is-ai-doing-to-art/ [https://perma.cc/7P7D-DAKE].

attacked the very notion that photography involved anything artistic, instead of merely mechanical reproductions of things in the world. Indeed, some critics, such as the French poet Baudelaire, attacked photography as a threat to true artists, especially to portrait painters whose jobs critics feared would be replaced.[391]

France had its own debate over the copyrightability of photographs. The trial court in *Sarony* quoted the notable French lawyer Eugene Pouillet's analysis of the arguments on both sides.[392] The first argument against copyrightability was that the photograph was purely mechanical, notwithstanding the mental activities the photographer engaged in while taking the photograph.[393] The photographer relied simply on the machine (i.e., the camera) to create—and the camera, not the photographer, "accomplished all."[394]

However, Pouillet supported the general recognition of the copyrightability of photographs.[395] Photography involved human authorship: "The art is in the exercise of the will in the *choice of the subject*[, the lighting, and] . . . all that is the creation of the man who reproduces nature, and *never will it be true to say that there is mechanical action only*."[396] Hence, photographers are authors:

> *Is it not the conception, however expressed, which constitutes the artistic work? The photographer conceives his work; he arranges the accessories and play of light; he arranges the distance of his instrument according as he wants, in the reproduction, either distinctness or size; thus, also, he obtains this or that effect of perspective.* . . . There

391. *See* Marit Grøtta, *Photography Clichés: On Baudelaire's Media Aesthetics and the Mechanical Arts*, 53 NORDIC J. AESTHETICS 23, 27 (2017); *By Invading the Territories of Art, Photography Has Become Art's Most Mortal Enemy*, QUOTE INVESTIGATOR (Oct. 16, 2022), https://quoteinvestigator.com/2022/10/16/photo-mortal/ [https://perma.cc/A59U-RUAV] ("If photography is allowed to supplement art in some of its functions, it will soon have supplanted or corrupted it altogether, thanks to the natural alliance it will find in the stupidity of the multitude.").

392. *See* Sarony v. Burrow-Giles Lithographic Co., 17 F. 591, 597–601 (C.C.S.D.N.Y. 1883) (quoting Eugene Pouillet, *Property in Photographs*, in Traite Theorique et Pratique de la Propriete Litteraire et Artistique (1879) (William Alexandre Heydecker trans.)).

393. *Id.* at 598.

394. *Id.*

395. *Id.*

396. *Id.* (emphasis added).

> is, therefore, a creation in the juridical sense of the word.[397]

Pouillet rejected the intermediate position of having judges decide the copyrightability of photographs on a case-by-case basis.[398] That would enmesh judges in highly subjective line-drawing, and only lead to arbitrary decisions.[399] In a line foreshadowing Justice Holmes's opinion in *Bleistein*, Pouillet explained that "there is only room for arbitrariness, and, consequently, for danger, as well for the judge as for the litigant."[400]

The debate over the copyrightability of photographs was reprised in the United States. The Supreme Court in *Burrow-Giles* admitted that the "constitutional question is not free from difficulty."[401] The defendant argued that "a photograph being a reproduction, on paper, of the exact features of some natural object or of some person, is not a writing of which the producer is the author,"[402] thus advancing a similar argument to the one rejected by Pouillet. As the defendant in *Burrow Giles* put it, "a photograph is the *mere mechanical reproduction* of the physical features or outlines of some object . . . and [it] involves no originality of thought or any novelty in the intellectual operation."[403] However, the Court rejected this view and instead adopted "a more enlarged definition" of author that encompasses photographers whose photographs "are representative[] of original intellectual conceptions of the author," as was the case with Sarony's staging of the photograph of Oscar Wilde.[404] The federal courts adopted the same expansive approach advanced by Pouillet.

History has borne out the wisdom of the federal courts' broad recognition of the copyrightability of photographs. As cameras and editing software became more advanced, photography expanded in capabilities and became a genre of fine art.[405]

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397. *Id.* at 600–01 (emphasis added).

398. *Id.* at 600.

399. *Id.*

400. *Id.* (emphasis added).

401. Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 56 (1884).

402. *Id.*

403. *Id.* at 59 (emphasis added).

404. *Id.* at 57.

405. Oliver Wendell Holmes, Sr., captured this insight in 1859. Though he spoke about the stereoscope, his analysis proved correct for photographs. *See* Oliver Wendell Holmes, Sr., *The Stereoscope and the Stereograph*, ATLANTIC 738, 744 (June

Being a professional photographer is a fulltime occupation. According to the Bureau of Labor Statistics, in 2023, there were an estimated 53,639 photographers in the United States.[406] Plus, with the advent of digital cameras, pervasive on smartphones, photography became democratized, unleashing creativity among the masses.[407] Paradoxically, the technological advances in photography have made it easier for everyone to take high quality photographs simply by pushing a button or selecting a preset filter and, at the same time, increased the capabilities of photographers to edit—and even to alter or "photoshop"—just about every aspect of a photograph. Thus, the advances in technology have facilitated new forms of creativity in photographs for professional photographers, while expanding the widespread use of cameras among the masses, a result that promotes progress.

Had the federal courts adopted a more restrictive view to photographs because they lacked the "traditional elements of authorship," the world would be far different—and more impoverished. Photographers from photojournalists to the paparazzi, who do not typically stage their subjects as Sarony did, would be hard pressed to secure fair licensing fees from media without copyrights because other outlets could just copy the photographs for free. Photography would not be a full-time occupation, at least not to the extent it is today because, without a copyright, photographers could not prevent others from copying their photographs. Indeed, Sarony succeeded as a professional photographer not only because of his artistry but also because of his shrewd business model in which he retained the copyrights to his photographs.[408] That is the same business model involved in photographer Lynn Goldsmith's successful assertion of copyright in her portrait of the musician Prince in

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1859) ("We are looking into stereoscopes as pretty toys, and wondering over the photograph as a charming novelty; but before another generation has passed away, it will be recognized that a new epoch in the history of human progress dates from the time when He who . . . took a pencil of fire from the hand of the 'angel standing in the sun' and placed it in the hands of a mortal.").

406. *See Occupational Employment and Wages, May 2023*, U.S. BUREAU OF LAB. STATS., https://www.bls.gov/oes/current/oes274021.htm [https://perma.cc/3SA8-EC7P].

407. *See* Joseph P. Fishman, *Originality's Other Path*, 109 CAL. L. REV. 861, 914 (2021) (noting that it is estimated that over one trillion digital photographs are taken annually due to smartphones).

408. BASSHAM, *supra* note 374; *see also* Molly Shaffer Van Houweling, *Atomism and Automation*, 27 BERKELEY TECH. L.J. 1471, 1478 (2012) (noting that many early photographs taken by amateurs did not receive copyright because they were published without copyright notice, a requirement under copyright law at the time).

a recent case in which the Supreme Court stressed the photographer's commercial licensing of her works.[409]

The federal courts wisely avoided entangling copyright law with a case-by-case review of every photograph's eligibility for copyright. Instead, they adopted a rule of general applicability,[410] under which most photographs satisfy the minimal level of creativity.[411] Progress is served.

3. The Copyright Office's Approach Ignores the Parallels Between Photographs and AI-Prompted Images

The history of copyright law's treatment of photography is instructive, given the parallels between photographs and AI-prompt-engineered images. Creators using AI text-to-image generators can produce incredibly photorealistic images, as well as visual art of any style.[412] Soon, it may be hard to tell the difference between photographs and AI-generated images. AI may hasten the shift to what artist Robert Shore called "post photography," an age in which digital images reimagine what is possible.[413] Of course, this new capability may lead to harms from deepfake images of political leaders, public figures, and events used for deception.[414] But even these public concerns underscore the similarities between photographs and AI-generated images. Indeed, AI image generators have been described as virtual cameras.[415] That explains why some

409. *See* Andy Warhol Found. for the Visual Art, Inc. v. Goldsmith, 598 U.S. 508, 524 (2023).

410. *See generally* Antonin Scalia, *The Rule of Law as a Law of Rules*, 56 U. CHI. L. REV. 1175, 1179 (1989) (arguing that courts should favor rules over case-by-case decisions because of predictability).

411. *See supra* notes 384–389 and accompanying text.

412. *See* Matt Growcoot, *Midjourney v5 Creates Photorealistic Images and Even Does Hands Correctly*, PETAPIXEL (Mar. 17, 2023), https://petapixel.com/2023/03/17/midjourney-v5-creates-photorealistic-images-and-even-does-hands-correctly/ [https://perma.cc/5X8T-Y749].

413. *See* Allison Meier, *The Camera as an Afterthought: Defining Post-Photography*, HYPERALLERGIC (Oct. 7, 2014), https://hyperallergic.com/153261/the-camera-as-an-afterthought-defining-post-photography/ [https://perma.cc/6PJ6-6UJF].

414. *See* Tiffany Hsu & Steven Lee Myers, *Can We No Longer Believe Anything We See?*, N.Y. TIMES (Apr. 8, 2023), https://www.nytimes.com/2023/04/08/business/media/ai-generated-images.html [https://perma.cc/KX53-JYKY].

415. *See* Andreas J., *Camera Perspective, Cropping and Alignment in Midjourney V5*, AI-IMAGELAB.COM (Apr. 3, 2023), https://www.ai-imagelab.com/forums/topic/9-camera-perspective-cropping-and-alignment-in-midjourney-v5/ [https://perma.cc/W7LF-NQY5].

professional photographers are among the early adopters of AI image generators, despite the controversy AI has sparked.[416]

Boris Eldagsen, a photographer, told *Scientific American* that he believes "AI generators are absolute freedom."[417] To spark a discussion about the artistry of AI images, Eldagsen entered one of his AI images in the Sony World Photography Awards.[418] Eldagsen's image won the award for the Creative category, but he turned it down after achieving his goal.[419] Likewise, AI image generators have sparked photographer Jose Hernandez's creativity to imagine collections typically available only to photographers who are well-connected with the industry or who have significant financial resources for photoshoots.[420] Though he was skeptical of AI at first, Hernandez now believes in its artistic value: "It helps artists and creative people in general to show what they are thinking. It's not now about the money and the connection. It's just what they are thinking, and I think that is beautiful."[421]

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416. *See, e.g.*, Chris Wiley, *A Photographer Embraces the Alien Logic of A.I.*, NEW YORKER (May 8, 2023), https://www.newyorker.com/culture/photo-booth/a-photographer-embraces-the-alien-logic-of-ai [https://perma.cc/DV87-9KE5]; Matt Growcoot, *Photojournalist Controversially Turns to AI to Illustrate 'Inaccessible' Stories*, PETAPIXEL (May 15, 2023), https://petapixel.com/2023/05/15/photojournalist-controversially-turns-to-ai-to-illustrate-inaccessible-stories/ [https://perma.cc/6UTH-Y5H9]. *But see* Matthew Thompson, *AI Art Generators Face Backlash from Artists - But Could They Unlock Creative Potential?*, SKY NEWS (Apr. 15, 2023, 5:37 PM), https://news.sky.com/story/ai-art-generators-face-backlash-from-artists-but-could-they-unlock-creative-potential-12857072 [https://perma.cc/677H-KHQR]. Kris Kashtanova is a photographer who faced financial challenges in that field. *See* Kris Kashtanova (@Kris.Kashtanova), INSTAGRAM (Sept. 23, 2022), https://www.instagram.com/p/Ci3EDTaJFKK/?img_index=1 [https://perma.cc/YG W6-A9DT].

417. Allison Parshall, *How This AI Image Won a Major Photography Competition*, SCI. AM. (Apr. 21, 2023), https://www.scientificamerican.com/article/how-my-ai-image-won-a-major-photography-competition/ [https://perma.cc/UAA2-2XGQ].

418. *Id.*

419. *Id.*

420. Kyle Almond, *How One Artist Is Using AI to Create His 'Ideal World,'* CNN (July 28, 2023), https://www.cnn.com/interactive/2023/07/style/ai-artist-ideal-world-cnnphotos/ [https://perma.cc/ZG3P-Y5YH].

421. *Id.*

Table 3. Creativity Scale Showing Parallels Between Photographs and AI Images

Level of creativity	**Photograph via Camera**	**Image via AI text-to-image generator**
High	Photographer does all three: 1. Photographer stages subject; 2. Photographer manually adjusts lighting or camera settings to select or alter rendition of composition; *and* 3. Photographer edits and refines photograph including potentially changing the style and rendition, manually or by preset filters, and even removing, repositioning, or adding elements in photograph (e.g., through Photoshop)	Creator does all three: 1. Creator stages subject; 2. Creator uses prompt designating style elements for rendition of image; *and* 3. Creator edits and refines image including potentially changing the style and rendition, manually or by preset filters, and even removing, repositioning, or adding elements in image (e.g., through Photoshop)
Medium	Photographer does the minimum, plus one of following: Photographer stages subject, *or* Photographer edits and refines photograph including potentially changing the style and rendition, manually or by preset filters, and even removing, repositioning, or adding elements in photograph (e.g., through Photoshop)	Creator does the minimum, plus one of following: Creator stages subject, *or* Creator edits and refines image including potentially changing the style and rendition and even removing, repositioning, or adding elements in photograph (e.g., through Photoshop)

Low	Photographer manually adjusts lighting or camera settings to select or alter rendition of composition, or uses preset filter	Creator uses prompt identifying not only subject, but designating style elements for rendition of image
Feist threshold of creativity: The Bare Minimum	Simple point and shoot photograph on automatic setting with the photographer making minimal level of creative selection or arrangement of elements	Text prompt identifies subject and generates images with the prompter making minimal level of creative selection or arrangement of elements
Random	No relationship between photograph and a person's conception	No relationship between image and a person's conception

Photographs and AI-generated images can involve a range of human creative selection and contributions. Table 3 above is a creativity scale showing the parallel choices and contributions humans can make in taking a photograph and in generating an AI image. Human creators need to reach only the "extremely low" minimal level of creativity to satisfy the requirement of originality, the bare minimum for authorship. These categories are rough approximations and should not be interpreted as hard and fast rules. A creator might exhibit numerous kinds of creativity not reflected in Table 3. For example, a person's creative contribution might be exceptional in one phase (staging, rendition, or post-processing) such that we might rank the work as possessing high creativity. What is important to recognize is that a creator's creative choices in prompt-engineering an image using AI are comparable to a photographer's creative choices in taking a photograph. The only copyright requirement that creators must satisfy is meeting the bare minimum for authorship.

a. The Bare Minimum: A Minimally Creative Selection or Arrangement

The Supreme Court in *Feist* recognized the "extremely low" threshold that authors must meet to qualify for copyright: make a minimally creative selection or arrangement of elements, including uncopyrightable facts and data.[422] The "vast majority" of works easily pass the test.[423] We can describe this extremely low threshold as the *bare minimum* for authorship. Adhering to the first principles, a bare minimum approach avoids entangling courts in case-by-case adjudication, which not only is costly and time-consuming but also may result in arbitrary decisions.

A bare minimum approach often serves important jurisprudential values beyond the substantive law it applies to, such as the separation of powers, the recognition of limits in judicial competence, and the avoidance of judicial entanglement in case-by-case review. For example, rational basis review of laws under the Equal Protection Clause is a bare minimum approach: a law easily passes scrutiny as long as its challenged classification can be supported by a plausible policy reason.[424] It does not even need to be the actual reason the legislature enacted the law.[425] Such a deferential approach avoids entangling courts in protracted review of most legislation. Similarly, the Supreme Court's examination of the scope of Congress's Commerce Clause power adopts a bare minimum approach: courts "need not determine whether respondents' activities, taken in the aggregate, substantially affect interstate commerce in fact, but only whether a 'rational basis' exists for so concluding."[426] The Court does not undertake a review of the actual reasons Congress acted or require legislative findings to justify an enactment "absent a special concern such as the protection of free speech."[427]

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422. Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991). The Court also recognized "coordinating" facts as a way to be an author of a compilation. *Id.* at 341. The Compendium also recognizes authorship by coordination as a distinct form: "A compilation may contain several distinct forms of authorship[, including] . . . [c]oordination authorship involved in classifying, categorizing, ordering, or grouping the material or data[.]" 2021 COMPENDIUM, *supra* note 66, at § 312.2. Because selection and arrangement are sufficient to analyze prompt-engineered images, I omit authorship by coordination from my analysis.

423. *Feist Publ'ns, Inc.*, 499 U.S. at 345.

424. *See* Armour v. City of Indianapolis, 566 U.S. 673, 680–81 (2012).

425. U.S. R.R. Ret. Bd. v. Fritz, 449 U.S. 166, 179 (1981).

426. Gonzalez v. Raich, 545 U.S. 1, 22 (2005).

427. *Id.* at 21.

Although the justifications for adopting a bare minimum approach for authorship are different, the result is similar: the avoidance of entangling courts in protracted review of most works of authorship. This approach avoids First Amendment problems arising from judicial or agency evaluation of expressive works.[428]

For photographs, the bare minimum for authorship is a simple point-and-shoot photograph shot on automatic settings. All that the person does is *select* what to photograph, point the camera at it, and take the photograph. Just imagine that Sarony was a street photographer, saw Oscar Wilde sitting on a park bench, and snapped a point-and-shoot photograph of him. Is Sarony's point-and-shoot photograph minimally creative to satisfy originality? Yes. The creativity lies in Sarony's conception and selection of what to shoot, and then pointing and pressing the camera's button to capture the photograph. Even when the photographer does not stage the subject, but instead just photographs a person or scene "as is," the federal courts have long recognized that the minimal level of creative selection was met.[429] Real-life subjects can be described as facts, so the photographer's decision of what to photograph is, at least, a selection of facts.[430] It can also be an arrangement of facts, given that the photographer has the ability to move and take the photograph from a different location and distances, which can alter the arrangement of elements. As Pouillet explained, "The photographer conceives his work; . . . arranges the distance of his instrument according as he wants . . . thus, also, he obtains this or that effect of perspective."[431] Although some legal scholars have questioned the coherence of this permissive approach to originality in

428. *See supra* note 355–359 and accompanying text.

429. *See* Harney v. Sony Pictures Television, Inc., 704 F.3d 173, 180 (1st Cir. 2013); *see also* Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 250 (1903).

430. *Harney*, 704 F.3d at 181–82; *see also* Justin Hughes, *The Photographer's Copyright—Photograph as Art, Photograph as Database*, 25 HARV. J.L. & TECH. 339, 342 (2012) ("[A]lthough generally unrecognized, the problem of copyright protection for photographs is really the same problem as copyright protection for compilations of fact because photographs are, from one perspective, databases.").

431. Sarony v. Burrow-Giles Lithographic Co., 17 F. 591, 600 (C.C.S.D.N.Y. 1883) (quoting Eugene Pouillet, *Property in Photographs*, *in* TRAITE THEORIQUE ET PRATIQUE DE LA PROPRIETE LITTERAIRE ET ARTISTIQUE (1879) (William Alexandre Heydecker trans.)).

photographs or even suggested that it should be rolled back,[432] I believe it is consistent with the bare minimum recognized in *Feist*. Photographs should be treated no different from any other type of work whose originality can lie simply in the selection or arrangement of elements.

Let us compare an AI-prompted image. The lowest level of creativity, or bare minimum, occurs when the person uses a prompt selecting the elements for the image. Depending on the AI platform, the person may also select from several images generated by the AI—for example, sets of four images on Midjourney—in response to the prompt. If the images contain different arrangements of the elements, the person's choice of image can reflect a minimally creative choice in both selection and arrangement. For example, I wrote a prompt selecting the following elements for an image generated on Midjourney: a "photograph of tall giraffe standing behind one man in his thirties with red hair and a beard, wearing a black suit and sunglasses sitting all alone on a bench in Central Park." Four images were produced on Midjourney, shown in Figure 7. (If I disliked all the images, I could repeat the prompt for a new set.)

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432. *See, e.g.*, Hughes, *supra* note 430, at 425; Rebecca Tushnet, *Worth a Thousand Words: The Images of Copyright*, 125 HARV. L. REV. 683, 714–15 (2012) (discussing tensions between how courts analyze photographs and literary works for originality); Eva E. Subotnik, *Originality Proxies: Toward a Theory of Copyright and Creativity*, 76 BROOK. L. REV. 1487, 1493–94 (2011) ("The courts adjudicating these cases often seem driven by the desire to protect copyright plaintiffs from outright copying by competitors or former clients and frequently do not provide a persuasive explanation of what makes a litigated photograph original and hence protectable (an omission that is not unique to photography decisions).").

Figure 7. First Set of Images I Generated from My Prompt and Selection of Elements

My selection of elements, through the words in my prompt, was at least minimally creative. As a photographer, I believe the level of creativity involved in the AI-assisted image is at least equivalent to taking a point-and-shoot photograph of a stranger sitting on a bench in Central Park. Indeed, arguably, I exercised my imagination more in concocting the fanciful scene, with the incongruous giraffe in Central Park, than I would in taking a point-and-shoot photograph where I am limited to reality. This new functionality of AI generators—to visualize everything imaginable and expressible in words—may prove to be one of the most important advances in creative production in the twenty-first century.[433]

Granted, because the selection of elements for a simple point-and-shoot photograph or a simple prompt-made image does not require much imagination, the level of creativity involved in these images is relatively low. But that's all that *Feist* requires.[434]

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433. *See generally* Ian Bogost, *A Tool to Supercharge Your Imagination*, ATLANTIC (Oct. 31, 2023), https://www.theatlantic.com/technology/archive/2023/10/ai-image-generation-human-creativity-imagination/675840/ [https://perma.cc/DK6V-SPDP] ("AI images allow people to visualize a concept or an idea—any concept or idea—in a way previously unimaginable.").

434. *See* Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 349 (1991).

My selection of elements does not end there. If I select the bottom right image from these four alternatives (see Figure 8), I make an additional selection in how the elements should be arranged. The positioning of the elements in these four images is similar, with the greatest differences in the hands and feet of the person and in the size of the giraffe. However, I can generate even more versions—indeed, as many as my heart desires. Midjourney enables people to create additional variations from an image. This iterative process increases the opportunity for the person to make selections of elements that satisfy, if not surpass, the bare minimum. I selected the bottom right image in my first set to create a set of our additional images (see Figure 9).

Figure 8. Image I Selected from First Set on Midjourney

Figure 9. Second Set of Images I Generated from My Selection of Image from First Set

From this second set of images, I now have greater choice in the positions of the giraffe with respect to the person. If I want the giraffe to the left of the man, I have three options to choose from. I selected the bottom right image with the giraffe hovering over the man's head, almost over the center line (see Figure 10):

Figure 10. Image I Selected from Second Set of Images

Because I have met the bare minimum in selecting the elements, I should be considered the author of the image, even without my modest arrangement of the elements' positions. However, because my input is only minimally creative in selection, analogous to a point-and-shoot photograph, the copyright for the image should be very thin, only protecting against identical copies.[435] Yet, it is important to underscore that, had I taken a photograph of this very scene in Central Park while passing by, there is no question that my photograph would receive a copyright based on my selection of what to photograph. The same result should follow if I used an AI generator to capture the scene.

b. Low Level of Creativity Based on Selection or Arrangement, Plus Contribution to Rendition

The next level of creativity involves a low level: at least a minimally creative selection or arrangement of elements, *plus* the photographer or creator's input in the rendition or appearance of the photograph or image.

For photographs, rendition can be changed by a host of factors, such as manually changing the depth of field (aperture), making the background more or less blurry, changing the lighting, or simply selecting a preset filter. Moreover, many

435. *See id.*

different cameras and lenses are known for their distinctive looks. For example, using different cameras can result in dramatic differences in the look of the photographs produced.[436] Some lenses, such as the Contax Carl Zeiss 80mm, are known for their distinctive—indeed, magical—look.[437] Preset filters in a camera's software, such as those offered on the Fuji x100v, which skyrocketed in popularity among TikTok creators, enable photographers to simulate old film photographs based on a person's selection of camera, lens, and filter.[438] Spurred by Kendall Jenner's use of an old Contax T2 film camera, people are buying film cameras for the warmer and grainier rendition of photographs the cameras produce.[439] Even though the cameras produce the particular rendition, the photographer's choice in camera is a selection of that rendition for photographs.

Creators have several ways they can select or change the rendition of an image generated on AI. For example, on Midjourney, creators can choose prompts for different camera and film types to simulate different looks of the respective equipment.[440] I added a Polaroid format to the prompt I used above and received a set of grainier images with cooler colors and a retro appearance, as well as the squarish format resembling a Polaroid, shown in Figures 11 and 12 below.

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436. *See* Usman Dawood, *Is Fujifilm's Color Science Really as Good as They Say?*, PETAPIXEL (Apr. 20, 2021), https://petapixel.com/2021/04/20/is-fujifilms-color-science-really-as-good-as-they-say/ [https://perma.cc/H5MG-S6FK].

437. *Contax 645 Review*, ALLY & BOBBY (Feb. 19, 2021), https://allyandbobby.com/2021/02/19/contax-645-review/ [https://perma.cc/CQP8-ZYPF].

438. Pesala Bandara, *Photographer Becomes Online Hit with Presets That Mimic Fujifilm X100V*, PETAPIXEL (Mar. 28, 2023), https://petapixel.com/2023/03/28/photographer-becomes-online-hit-with-presets-that-mimics-fujifilm-x100v/ [https://perma.cc/NWL4-2GVM]; Kyle Chayka, *TikTok's Favorite Camera*, NEW YORKER (July 10, 2024), https://www.newyorker.com/culture/infinite-scroll/tiktoks-favorite-camera [https://perma.cc/8FN9-8W2L].

439. *See* Samantha Clark, *How Kendall Jenner is Bringing Back Film (and Ruining It for Some)*, WASH. POST (Jan. 16, 2018, 7:14 PM), https://www.washingtonpost.com/gender-identity/how-kendall-jenner-is-bringing-back-film-and-ruining-it-for-some/ [https://perma.cc/NFX7-5PT8].

440. Dils, *Midjourney Photography Prompts*, WGMI MEDIA (Feb. 28, 2023), https://wgmimedia.com/midjourney-photography-prompts/ [https://perma.cc/A87G-8K6U].

Figure 11. Images I Generated with My Prompt in Polaroid Style

Figure 12. Image I Selected from Set in Polaroid Style

Alternatively, creators can use different prompts to change the style or look of the images. For example, I included "surreal, moody, post-apocalyptic style" in the prompt to generate the

images below in Figures 13 and 14. I have now added my creative input into the look or rendition of the images. My contribution to rendition adds to my selection of the main elements in the scene: my choice of the background; the human subject; his age, hair color, facial hair, wardrobe, and sunglasses; and his position sitting alone on a bench in Central Park with a giraffe behind him.

These adjustments to rendition only scratch the surface of AI's functionalities. There is a whole cottage industry with people sharing their quite sophisticated prompting tips to change the rendition or look of images generated with AI.[441] Plus, the platforms keep adding new functionalities to their generators. For this Article, I used version 5.2 of Midjourney, but, within a year, versions 6 and 6.1 were released.[442] The new functionality includes the ability to create consistent characters and styles across images,[443] as well as to adjust how photorealistic an image is.[444]

441. *See, e.g.*, Dils, *How To Use Midjourney: Advanced Midjourney Prompts*, WGMI MEDIA (Feb. 14, 2023), https://wgmimedia.com/how-to-use-midjourney-advanced-midjourney-prompts/ [https://perma.cc/CVP3-7P69] (noting some tips and tricks to create generative-AI art).

442. *See Version*, MIDJOURNEY, https://docs.midjourney.com/docs/model-versions [https://perma.cc/VE7Y-U9R5].

443. *Midjourney Consistent Characters*, MIDJOURNEY V6 (Mar. 27, 2024), https://www.midjourney-v6.com/midjourney-consistent-characters/ [https://perma.cc/LX57-P9HF]; Alie Jules (@aliejules), X (Mar. 14, 2024, 7:38 PM), https://x.com/aliejules/status/1768421434236272905 [https://perma.cc/P8JH-GTVL].

444. *See* Jourdan Aldredge, *Midjourney V6 Takes Major Step Forward with Photorealism and In-Image Text*, NO FILM SCHOOL (Dec. 21, 2023), https://nofilmschool.com/midjourney-v6 [https://perma.cc/6R3F-FN8Z].

Figure 13. Images I Generated with My Prompt in Surreal, Moody, Post-apocalyptic Style

Figure 14. Image I Selected from Set in Surreal, Moody, Post-apocalyptic Style

c. Medium Level of Creativity Based on Staging or Editing

The next level of creativity involves a medium level. For photography, a medium level of creativity goes beyond a simple

point-and-shoot photograph. I identify two primary ways for a photographer to reach this medium level of creativity, although I do not intend this list to be exhaustive: (1) the photographer stages the subject in a scene such as how Sarony did in *Burrow-Giles* or (2) the photographer edits and refines the photograph in what is referred to as "post-processing."

Professional photographers often stage a photoshoot, such as with a model or a consumer good for an advertisement. For an editorial shoot, the photographer is typically involved in the choice of the model's wardrobe, hair, and makeup, as well as the different scenes and poses of the model.[445] This artistry builds on the concept Sarony first popularized.

Professional and advanced amateur photographers engage in post-processing of RAW format files to render the photograph. During this intensive process, the photographer can use software programs to change numerous aspects of the photograph, including exposure, contrast, colors, clarity, and removal of imperfections (e.g., chromatic aberration, vignetting, noise, and dust spots). Indeed, when photographers shoot in the RAW format, the file stored is not an actual image but is, instead, the "uncompressed and unprocessed image data captured by a digital camera," which the photographer then processes, using image software, to create the precise rendition and final version of the photograph.[446] Because the RAW format stores all the data captured by the camera's sensor, a photographer can even override the original camera settings used in taking the photograph.[447] The photographer can also change the style and rendition, manually or by preset filters, and can remove, reposition, or add elements in photograph. Such editing of a photograph is akin to "painting" within the image.[448] Both staging and editing require the photographer's conception, imagination, and creative input, typically to a far

445. *See* Ira Giorgetti, *Everything You Need to Know for a Successful Fashion Shoot*, FORMAT (Sept. 1, 2021), https://www.format.com/magazine/resources/photography/fashion-photography-how-to-set-up-a-shoot/ [https://perma.cc/T9VA-CBXT].

446. *What Is a RAW File?*, ADOBE, https://www.adobe.com/creativecloud/file-types/image/raw.html [https://perma.cc/TCG7-YDNB].

447. *See* Christopher Bryan-Smith, *What Is a RAW File? (And How to Open One)*, EXPERT PHOTOGRAPHY (Mar. 13, 2024), https://expertphotography.com/raw-file/ [https://perma.cc/GAF9-ADH8].

448. *The Ultimate Guide to Learning Photography: Post-Processing*, CREATIVELIVE, https://www.creativelive.com/photography-guides/post-processing [https://perma.cc/N8H4-VJ5E].

greater degree than a point-and-shoot photograph. For commercial photography, post-processing is the norm.[449]

The comparable creative choices for AI-assisted images are (1) the creator stages the subject in a scene beyond the simple selection of elements discussed above or (2) the creator edits and refines the photograph in post-processing. For staging a subject in a scene, one can extrapolate the subject in an existing photograph or image to use as an artistic reference on Midjourney and then add the context in which a similar subject should appear.[450] For example, one creator used a photo of himself wearing a hat and sunglasses, and then reimagined himself as "a futuristic terminator."[451] Or one can now use the reference number for a character[452] and then use prompts to stage the same subject in a different scene. Creators can also use Adobe's Generative Fill to restage subjects in photographs and AI images by simply using text prompts.[453] For example, using Adobe's Generative Fill, I restaged one of the images I created on Midjourney; the result is shown in Figure 15 below. I selected and added new elements (tundra, polar bear, law book) and arranged them—picking the exact locations—in the image. Some AI text-to-image generators, such as Stable Diffusion, already have this type of functionality, which is called "inpainting," and Midjourney added it in August 2023.[454] Inpainting, as the name implies, is equivalent to painting within a digital image.[455]

449. *See Learn the Post-Processing Photography in an Organized Way*, COLORCLIPPING (Oct. 27, 2023), https://www.colorclipping.com/blog/creative-post-processing-photography [https://perma.cc/R7NG-5XV2].

450. Harry Guinness, *How to Use Midjourney to Create AI-Generated Images*, ZAPIER (Apr. 17, 2024), https://zapier.com/blog/how-to-use-midjourney/ [https://perma.cc/BJX5-78UA].

451. *Id.*

452. *Character Reference*, MIDJOURNEY, https://docs.midjourney.com/docs/character-reference [https://perma.cc/6N3H-TUG3].

453. *See Edit Images with Generative Fill*, ADOBE (Apr. 25, 2024), https://helpx.adobe.com/photoshop/using/generative-fill.html [https://perma.cc/422H-4ML3].

454. *See* Andrew, *Beginner's Guide to Inpainting (Step-by-Step Examples)*, STABLE DIFFUSION ART (Mar. 19, 2024), https://stable-diffusion-art.com/inpainting_basics/ [https://perma.cc/3S37-WM4S]; Oleaga, *supra* note 56.

455. *See Guide to Inpainting with Stable Diffusion*, GETIMG.AI, https://getimg.ai/guides/inpainting-with-stable-diffusion [https://perma.cc/CAC4-CU4C].

Figure 15. Image I Restaged Using Adobe Generative Fill to Edit Image

Given this inpainting functionality, creators using AI can stage a scene for an image just as much as a photographer can for a photograph. Indeed, because AI is not limited by real life, creators using AI have far greater freedom to stage a scene than photographers. The only limit is one's imagination.[456]

For comparison, I used DALLE-3 to create a similar image; I used similar prompts in different iterations but added a koala bear to the scene I staged. Shown in Figure 16.

Figure 16. Image I Staged Using DALLE-3

456. *Id.*

Using inpainting or Adobe's Generative Fill, I can keep adding or subtracting elements, change the background to be something completely different, and continuously alter my selection and arrangement of elements. These acts satisfy the medium level of creativity threshold.

d. High Level of Creativity

A high creativity level involves creative input in all three stages of production. For photography, a high level of creativity may involve the photographer's creative input in (1) staging the subject; (2) adjusting the camera's controls, filters, and lighting to alter the rendition of the composition; and (3) post-processing or editing the photograph for the final composition. Similarly, for AI image generation, the creator can engage in all three stages of the creative process: staging, rendition, and post-processing or editing. The activities run parallel with photography—and are even converging. Smartphone cameras and apps are being equipped with AI to reimagine photographs in the same way one can imagine and generate AI images.[457]

The various ways in which photographers or prompters can make highly creative contributions to a work are not for courts to examine, at least not "outside of the narrowest and most obvious limits." They easily pass the bare minimum—and should be eligible for copyright.

D. *The Copyright Office's Restrictive Approach Hampers Creativity and Progress*

1. Authorship Should Not Be Restricted by Artificial Restrictions Devised by Lawyers

The Copyright Office's restrictive approach to authorship is at odds with the Supreme Court's admonition in *Bleistein* to avoid having "persons trained only to the law" conducting a case-by-case determination of whether works qualify for copyright.[458] The Copyright Office's case-by-case review of all AI-generated works in registration applications[459] goes well

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457. *See* Artie Beaty, *Microsoft launches free mobile app versions of Designer, its AI photo creator*, ZDNET (July 17, 2024, 2:46 PM), https://www.zdnet.com/article/microsoft-launches-free-mobile-app-versions-of-designer-its-ai-photo-creator/ [https://perma.cc/A3XV-SHRZ]; *infra* note 602 and accompanying text.

458. Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251 (1903).

459. Registration Guidance, *supra* note 22, at 16192 ("In the case of works containing AI-generated material, the Office will consider whether the AI

beyond "the narrowest and most obvious limits" demarcated by Justice Holmes in *Bleistein*. The Copyright Office must review every single work involving some AI-generation that is the subject of copyright registration. The number of works can easily grow to hundreds of thousands each year, if not more, given the deployment of generative AI in the creative industries and the integration of generative AI into the popular applications of Google, Microsoft, Apple, Adobe, Canva, Figma, and other companies. Indeed, Google's integration of AI right into its market-dominant search engine enables people to use Google to create their own images using AI.[460]

The wisdom of *Bleistein*'s admonition is apparent. The Office's AI Guidance does not cite any empirical studies validating the very narrow model of authorship the Office adopted as the sole or even primary way in which authors create.[461] Instead of being evidence-based, the Office's AI Guidance assumes a rigid conception of authorship apparently devised by persons only trained in the law.[462] But, by penalizing the inclusion of randomness and imposing artificial distinctions based on control and dictation and prediction of results ahead of time, the Office takes a crabbed view of the creative process that does not align with how authors create in practice.

According to cognitive psychologist Professor Wendy Ross, a researcher who studies creativity and cognition,[463] "[t]he notion that a mental blueprint is drawn up and imposed on inert matter . . . is not upheld by any observational or qualitative data of which I am aware and so reflects creativity as we wish it were rather than as it actually is."[464] Instead, the creative

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contributions are the result of 'mechanical reproduction' or instead of an author's 'own original mental conception, to which [the author] gave visible form.' The answer will depend on the circumstances, particularly how the AI tool operates and how it was used to create the final work. This is necessarily a case-by-case inquiry.").

460. Sarah Perez, *Google's AI-Powered Search Experience Can Now Generate Images, Write Drafts*, TECHCRUNCH (Oct. 12, 2023, 9:00 AM), https://techcrunch.com/2023/10/12/googles-ai-powered-search-experience-can-now-generate-images-write-drafts/ [https://perma.cc/3GT5-2J5S]; Elizabeth Reid, *Supercharging Search with generative AI*, GOOGLE (May 10, 2023), https://blog.google/products/search/generative-ai-search/.

461. *See generally* Registration Guidance, *supra* note 22, at 16190 (noting the absence of empirical evidence in the Office's AI Guidance).

462. *See id.*

463. *See Creativity, Possibility and Serendipity*, WENDYROSS, https://www.wendyross.co.uk/ [https://perma.cc/VV2K-NV5Z].

464. Wendy Ross, *Heterosclar Serendipity and the Importance of Accidents*, *in* THE ART OF SERENDIPITY 77 (Wendy Ross & Samantha Copeland eds., 2022) (emphasis added).

process "unfolds incrementally and recursively along multiple timescales and in coordination with the material."[465]

Because the Office's restrictive view of authorship does not match what authors do in practice, many transcendent works would fail the Copyright Office's test of human authorship. Although human creativity is a mysterious process,[466] researchers and artists have shed light on elements that are conducive to creativity. One line of research recognizes the important role of serendipity and randomness in the creative process, leading to unplanned and surprising or even novel results.[467] As Professor Ross and Professor Samantha Copeland explain, citing the pathbreaking work of psychologist Mihaly Csikszentmihalyi, "accepting that some things are *beyond our control* does not undermine the role of creative and artistic talent in creativity but acknowledges that the whole creative trajectory from idea to absorption lies in a social context and is fraught with contingency."[468] In other words, "serendipity is concerned with understanding how people navigate uncertain and incredibly complex environments," which are "necessarily filled with unanticipated moments and interactions which may become more salient in moments of progress and discovery as material uncertainty transforms into human knowledge and understanding."[469]

Psychologist Vlad Glăveanu, who researches creativity, identifies the important role of serendipity in the process of creation.[470] The creative process is iterative and dynamic.[471] According to Glăveanu, creativity fueled by serendipity is not static or linear; instead, it is dynamic and recursive, oscillating between the familiar and the unfamiliar.[472] Professor Ross similarly describes the creative process as "first, an accident stemming from unintentional action or an external source,

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465. *Id.*

466. *See* MARGARET A. BODEN, THE CREATIVE MIND: MYTHS AND MECHANISMS 11–12 (2d ed. 2004).

467. *See id*. at 241.

468. Wendy Ross & Samantha Copeland, *On Creativity and Serendipity*, *in* THE ART OF SERENDIPITY 6 (Wendy Ross & Samantha Copeland eds., 2022) (emphasis added).

469. *Id.* at 14.

470. Vlad Glăveanu, *What's 'Inside' the Prepared Mind? Not Things, but Relations*, *in* THE ART OF SERENDIPITY 26 (Wendy Ross & Samantha Copeland eds., 2022).

471. *Id.* ("[T]he effective surprise caused by the creative outcome can inspire further insights and creative processes in the creator.").

472. *Id.* at 34.

second, the noticing of the accident (indicated by surprise) and third, a change in creative action."[473] Neuroscientists have found that the incorporation of a "'randomizing' mechanism" can spark creativity by stimulating different responses in the brain.[474]

In his bestselling book, *The Creative Act: A Way of Being*, record producer Rick Rubin explains the creative process in comparable terms, prioritizing spontaneity and experimentation.[475] Instead of conceptualizing authorship in terms of exercising sufficient control and dictating specific results, Rubin favors play, following no rules, and welcoming unplanned results.[476] Creativity thrives when the results are unplanned. "In creating art, the sum total of the parts often defies expectation."[477] Accordingly, "Demanding to control a work of art would be just as foolish as demanding that an oak tree grow according to your will."[478] "If we're aiming to create works that are exceptional, most rules don't apply."[479] Indeed, transcendant artists are often known more for their spontaneity than their ability to control a work ahead of time.[480]

Throughout history, artists have embraced spontaneity, unpredictability, and randomness in the process of creation. Wassily Kandinsky, Pablo Picasso, Marcel Duchamp, and the Dada and Surreal artists incorporated accidental elements into

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473. *Id.* at 78; *see* Ross, *supra* note 464, at 76 ("[S]erendipity allows us to negotiate the narrow path between uncontrolled accident and agential intent and attribute a form of distributive epistemic credit across agent and environment.").

474. *See Randomness and Creativity*, 24 TRENDS IN NEUROSCIENCES 694, 694 (2001).

475. *See* RICK RUBIN, THE CREATIVE ACT: A WAY OF BEING 151 (2023) ("The heart of experiment is mystery. We cannot predict where a seed will lead or if it will take root. Remain open to the new and unknown. Begin with a question mark and embark on a journey of discovery."); *id.* at 301 ("If you are an artist whose process is intellectually based, it may be of benefit to play with spontaneity as a tool, a window to discovery and an access point to new parts of yourself.").

476. *See generally id.* (illustrating Rubin's affinity for conceptualizing authorship as an action which cedes control to the creative processes).

477. *Id.* at 154; *see id.* at 180 ("Great art opens a conversation rather than closing it. And often this conversation is started by accident.").

478. *Id.* at 159.

479. *Id.* at 98.

480. *See* Anthony Tommasini, *How to Get to Spontaneity? Practice*, N.Y. TIMES (Mar. 14, 2014), https://www.nytimes.com/2014/03/16/arts/music/how-to-get-to-spontaneity-practice.html [https://perma.cc/7FRL-6XW3]; *Spontaneity in the Work of Jackson Pollock, Charlie Parker, and Jack Kerouac*, THE GENEALOGY OF STYLE (July 12, 2015), https://thegenealogyofstyle.wordpress.com/2015/07/12/spontaneity-in-the-work-of-jackson-pollock-charlie-parker-and-jack-kerouac/ [https://perma.cc/3C8G-PSH8].

their works.[481] For example, Duchamp's "idea of letting a piece of thread fall on a canvas was accidental," but he embraced the accident and developed it into *3 Standard Stoppages*.[482] Duchamp selected a process that "introduce[d] an element of unpredictability to the work, by allowing forces (such as gravity) and objects to shape the outcomes."[483] As Ana Piñeyro, a designer and researcher, eloquently described Duchamp's approach, "the instruction constitutes a means to limit the artist's control over the fabrication process, by provoking accidental events that carry unexpected outcomes."[484]

In 1916, Jean Arp created a collage with squares arranged according to the law of chance.[485] Arp created the work "by tearing paper into pieces, letting them fall to the floor, and pasting each scrap where it" landed.[486] Arp was responding to World War I, which he believed was the result of adhering to reason and rationality.[487] The Dadaists sought to "radically rethink the very nature of art" by embracing "new, antirational aesthetic strategies, including abstraction, collage, and the use of chance procedures."[488] Arp intended to "eliminate[e] all volition" and embrace the "law of chance," which he believed was a mystical, "primal cause" or "muse."[489] In the 1960s, Robert Morris developed an approach called "Process art," which espoused indeterminacy, accident, and chance in creating artworks, such as by hanging long felt materials, whose shapes are formed from an interplay of gravity and the artist's initial choice of where to hang the materials.[490]

Other artists also brought randomness into the creative process. For example, Henry Pearson and other stochastic

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481. Ana Piñeyro, *Fostering Creative Opportunities by Embracing the Accidental Within Practices of Making*, *in* THE ART OF SERENDIPITY 131–37 (Wendy Ross & Samantha Copeland eds., 2022).

482. *Id.* at 134.

483. *Id.*

484. *Id.*; *see also Three Standard Stoppages (Third Version)*, NORTON SIMON https://www.nortonsimon.org/art/detail/P.1963.39/ [https://perma.cc/6Y8X-CJKM].

485. *See Jean (Hans) Arp*, MOMA, https://www.moma.org/collection/works/37013 [https://perma.cc/596E-QR47].

486. *Id.*

487. *Id.*

488. *Id.*; *see also* Alan L. Durham, *The Random Muse: Authorship and Indeterminacy*, 44 WM. & MARY L. REV. 569, 596–98 (2002).

489. Durham, *supra* note 488, at 597–98 (quoting Jane Hancock, *Arp's Chance Collages, in* DADA/DIMENSIONS 47 (Stephen C. Foster ed., 1985)).

490. Piñeyro, *supra* note 481, at 136–37; *see* Robert Morris, *Untitled*, MOMA, https://www.moma.org/collection/works/81407 [https://perma.cc/89FF-73YH].

painters, incorporated randomness in their paintings.[491] Artists select the shapes and colors for their works through a random process.[492] This artistic method cedes control to chance. The approach is analogous to Mozart's Musical Dice Game in which the notes to a musical work are composed by rolling dice (aka an aleatory work).[493] The acclaimed composer John Cage also embraced chance and indeterminacy in his compositions, some of which he wrote based on randomly generated numbers.[494] He created visual artworks relying on similar randomness.[495] Cage obtained copyright registration for his musical work "Atlas eclipticalis," which he "randomly composed"[496] through his method of using "chance operations" and experimentation "the outcome of which is unknown."[497] Cage left a lot of the features of his work—e.g., "[t]he number of parts and passages to be played, the order of the sections, and the duration of the whole work"—to the performers of the musical work to decide.[498] In 1962, the Copyright Office correctly allowed the renewal registration for Cage's musical work.[499] The proper inquiry

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491. *See* Fred L. Whipple, *Stochastic Painting*, 1 LEONARDO 81 (1968); *Henry Pearson*, MOMA, https://www.moma.org/artists/4530 [https://perma.cc/4GCN-EZ8Q].

492. Whipple, *supra* note 491, at 81.

493. Durham, *supra* note 488, at 604–05; Grimmelmann, *supra* note 17, at 412–13.

494. *See* Brian Dillon, *The Visual Art of John Cage*, GUARDIAN (July 9, 2020, 7:05 PM), https://www.theguardian.com/artanddesign/2010/jul/10/john-cage-composer-drawings-exhibition [https://perma.cc/HCZ2-4SDK].

495. *Id.*

496. Rachel H, *Chance Music—Atlas Eclipticalis by John Cage*, MEDIUM (Feb. 15, 2021), https://hwang60293.medium.com/chance-music-atlas-eclipticalis-by-john-cage-4d2b694a22bb [https://perma.cc/W89A-UDRN].

497. Sabine M Feisst, *John Cage and Improvisation: An Unresolved Relationship*, *in* MUSICAL IMPROVISATION: ART, EDUCATION, AND SOCIETY 38, 41–44 (Gabriel Ross & Bruno Nettle eds., 2009). Cage wrote the musical work "by placing transparencies with staves over star maps and interpreting the stars' positions as notes." *Id.* at 43.

498. *Id.* at 43; *see* goodmanmusica, *Case: Atlas Eclipticalis – Bernstein – NYP – 1964*, YOUTUBE (Mar. 30, 2013), https://youtu.be/nky14InylDM?si=ESRuJehxDO1C9MY3 [https://perma.cc/3APW-97WR].

499. *See Registration Record RE0000498999 for Atlas eclipticalis. m John Cage*, COPYRIGHT PUB. RECS. SYS., https://publicrecords.copyright.gov/detailed-record/7394159 [https://perma.cc/P96M-BGVL]. Apparently, the Copyright Office varied in its approach to registering Cage's works. In 1970, Dorothy Pennington Keziah, the then-head of the music section in the Examining Division of the Copyright Office, published an article about the copyright issues raised by aleatory and indeterminate musical compositions, including some of Cage's works. *See* Dorothy Pennington

focuses on the creator's contribution in creating an original work, not whether it involved randomness.

Piñeyro described her creative approach: "[F]orm is neither predefined nor expected . . . [; instead, it is] a potential that becomes expressed through consecutive operations and interventions."[500] Put simply, "[a]bandoning control over the making process, [Piñeyro] 'tr[ies] things out and see[s] what happens.'"[501] The unplanned and accidental take on a "generative role."[502]

Photographs and film often involve spontaneous elements that are completely unplanned. For example, "Sun Falcon" is a photograph I took of Perito Moreno Glacier in Argentina, one of the most beautiful places in the world.[503] What made my photograph unique is that the sun appeared to have wings from its reflection on the clouds. Plus, a chromatic aberration made a magenta halo appear above the wings. I did not see these elements when I took the photograph, much less plan or control them. Yet they are what made "Sun Falcon" so visually arresting—and, indeed, unique. This dynamic form of creativity was so eloquently described by Oliver Wendell Holmes, Sr., in the *Atlantic Monthly* in 1859: "Theoretically, a perfect photograph is absolutely inexhaustible. In a picture you can find nothing which the artist has not seen before you; but in a perfect photograph there will be as many beauties lurking, unobserved, as there are flowers that blush unseen in forests and meadows."[504]

Keziah, *Copyright Registration for Aleatory and Indeterminate Musical Compositions*, 17 BULL. COPYRIGHT SOC'Y U.S.A. 311, 343–46, 348–49 (1970). Pennington Keziah recommended that, if the notations on the sheet submitted for registration did not adequately capture the sounds in the putative musical work, "registration would more appropriately be made, if the work were published with notice, in Class A as a 'book,'" and not as a musical work (Class E). *Id.* at 354. Under the existing copyright law, however, the right of public performance of a book would not likely extend to its musical performance, in her view. *Id.* at 354–55. The Copyright Office registered some of Cage's music as books (Class A). *See* Zvi S. Rosen, X (Aug. 30, 2024, 2:06 PM), https://x.com/zvisrosen/status/1829581361797308625 [https://perma.cc/D3U4-76HQ].

500. Piñeyro, *supra* note 481, at 145.

501. *Id.*

502. *Id.* at 151.

503. *See A Terrible Decision on AI-made Images Hurts Creators*, WASH. POST (Apr. 27, 2023), https://www.washingtonpost.com/opinions/2023/04/27/artificial-intelligence-copyright-decision-misguided/ [https://perma.cc/8TX2-4TAS]; *Sun Falcon*, PICERRIFIC PHOTOGRAPHY, https://picerrificphotography.com/post/18299147 1584/sun-falcon-2019 [https://perma.cc/WYJ7-WRVF].

504. Holmes, Sr., *supra* note 405, at 744.

Wildlife, nature, and astro- photographers often capture unpredicted elements, for example, when they rely on time-lapse photography, in which they set up a camera to capture whatever passes in front of it.[505] They neither control the elements in the scene they shoot nor dictate the specific results.[506]

Photography's art often lies in the spontaneous. As *Washington Post* photographer Marvin Joseph explained, "I never know exactly how anything will turn out until I'm knee-deep in the process or when the photo shoot is over. And I'm in awe at the end, just like the subject. I love how spontaneous this way of making art can be."[507] Indeed, a photoshoot involving models commonly involves some spontaneous poses that the models strike on their own. Spontaneity is often what makes a photoshoot magical—just consider photographer Douglas Kirkland's first assignment photographing Marilyn Monroe, resulting in a series of photographs that are now iconic.[508] Even though the photographer did not control the model or plan all the poses, the photographer is considered the author of the photographs and is entitled to their copyright. The spontaneity in the photoshoot does not disqualify the photographer from copyright. Nor should it.

Film operates similarly. Consider Abraham Zapruder's twenty-six-second film of the assassination of President John F. Kennedy.[509] Zapruder had no control over any of the people or

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505. *See How to Create Your Own Time-Lapse Nature Video*, NATURAL PHOTOGRAPHER (Nov. 30, 2015), https://dailywildlifephoto.nathab.com/photography-guide/how-to-create-your-own-time-lapse-nature-video/ [https://perma.cc/UM6X-S7UQ].

506. *See Your Best Shot*, TRAVEL & LEISURE, June 2023, at 112 (including traveler Kathleen Nate's description of a photograph she took in Venice that captured a "thin veil of light as it radiated through the lifting fog" but that she did not see until hours after she took the photograph).

507. Katherine Copeland, *The Wide Angle: This Photographer Thrives on Creating Art Spontaneously*, WASH. POST (Jan. 27, 2022), https://www.washingtonpost.com/magazine/2022/01/27/photographers-unending-search-spontaneous/ [https://perma.cc/96CL-KHT5].

508. *See* Stephanie Nolasco, *Marilyn Monroe Photographer Douglas Kirkland Recalls How Sex Symbol 'Was Just an Exciting Tease' During Shoot*, FOX NEWS (Oct. 29, 2019, 5:00 AM), https://www.foxnews.com/entertainment/marilyn-monroe-photographer-douglas-kirkland-recalls-how-sex-symbol-was-just-an-exciting-tease-during-shoot [https://perma.cc/M9X5-RFTT].

509. *Zapruder Film*, WIKIPEDIA, https://en.wikipedia.org/wiki/Zapruder_film [https://perma.cc/6PYG-WVAQ]. A similar example is provided by the *New York Times* photographer Doug Mills' capture of a bullet going past the head of former

the scenes captured in his short footage. Nor did he predict ahead of time what his film would capture that would make it historic—the tragic assassination of President Kennedy. As such, if we applied the Copyright Office's approach to human authorship, Zapruder's film would be disqualified from copyright because the film was generated, with a machine, in "an unpredictable way," without Zapruder's knowledge "ahead of time" of what the film would entail, and without Zapruder's "master minding" or "controlling," much less "dictating," the scenes in the film. Indeed, the creation of the content in the film was due to forces and elements completely beyond Zapruder's intellectual conception and control. Thus, under the Copyright Office's flawed logic, Zapruder "is not the author for copyright purpose of the individual images generated by" the movie camera.[510]

Some of the most iconic movie scenes were unscripted or ad libbed. Humphrey Bogart improvised the now-memorable farewell line, "Here's looking at you, kid," in the Paris flashback scene with Ingrid Bergman in *Casablanca*, widely regarded as one of the best films of all time; the filmmakers loved it so much they revised other parts of the film to include two additional uses of the line.[511] Robert De Niro improvised all of his lines in the most famous scene in *Taxi Driver*, including his show-stopping refrain, "You talkin' to me?"[512] Robin Williams was

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President Donald Trump; Mills didn't know a bullet was even shot when he took the photograph. *See* Analisa Novak, *Photographer Doug Mills on Capturing Bullet During Trump's Rally Assassination Attempt*, CBS NEWS (July 15, 2024, 1:17 PM), https://www.cbsnews.com/news/photographer-doug-mills-capturing-bullet-trump-rally-assassination-attempt-trumps/ [https://perma.cc/G595-ZZH7].

510. *Zarya of the Dawn* decision, *supra* note 19, at 10; *see* Time Inc. v. Bernard Geis Assocs., 293 F. Supp. 130, 143–44 (S.D.N.Y. 1968) (recognizing copyright in the Zapruder film). Ginsburg and Budiardjo recognize this "disjunction" between the conception and the execution of the work, a recognition that runs counter to their theory of authorship. *See* Ginsburg & Budiardjo, *supra* note 17, at 371–72 (discussing the copyrightability of the Zapruder film).

511. *See Here's Looking at You: Why is Casablanca So Very Quotable?*, BBC (June 30, 2022), https://www.bbc.co.uk/programmes/articles/22MqWw0PKFLLpDLhhSgk278/heres-looking-at-you-why-is-casablanca-so-very-quotable [https://perma.cc/MN2K-7ZDV]; Mark Juddery, *5 Classic Movie Moments That Weren't in the Script*, MENTAFLOSS (Apr. 3, 2009), https://www.mentalfloss.com/article/21358/5-classic-movie-moments-werent-script [https://perma.cc/4TJ8-Y98B].

512. *See* Nicholas Brooks, *Robert De Niro's Most Famous Quote Started as a Taxi Driver Ad-lib*, CBR (Jan. 30, 2023), https://www.cbr.com/robert-de-niro-you-talking-to-me-taxi-driver-ad-lib/ [https://perma.cc/A9M8-PMCD].

known for improvising both scenes and lines.[513] Numerous acclaimed films include unscripted lines or elements,[514] even films made in this day: in the critically acclaimed movie *Barbie*, actor Ryan Gosling improvised many elements, including shouting, "Sublime!," which became one of the movie's most memorable lines.[515] Martin Scorsese's *Killers of the Flower Moon* includes a completely unscripted scene involving Osage Nation Chief Standing Geoffrey Bear and the character Paul Red Eagle.[516] As Scorsese described the "incredible scene," Chief Standing Bear "wails for all the indigenous people of the world."[517] If the movie studios are allowed to copyright all these unplanned elements created by non-authors in films, without dictating or knowing ahead of time their specific results when filming, the same approach should be applied to unplanned elements in AI-generated works.

Artists have long used digital technologies to imagine new modes of creativity. In 1968, the Cybernetic Serendipity exhibition at the Institute of Contemporary Arts in London explored the creation of art through computers, "where chance was an important ingredient" in the artworks.[518] Andrew Sneddon, an artist and lecturer on contemporary art practice, describes this approach as a quality of contemporary artists, who embrace "a position of not knowing and working in an environment *where the unanticipated and the unforeseen are*

513. *See* Nathan Sharp, *Top 10 Unscripted Robin Williams Moments That Were Left in The Movie*, WATCHMOJO, https://www.watchmojo.com/articles/top-10-unscripted-robin-williams-moments-that-were-left-in-the-movie [https://perma.cc/KW7R-2MVZ].

514. *See* Hugh Feinberg, *The Ten Most Iconic Ad-Libbed Scenes in Film History*, CINEMA SCHOLARS (Apr. 20, 2022), https://cinemascholars.com/the-ten-most-iconic-ad-libbed-scenes-in-film-history/ [https://perma.cc/92AF-S7M3].

515. *See* Katie Louise Smith, *Ryan Gosling Improvised Ken's 'Sublime!' Line in Barbie*, POPBUZZ (Aug. 2, 2023, 5:20 PM), https://www.popbuzz.com/tv-film/news/barbie-ken-sublime-ryan-gosling-improvised/ [https://perma.cc/N87F-883F]; AP, *Margot Robbie and Ryan Gosling on the Making of 'Barbie,'* YOUTUBE (July 9, 2023), https://www.youtube.com/watch?v=JEzJLem-120 [https://perma.cc/8R8J-X3E4].

516. Jimmy Kimmel Live, *Martin Scorsese on Killers of the Flower Moon, the Late Great Robbie Robertson & Being an Altar Boy*, YOUTUBE (Oct. 19, 2023), https://youtu.be/9mx2i-4Mi7c?si=bJQLjQmcCBkQl_L8&t=747 [https://perma.cc/W4KE-4ACH].

517. *Id.*

518. Andrew Sneddon, *The Pleasure of Not Knowing and the Importance of Serendipity in Contemporary Art Practice*, *in* THE ART OF SERENDIPITY 239, 248 (Wendy Ross & Samantha Copeland eds., 2022); *Cybernetic Serendipity*, MONOSKOP.ORG, https://monoskop.org/Cybernetic_Serendipity [https://perma.cc/9VYK-U99A].

happily accepted into the artists' practice."[519] By giving up the desire to control and dictate the creative process artists open up the possibility for greater breakthroughs, learning, and knowledge.[520]

As writer Donald Barthelme described, the artist's mindset is "not-knowing," and "[t]he not-knowing is crucial to art [and] is what permits art to be made. Without the scanning process engendered by now-knowing, without the possibility of having the mind move in unanticipated directions, there would be no invention."[521] AI models provide yet another mode of this kind of breakthrough creativity.

Art thrives on spontaneity. Creating art is not about exercising control or dictating specific results that are predicted ahead of time. Art is not a rigid method but is, instead, a dynamic, often spontaneous process in which many elements—indeed, often the key elements—are beyond the author's control and prediction. The Copyright Office's restrictive approach is at odds with the creative process and ignores the extensive body of research showing the importance of serendipity, accidents, trial and error, randomness, lack of control, and the use of iterative processes in artistic creation.[522] *Bleistein* counsels against the adoption of any legal rule that would exclude—or "excommunicate"—large classes of art and artists from copyright. Such an exclusionary rule does not promote progress.

2. Prompt Engineering Offers a New Process of Creation That Promotes Creativity and Progress

a. Prompt Engineering as a New Language for Authorship

Justice Holmes's admonition in *Bleistein* counsels in favor of affording breathing room under copyright law to prompt engineering as a new creative process. Still in its infancy of public availability, prompt engineering is a "new language" in which authors can speak. By its pervasiveness on chatbots and AI generators, prompt engineering is already an important skill

519. *Id.* at 251 (emphasis added); *see id.* at 253 ("Through failure one has the potential to stumble on the unexpected—a strategy also, of course, used to different ends in the practice of scientists or business entrepreneurs.") (quoting LISA LE FEUVE, FAILURE, DOCUMENTS IN CONTEMPORARY ART 12 (2010)).

520. *Id.* at 256–57.

521. *Id.* at 258 (quoting DONALD BARTHELME, NOT KNOWING: THE ESSAYS AND INTERVIEWS 12 (Kim Herzinger ed., 1999)).

522. And it leads to the absurd result that a new tool that can ensure the creation of *new, unique* works for society's benefit is disfavored.

in content production today. Yet, it is too soon to predict how it will evolve.[523]

b. Prompt Engineering Promotes Creativity and Divergent Thinking

Scholars and commentators have recognized how prompt engineering with generative AI may increase people's creativity through divergent thinking. For example, Professor Tojin Eapen, Daniel Finkenstadts, Josh Folk, and Lokesh Venkataswamy describe how AI "can augment the creativity of" individuals.[524] Based on their experimentation with AI platforms, they conclude that "[g]enerative AI can support divergent thinking by making associations among remote concepts and producing ideas drawn from them," which can be harnessed to produce new designs and products.[525]

Their conclusion is supported by an independent study that tested humans versus GPT-3, GPT-4, and Copy.ai, to see who performed better in divergent thinking tasks.[526] The study asked humans and the AI platforms to "generate uncommon and creative uses for everyday objects."[527] The results of the study showed that "[o]n average, the AI chatbots outperformed human participants. . . . [T]he chatbots generally produced more creative responses."[528] By harnessing generative AI tools,

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523. *See* Andreas Welsch, *Prompt Engineering Is Dead — Long Live Prompt Engineering!*, AI MEMO (Aug. 2, 2023), https://intelligencebriefing.substack.com/p/learn-prompt-engineering-critical-ai-skill [https://perma.cc/DKG3-WVM2].

524. Tojin T. Eapen et al., *How Generative AI Can Augment Human Creativity*, HARV. BUS. REV. (July–Aug. 2023), https://hbr.org/2023/07/how-generative-ai-can-augment-human-creativity [https://perma.cc/C5TR-8DJY].

525. *Id.* at 58–60.

526. *See* Mika Koivisto & Simone Grassini, *Best Humans Still Outperform Artificial Intelligence in a Creative Divergent Thinking Task*, 13 SCI. REP. 13601 (2023), https://doi.org/10.1038/s41598-023-40858-3 [https://perma.cc/6Y2S-JNT2].

527. *Id.*

528. *Id.*; *see also* Kent F. Hubert et al., *The Current State of Artificial Intelligence Generative Language Models is More Creative Than Humans on Divergent Thinking Tasks*, 14 SCI. REP. 3440 (2024), https://www.nature.com/articles/s41598-024-53303-w [https://perma.cc/XZN2-K5SY] (study found that "[o]verall, GPT-4 was more original and elaborate than humans on each of the divergent thinking tasks, even when controlling for fuency of responses"); Chenglei Si et al., Can LLMs Generate Novel Research Ideas? A Large-Scale Human Study with 100+ NLP Researchers 46 (Sept. 6, 2024) (unpublished manuscript), https://doi.org/10.48550/arXiv.2409.04109 [https://perma.cc/C8TQ-4EFX] (finding experts rated AI-generated research ideas as more novel than human ideas); Joshua Ashkinaze et al., How AI Ideas Affect the Creativity, Diversity, and Evolution of Human Ideas: Evidence From a Large,

humans may spark their creative powers. David Porte Beckefield, a three-dimensional (3D)/virtual reality artist, explained that he "see[s] Gen[erative] AI empowering creators to conceptualise, visualize and ideate faster to help empower their art practice."[529] Music produce Shawn Everett expressed a similar view in experimenting with AI: "What was happening was so different, and was landing in locations that no human being would normally think of, but it still felt rooted in something familiar."[530]

c. Prompt Engineering Promotes Experimentation Through Iterations by Creators

Prompt engineering encourages people to experiment with generative AI and to engage in an iterative process of creation, meaning the creator edits and refines the initial work through a series of successive prompts to produce the work the creator envisions.[531] As one commentator put it, "This process allows for greater control over the model's output and empowers developers to achieve more accurate and relevant results."[532] Indeed, as demonstrated by Kashtanova and Allen, artists might write hundreds of prompts to refine a series of images to the final version of what the creator envisions. This iterative process of creation responds to the creator's successive prompts. A recent study found that, for AI-generated images, prompt engineering is a learned skill that requires people to learn "keywords and key phrases . . . through iterative experimentation and . . . from prompts shared in dedicated

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Dynamic Experiment 16–17 (July 4, 2024) (unpublished manuscript), https://arxiv.org/pdf/2401.13481 [https://perma.cc/PXF8-JCCK] (finding people's viewing of AI-generated content increased diversity of ideas among people, but did not increase individual creativity).

529. *Generation AI: Exploring the Future of Creativity with David Porte Beckefeld*, ADOBE (Sept. 28, 2023), https://blog.adobe.com/en/publish/2023/08/28/generation-ai-exploring-the-future-of-creativity-with-david-porte-beckefeld [https://perma.cc/6Z49-7P7M].

530. *See* Marc Hogan, *Musicians Are Already Using AI More Often Than We Think*, PITCHFORK (May 11, 2023), https://pitchfork.com/thepitch/musicians-are-already-using-ai-more-often-than-we-think/ [https://perma.cc/53UW-F3SH].

531. *See* Vishal Ranjan Pandey, *Unleashing the Power of AI: The Significance of Prompt Engineering*, LINKEDIN (Aug. 7, 2023), https://www.linkedin.com/pulse/unleashing-power-ai-significance-prompt-engineering-pandey/ [https://perma.cc/L9E9-H9MG].

532. *Id.*

resources, on social media, or in online communities."[533] As noted above, AI generators can spark people's creativity by enabling them to visualize whatever they imagine in words.[534]

This type of creative activity should be encouraged, not categorically dismissed or excluded from copyright law. It fits well within the Supreme Court's discussion in *The Trade-Mark Cases* of authorship as involving "the creative powers of the mind" and writings as embodying "the fruits of intellectual labor."[535] When engaged in prompt engineering, creators are exercising the creative powers of their minds to render works embodying their artistic vision.

d. Prompt Engineering Makes Creative Production More Accessible to People, Including People with Disabilities

An inherent problem of adhering to supposed traditional elements of authorship is that a tradition-based approach may exclude people with disabilities, who may be able to create but in non-traditional ways, with the assistance of AI. Because prompt engineering is based on natural language, it democratizes creative production, making it available to many more people.[536] No special computer programming or training is needed. Anyone can use natural language to use generative AI, including simply by speaking instead of typing.[537] This functionality will increase accessibility of content for people with visual impairments.[538] Artist Cosmo Wenman collaborated with Brandon Biggs, Lindsay Yazzolino, and Joshua Miele, who are blind, to create 4,110 images with

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533. Jonas Oppenlaender et al., *Prompting AI Art: An Investigation into the Creative Skill of Prompt Engineering*, ARXIV 30 (2023), https://doi.org/10.48550/arXiv.2303.13534 [https://perma.cc/SE2N-BQNE]; *see also* Nikita Pavlichenko & Dmitry Ustalov, *Best Prompts for Text-to-Image Models and How to Find Them*, *in* PROC. OF THE 46TH INT'L ACM SIGIR CONF. ON RSCH. & DEV. IN INFO. RETRIEVAL 2067, 2070 (2023), https://doi.org/10.1145/3539618.3592000 [https://perma.cc/Z8NL-2MYE] (explaining an experiment that found that certain keywords produced higher quality images on Stable Diffusion).

534. *See* Eapen et al., *supra* note 524, at 58.

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

536. *See* Eapen et al., *supra* note 524, at 58.

537. *See ChatGPT Can Now See, Hear, and Speak*, OPENAI (Sept. 25, 2023), https://openai.com/blog/chatgpt-can-now-see-hear-and-speak#OpenAI [https://perma.cc/W2AR-PNF8].

538. *See* Askat Kuzdeuov et al., *ChatGPT for Visually Impaired and Blind*, TECHRXIV (2023), https://doi.org/10.36227/techrxiv.22047080.v2 [https://perma.cc/7F5Q-AAX4].

Midjourney.[539] Wenman sees the potential of AI to make art creation more accessible to people with blindness: "[T]he more a blind person can rely on something like text-to-image to be precise, the more they might find some value in expressing themselves."[540] AI can also make creative production more accessible to people with communication and motor impairments.[541] Randy Travis, who suffered a stroke, has regained his ability to create new music with AI technology that recreates his voice.[542] Increasing accessibility to works for people with disabilities is a recognized goal of the Copyright Act. [543]

The closest parallel to AI's democratization of creative production is how digital cameras, followed by smartphones, made photography and videos a creative pursuit for virtually everyone.[544] That, in turn, gave rise to the Creator Economy, in which millions of people are content creators.[545] The Creator Economy is expected to grow to $480 billion in value by 2027.[546] As President Biden put it, creators in the Creator Economy

539. Adam Schrader, *An Artist Invited Blind People to Use an A.I. Image Generator. The Unsettling Results Could Help Make Art More Accessible*, ARTNET (Oct. 13, 2023), https://news.artnet.com/art-world/ai-art-experiments-blind-users-2368599 [https://perma.cc/4XED-797G].

540. *Id.*

541. *See* Laurie Henneborn, *Designing Generative AI to Work for People with Disabilities*, HARV. BUS. REV. (Aug. 18, 2023), https://hbr.org/2023/08/designing-generative-ai-to-work-for-people-with-disabilities [https://perma.cc/E9BK-9XDY]; Jill Bezyak et al., *ChatGPT and Disability: Benefits, Concerns, and Future Potential*, ROCKY MOUNTAIN ADA CTR., https://rockymountainada.org/resources/research/chatgpt-and-disability-benefits-concerns-and-future-potential [https://perma.cc/QM39-NCCY]; *Artificial Intelligence: Barrier-Free Art for People with Disabilities?*, EFECOMUNICA (June 28, 2023), https://efecomunica.efe.com/en/artificial-intelligence-barrier-free-art-for-people-with-disabilities/ [https://perma.cc/ND7E-2M83].

542. *See* Elizabeth Stanton, *Randy Travis uses AI for new music after stroke damaged brain, speech*, FOX NEWS (May 7, 2024, 2:00 AM), https://www.foxnews.com/entertainment/randy-travis-uses-ai-new-music-after-stroke-damaged-brain-speech [https://perma.cc/8ZZN-WR9X].

543. *See* Authors Guild v. HathiTrust, 755 F.3d 87, 102 (2d Cir. 2014).

544. *See* Krystal Grow, *How Smartphones Have Changed the Way We Experience Photography*, TIME (Aug. 27, 2014, 4:00 AM), https://time.com/3811490/smartphone-photography-at-woodstock/ [https://perma.cc/FBD6-6G3P].

545. *See The Creator Economy Could Approach Half-a-Trillion Dollars by 2027*, GOLDMAN SACHS (Apr. 19, 2023), https://www.goldmansachs.com/intelligence/pages/the-creator-economy-could-approach-half-a-trillion-dollars-by-2027.html [https://perma.cc/2F2D-KN7R].

546. *Id.*

offer "new possibilities" and are "the new breakthrough in how we communicate."[547] Today, the same describes AI.

E. *The Copyright Office's Position on AI Ultimately Harms U.S. Creators*

1. Promoting Progress in the Copyright Clause "Requires Responsiveness to the Broader International Context of Evolving Norms"

The international consequences of U.S. copyright law are an important aspect of how to promote progress under the Progress Clause. As Shira Perlmutter explained in 2002,

> I focus particularly on the benefits that can be gained through active participation in the international copyright system . . . . If these benefits are to be achieved, the Constitution should be interpreted with due regard to making them feasible. First, it should be recognized that given the realities of current technologies and markets, U.S. copyright policy cannot be wisely formulated in an insular manner; optimal progress *requires responsiveness to the broader international context of evolving norms*.[548]

In *Eldred*, the Supreme Court agreed with and cited Perlmutter's approach to progress and its recognition of the international consequences of U.S. copyright law.[549] In the Court's view, Congress had a rational basis in 1998 to extend U.S. copyright terms to match the EU copyright term "to ensure that American authors receive the same copyright protection in Europe as their European counterparts."[550]

Implicit in the Court's reasoning is the possibility that disadvantaging U.S. authors compared to foreign authors, or the copyright approaches taken in other countries, may hamper progress in this country. For example, if the United States were viewed as an inhospitable market for authors compared to other

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547. *Remarks by President Biden at White House Creator Economy Conference*, WHITE HOUSE (Aug. 14, 2024), https://www.whitehouse.gov/briefing-room/speeches-remarks/2024/08/14/remarks-by-president-biden-at-white-house-creator-economy-conference/ [https://perma.cc/S97P-85R2].

548. Shira Perlmutter, *Participation in the International Copyright System as a Means to Promote the Progress of Science and Useful Arts*, 36 LOY. L.A. L. REV. 323, 324 (2002) (emphasis added).

549. Eldred v. Ashcroft, 537 U.S. 186, 206–07 (2003).

550. *Id.* at 205–08.

countries, its ability to "play a leadership role" in setting international copyright policies and protecting the interests of American authors would be hurt.[551] This concern may soon arise if the United States becomes an outlier among countries by adopting a rigid approach to authorship.

2. The U.S. Copyright Office Approach Disadvantages U.S. Authors Because Foreign Works Are Exempt from Copyright Registration

The Copyright Office's restriction on AI-generated works disproportionately impacts U.S. creators and businesses. Under the Berne Convention's ban on formalities, implemented by the U.S. Copyright Act, works of foreign origin are exempt from copyright registration; by contrast, registration is a prerequisite for works of U.S. origin to file copyright infringement lawsuits.[552] That means the Copyright Office's newfound requirements will mainly affect U.S. creators and businesses that seek copyright registration for works generated with AI programs. Those U.S. works will receive the heightened scrutiny of the Copyright Office and face the duties to disclose and disclaim any AI-generated works, while foreign works can avoid registration and face no scrutiny by the Office at all.

If the approach taken by the Copyright Office persists while the advances in AI tools continue, American businesses and creators may decide to seek more favorable copyright treatment abroad by first publishing their works in other Berne countries. Under Article 5 of the Berne Convention, the country of first publication anywhere in the Berne union is the work's country of origin.[553] Thus, American businesses and creators can avoid the U.S. Copyright Act's requirement of registration to file an infringement lawsuit—and thereby avoid the U.S. Copyright Office's restrictions on AI-generated works—by first publishing their works in, for example, the United Kingdom (UK).[554] In such case, the UK is the work's country of origin, and, as a work

551. *See id.* at 206 (quoting Perlmutter, *supra* note 548, at 332).

552. *See* 17 U.S.C. § 411(a) (describing that registration is a requirement to file a copyright lawsuit for "any United States work" but not for foreign works); Berne Convention, *supra* note 29, at 233 ("The enjoyment and the exercise of these rights shall not be subject to any formality[.]").

553. Berne Convention, *supra* note 29, at 233.

554. *See* Don McCoombie, *Large Language Doddle? Generative AI and UK Copyright Law Explained*, CLIFFORD CHANCE (June 6, 2023), https://www.cliffordchance.com/expertise/services/intellectual-property/global-ip-updates/2023/q2/large-language-doddle-generative-ai-and-uk-copyright-law-explained.html [https://perma.cc/DXS9-692F]; Copyright, Designs and Patents Act 1988, c. 48, § 178 (Eng.).

of foreign origin, U.S. copyright law cannot require the work's registration in the Copyright Office.

3. The Copyright Office's Position Conflicts with the Developing Approach to AI Works in Major Trading Partners of the United States

If we consider the broader international context of evolving norms, the rigid approach of the Copyright Office to AI-generated works is an outlier. Among the United States's important trading partners—the EU, the UK, China, and South Korea—all are more receptive to the copyrightability of AI-generated works that were created with sufficient human involvement than the United States. More generally, the UK, Ireland, India, New Zealand, South Africa, and the Ukraine all recognize authorship in computer-generated works. Indeed, the approach of the U.S. Copyright Office apparently is the *least receptive* to authors using AI technologies in the creation of works.

a. Copyright for AI-Generated Works Based on Selection and Arrangement, or Creative Choices

Some jurisdictions have recognized that AI-generated works can qualify for copyright based on the contribution of a human author in the creation of the work. Although the terms used to describe this human contribution and the scope of copyright may differ by country, the countries recognize the possibility that such human contribution in the creation of AI-generated works may be sufficient to establish the human as the author of the work.

i. China

In the world's first case to consider the copyrightability of a prompt-engineered image, the Beijing Internet Court recognized that the plaintiff, Li, was the author of an image generated using the text-to-image generator Stable Diffusion.[555] First, Li satisfied the requirement of "intellectual achievement": "[From conceiving the] idea about the picture to his final selection of the picture involved, the plaintiff did some intellectual investment, such as designing the presentation of the character, selecting prompt words, arranging the order of

555. Li v. Liu, Jing 0491 Min Chu No. 11279 (2023), https://english.bjinternetcourt.gov.cn/pdf/BeijingInternetCourtCivilJudgment112792023.pdf [https://perma.cc/6LH2-ZRPZ].

prompt words, setting parameters, and selecting the picture that he wanted."[556] Next, Li's image satisfied the requirement of originality based on Li's selection and arrangement of elements:

> [T]he plaintiff used prompt words to work on the picture elements . . . and set parameters to work on the picture layout and composition, *which reflects the plaintiff's choice and arrangement*. The plaintiff input prompt words and set parameters and got the first picture; then he added some prompt words, modified the parameters, and finally got the picture involved. Such adjustment and modification also reflect the *plaintiff's aesthetic choice and personal judgment*.[557]

Recognizing that "generative AI technology has changed the way people create," the Beijing Internet Court found similarities between AI and photography and stressed the importance of fashioning an approach to authorship and technological advancements that serves "[t]he core purpose of copyright . . . [, which is] to encourage creation."[558] Accordingly, "creation and AI technology can only prosper by properly applying the copyright system and using the legal means to encourage more people to use the latest tools to create."[559] Professor Peter Yu identifies China's approach to the copyrightability of AI-generated works as consistent with China's ambition of "becom[ing] the world's major artificial intelligence innovation center" by 2030.[560]

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556. *Id.* at 11.

557. *Id.* at 12 (emphasis added).

558. *Id.* at 12–13.

559. *Id.* at 13. For further analysis of the Beijing Internet Court's decision, see Danny Friedman, *Creation and Generation Copyright Standards*, N.Y.U. J. INTELL. PROP. & ENT. L. (forthcoming 2024) (manuscript at 33–39), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4770924 [https://perma.cc/3FPB-YQJZ]. Likewise, the Shenzhen Nanshan District Court recognized the copyrightability of financial news reports that were autonomously written by the AI program Dreamwriter but that reflected the human contributions of the plaintiff's creative team in selection and arrangement. *Tencent v. Yingxun Tech*, CHINA JUST. OBSERVER, https://www.chinajusticeobserver.com/law/x/2019-yue-0305-min-chu-14010 [https://perma.cc/XM6U-76YK].

560. Peter K. Yu, *The Future Path of Artificial Intelligence and Copyright Law in the Asian Pacific*, 96 COMPUTS. & L. (forthcoming 2024) (manuscript at 5), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4707592 [https://perma.cc/9GHN-WMKJ].

ii. South Korea

South Korea has recognized the copyrightability of an AI-generated work insofar as it constitutes an edited work (or compilation work) with sufficient human creative selection, arrangement, or composition. The Korean company Nara Knowledge Information registered the AI-generated film *AI Suro's Wife* as an edited work.[561] Nara used a variety of AI generators to create parts of the film, including the plot with GPT-4, GPT-3.5, and ClovaX, the images with Midjourney and Stable Diffusion, the video with Zen 2 and D-ID, and the dubbing with Clova Dubbing.[562] But, due to the lack of sufficient Korean elements in Midjourney and Stable Diffusion, Nara created its own small language model to create additional elements.[563] Under South Korea's 2023 Copyright Registration Review Handbook, a human's *selection and arrangement* of elements, including ones generated by AI, can constitute authorship: "If elements of traditional copyright are implemented by artificial intelligence technology, copyright is not recognized, but although humans have modified the artificial intelligence product in *selection, arrangement*, etc., copyright is recognized in a limited way."[564] Although the AI output is not protected, the creative selection or arrangement in the edited work is.[565]

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561. *See* Korea Copyright Commission, *(Press Release) First Domestic Generated AI Movie Copyright Recognized, Second Case in World'*, COPYRIGHT.OR.KR, https://www.copyright.or.kr/notify/press-release/view.do?brdctsno=52575&pageIndex=16&noticeYn=&brdclasscodeList=&etc2=&etc1=&searchText=&searchkeyword=&brdclasscode=&nationcodeList=&searchTarget=ALL&nationcode= [https://perma.cc/8D6Q-P8Y7]; *see also* Jang Se-min, *Domestically Created AI Movie 'Copyright Recognized for the First Time'... 2nd Case in the World*, AITIMES.COM (Jan. 4, 2024, 7:35 PM), https://www.aitimes.com/news/articleView.html?idxno=156286 [https://perma.cc/AZ3T-GLVJ] (discussing the film's development and use of AI); Hwan Kyoung Ko et al., *Artificial Intelligence 2024: South Korea*, CHAMBERS & PARTNERS (May 28, 2024), https://practiceguides.chambers.com/practice-guides/artificial-intelligence-2024/south-korea/trends-and-developments.

562. *See* Se-min, *supra* note 561.

563. *Id.*

564. *Id.* (emphasis added).

565. *See* Korea Copyright Commission, *supra* note 561. The Canadian Intellectual Property Office also allowed the registration of an AI-generated work, *Suryast*, created by Anki Sahni (a work for which the U.S. Copyright Office denied registration). But the Canadian Office does not review the substance of registration applications, and whether *Suryast* is copyrightable is being challenged in the Federal Court of Canada. *See* Anja Karadeglija, *Can AI Be an Author? Federal Court Asked To Decide in New Copyright Case*, TOR. CITY NEWS (July 13, 2024, 7:46 AM),

iii. European Union

In 2020, a report commissioned by the European Commission, jointly prepared by the Institute for Information Law (IViR) and the Joint Institute for Innovation Policy (JIIP), addressed the copyrightability of "AI-assisted" works, or "productions or applications generated by or with the assistance of AI systems, tools or techniques," under existing harmonized copyright standards in the EU.[566] Although the report is not law, the European Commission agreed with the study's view that that the "current EU IP framework and the European Patent Convention appear broadly suitable to address the challenges raised by AI-assisted inventions and creations."[567]

The report proposed a four-step test for copyright eligibility: the work (1) is a production in the literary, scientific, or artistic domain; (2) involves human intellectual effort; (3) satisfies originality (i.e., was independently created by personal, creative choices of the human creator); and (4) expresses the human creator's creativity.[568]

In a key part of the analysis, the report concluded that an AI-assisted work *can* qualify as work eligible for copyright as long as the work is the result of human creative choices at least in one of three stages of the creative process: (1) conception (design and specifications); (2) execution (producing drafts); and (3) redaction (editing and finalization).[569]

Relying on the Court of Justice of the European Union's (CJEU) *Eva-Maria Painer v. Standard VerlagsGmbH and Others* decision, which recognized that a portrait

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https://toronto.citynews.ca/2024/07/13/can-ai-be-an-author-new-copyright-case/ [https://perma.cc/3HGJ-VMBN]. India's Copyright Office withdrew its registration of *Suryast* after reconsidering its registration. *See The Divergence in Copyright Recognition for AI-Generated Works: An In-Depth Analysis Of Ankit Sahni's Case in the US and India*, KING STUBB & KASIVA (Jan. 8, 2024), https://ksandk.com/intellectual-property/divergent-copyright-recognition-ai-generated-works-sahnis-case-us-vs-india/ [https://perma.cc/WD9F-BN89].

566. THE JOINT INST. FOR INNOVATION POL'Y & IViR, TRENDS AND DEVELOPMENTS IN ARTIFICIAL INTELLIGENCE, CHALLENGES TO THE INTELLECTUAL PROPERTY RIGHTS FRAMEWORK: FINAL REPORT at 116 (2020), https://op.europa.eu/en/publication-detail/-/publication/394345a1-2ecf-11eb-b27b-01aa75ed71a1/language-en [https://perma.cc/65V8-RHF9] [hereinafter EU AI REPORT].

567. *See Making the Most of the EU's Innovative Potential: An Intellectual Propery Action Plan to Support the EU's Recovery and* Resilience, EUR. COMM'N (Nov. 25, 2020), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0760 [https://perma.cc/M3KE-BRE7].

568. EU AI REPORT, *supra* note 566, at 78–84.

569. *Id.* at 7.

photographer's authorship can exist in the preparation phase, the taking of the photograph, or the post-processing phase,[570] the report adopted a flexible approach that allowed an author to show human creative choices in at least one of the three stages of the creative process.[571] The report rejected any requirement that the human must be able to predict ahead of time the precise work generated.[572] The report acknowledged that "AI systems play a dominant role at the execution phase" but, as long as the human makes creative choices in conception or redaction, the work can qualify for copyright.[573] In sum, "[a]uthorship status will be accorded to the person or persons that have creatively contributed to the output."[574]

By contrast, the report recommends that autonomously generated works should not be copyrightable.[575] The report's recommended approach to AI-assisted works, which may qualify for copyright, and autonomously generated works, which do not, provides a sensible approach.[576] It draws from the CJEU's framework for authorship, which articulates how photographs can satisfy originality: "copyright is liable to apply only in relation to a subject-matter, such as a photograph, *which is original in the sense that it is its author's own intellectual creation*."[577] The CJEU did not impose any

570. Case C-145/10, Eva-Maria Painer v. Standard VerlagsGmbH, ECLI:EU:C:2011:798, ¶ 91 (Dec. 1, 2011) ("In the preparation phase, the photographer can choose the background, the subject's pose and the lighting. When taking a portrait photograph, he can choose the framing, the angle of view and the atmosphere created. Finally, when selecting the snapshot, the photographer may choose from a variety of developing techniques the one he wishes to adopt or, where appropriate, use computer software.").

571. EU AI Report, *supra* note 566, at 7.

572. *Id.* at 8.

573. *Id.* at 7–8.

574. *Id.* at 7.

575. *See id.* at 7–8.

576. As Professors Dan Burk, James Grimmelmann, and other scholars contend, the characterization of "autonomously generated" is contestable, given the need for a human programmer to create the program by which AI operates. *See* Dan L. Burk, *Thirty-Six Views of Copyright Authorship, by Jackson Pollock*, 58 HOUS. L. REV. 263, 268–69 (2019); Grimmelmann, *supra* note 17, at 412–13. I agree with Professor Burk's and Professor Shyamkrishna Balganesh's suggestion that tort principles of causation can help understand authorship under copyright law. Burk, *supra* note 576, at 268–69; Shyamkrishna Balganesh, *Causing Copyright*, 117 COLUM. L. REV. 1, 1, 11 (2017).

577. Case C-145/10, Eva-Maria Painer v. Standard VerlagsGmbH and Others, ECLI:EU:C:2011:798, ¶ 87 (Dec. 1, 2011) (emphasis added).

restrictions on the process by which authors create; instead, it focused on the requirement of originality.[578]

b. Copyright for Computer-Generated Works in the UK, Ireland, India, New Zealand, South Africa, and Ukraine

Before the advent of AI generators, some countries, starting with the UK, recognized copyright protection for computer-generated works. These countries understood the need to adapt copyright law to new tools for creation precipitated by computer programs. The UK's Copyright, Designs and Patents Act 1988 (CDPA) defines author, in the context of computer-generated literary, dramatic, musical, or artistic work, as the person who undertakes the "arrangements necessary for the creation of the work."[579] Likewise, it defines "computer-generated" as "the work is generated by computer in circumstances such that there is *no human author* of the work."[580] Ireland's copyright law

578. One of the contributors to the EU AI Report applied the Report's principles to prompt-engineered AI-assisted works, which, he argues, may qualify for copyright in the EU. *See* Bernt Hugenholtz, *Copyright and the Expression Engine: Idea and Expression in AI-Assisted Creations*, CHI. KENT. L. REV. (forthcoming 2024) ("They are the product of human creativity at all stages of the creative process, and should in my opinion be treated no differently than works of photography or traditional visual art."). However, another co-author of the report, Daniel Gervais, took a far more negative view of the ability of humans to satisfy authorship through prompt engineering, even with a series of prompts. *See* Daniel J. Gervais, Comment submitted by Professor Daniel Gervais, Vanderbilt University (Oct. 30, 2023), http://dx.doi.org/10.2139/ssrn.4629606 [https://perma.cc/ZF2D-P973] (response to question 18). Likewise, the Municipal Court of Prague found that an image created with a single prompt on DALL-E did not qualify copyright because it was not result of creative activity of a natural person, although some commentators suggest that the ruling does not necessarily preclude authorship where the creator submits sufficient evidence of the creative activity they engaged in (which the court found lacking in the case). *See* Alessandro Cerri, *Czech Court Finds that AI Tool DALL-E Cannot Be the Author of a Copyright Work*, IPKAT (Apr. 15, 2024), https://ipkitten.blogspot.com/2024/04/czech-court-finds-that-ai-tool-dall-e.html [https://perma.cc/MN5S-TNDX].

579. Copyright, Designs and Patents Act 1988, c. 48, § 9(3) (Eng.).

580. *Id.* § 178 (emphasis added). The UK's provision is not a model of clarity. *See* Matt Blaszcyk, *Contradictions of Computer-Generated Works' Protection*, KLUWER COPYRIGHT BLOG (Nov. 6, 2023), https://copyrightblog.kluweriplaw.com/2023/11/06/contradictions-of-computer-generated-works-protection/ [https://perma.cc/KX4K-2KXL]. It is unclear whether a prompt-engineered work would fall within this provision, given that a human's selection and arrangement of elements in such a work may establish the human as the author—meaning it would not be a situation in which "there is no human author of the work." Copyright, Designs and Patents Act 1988, c. 48, § 178 (Eng.). The Science, Innovation and Technology Select Committee held a hearing to examine how copyright should treat AI works, with

adopted a similar approach,[581] as did India, New Zealand, South Africa, Hong Kong, and, in 2022, the Ukraine.[582]

Although the courts have yet to apply these provisions to AI-generated works, the provisions allow the possibility that AI-generated works may be copyrightable.[583] For example, in 2024, the Ukraine's IP Office allowed the registration of AI-generated images under Article 33 of its copyright law, which grants sui generis protection to "non-original objects generated by a computer program."[584] Based on its announcement, the Office viewed the images as "formed only by means of platforms of generative artificial intelligence."[585] Because this provision applies only to "*non-original* objects generated by a computer program," prompt-engineered works that satisfy originality—i.e., the works that are "the result of the author's own intellectual creative activity and reflects the creative decisions made by the author during"—could be eligible for full

witnesses suggesting that the provision for copyrighting computer-generated works was inadequate to address AI-generated works. *See* Hayleigh Bosher, *[Guest post] What If AI Wrote This Post? – An Inquiry into the Impact of AI on the Creative Industries*, IPKAT (May 22, 2023), https://ipkitten.blogspot.com/2023/05/guest-post-what-if-ai-wrote-this-post.html [https://perma.cc/HH8D-QX5A]. If it does, then human authorship is established in any event.

581. Copyright and Related Rights Act of 2000 at c.2, § 21(f) (Act No. 28/2000) (Ir.), https://www.irishstatutebook.ie/eli/2000/act/28/enacted/en/html [https://perma.cc/L8NZ-WM68].

582. *See* Copyright Act, 1957, c. 1, § 2(d)(vi) (India); Copyright Act 1994, ss 2, 5(2)(a) (N.Z.); Copyright Act of 1978, c. 5, § 1(h) (S. Afr.); Copyright Ordinance, (2007) Cap. 528, § 11(3) (H.K.); Law No. 2811-IX on Copyright and Related Rights, art. 33 (Ukr.).

583. *See* Barry Scannell, *When Irish AIs are Smiling: Could Ireland's Legislative Approach be a Model for Resolving AI Authorship for EU Member States?*, 17 J. INTELL. PROP. L. & PRAC. 727, 727–28, https://doi.org/10.1093/jiplp/jpac068 [https://perma.cc/P4H9-URZ2]; *Artificial Intelligence and Intellectual Property: Copyright and Patents: Government Response to Consultation*, GOV.UK (last updated June 28, 2022), https://www.gov.uk/government/consultations/artificial-intelligence-and-ip-copyright-and-patents/outcome/artificial-intelligence-and-intellectual-property-copyright-and-patents-government-response-to-consultation [https://perma.cc/2D5J-NGP7] (recommending no change to the UK provision for computer-generated works).

584. *See In Ukraine, for the First Time, Copyright for Works that Include Images Generated by AI Is Registered*, UKRAINE IP OFF. (Sept. 20, 2024), https://nipo.gov.ua/ap-zobrazhennia-shi/ [https://perma.cc/X53F-LL7N] [hereinafter UKRAINE IP OFF.]; Anastasiia Kyrylenko, *Ukranian IP Office Registers Works Incorporating AI-Generated Content Protected Under New Sui Generis Right*, IPKAT (Sept. 30, 2024), https://ipkitten.blogspot.com/2024/09/ukrainian-ip-office-registers-works.html [https://perma.cc/8DBW-3Q2P]; Law No. 2811-IX on Copyright and Related Rights, art. 33 (Ukr.).

585. *See* UKRAINE IP OFF., *supra* note 584.

copyrights.[586] Ukraine law's focus on originality as the dividing line between copyright and its sui generis right for computer-generated works is consistent with the overall approach proposed by this Article.

F. *The U.S. Copyright Office's Approach Hurts the U.S. Movie Industry*

In its comment submitted to the Copyright Office's AI study, the Motion Picture Association (MPA) explained, at length, the many problems with the Office's rigid and narrow approach to authorship and the cloud of uncertainty it creates over the copyright status of movies made with AI.[587] The MPA pointed out the inconsistency between the Office's recognition of the need for case-by-case analysis and its sweeping requirement of a duty to disclose and to disclaim all AI-generated material that is more than de minimis.[588] As the MPA's comment explained, the movie industry already relies on AI programs, especially "to save time on repetitive and detail-oriented tasks in motion picture production and post-production."[589] Because a major motion picture may require "a cast of thousands" of creators, the Copyright Office's new duty to disclose and disclaim AI-generated material imposes undue administrative burdens on a motion picture company to monitor *every* technology used by *every* person involved in the production.[590] As the MPA lamented, "adding new, amorphous registration requirements threatens copyright owners' ability to enforce the rights Congress has provided."[591]

The copyright system should facilitate movie production, not undermine it. Filmmakers and studios should have the freedom to use AI—without the fear of being disqualified from copyright. The movie studio Lionsgate has partnered with Runway, an AI video generator company, to develop "AI as a great tool for augmenting, enhancing, and supplementing our current

586. *See* Law No. 2811-IX on Copyright and Related Rights, art. 1(35) (Ukr.).

587. *See* MOTION PICTURE ASS'N, INC., COMMENT LETTER ON NOTICE OF INQUIRY AND REQUEST FOR COMMENTS 43–59 (Oct. 30, 2023), https://www.regulations.gov/comment/COLC-2023-0006-8970 [https://perma.cc/53TJ-HMT9].

588. *Id.* at 52–54.

589. *Id.* at 3.

590. *Id.* at 10–11.

591. *Id.* at 11.

operations."[592] James Cameron, who joined the board of Stability AI, sees AI as an important tool to the future of moviemaking: "I was at the forefront of CGI over three decades ago, and I've stayed on the cutting edge since. Now, the intersection of generative AI and CGI image creation is the next wave."[593] The director Ridley Scott, an early outspoken critic of AI, shares the same view: "Computerization and AI, you have to embrace it. I can have a computer read every molecule and wrinkle on a rhino and then cut it on a thick piece of plastic, absolutely as a rhino's body, which is then tailored to a skeleton shape."[594] Scott's use of AI in producing a scene for an upcoming movie should not jeorpardize the copyright in that scene. However, the Copyright Office's current approach does.

The U.S. music industry faces similar burdens from the Copyright Office's approach. Music production is already benefiting from AI music tools.[595] As SoundExchange CEO Mike Huppe stated, AI offers "the promise to unleash a new wave of human artistry and creativity, just as music videos did in the 1980s."[596] Pointing to the pervasiveness of software-based music production today, Donny Osmond concurred: "AI is a tool, not a substitute. So I love the prospects of AI. I love what

592. Matt Growcoot, *AI Video Generator Runway Partners with Major Hollywood Studio*, PETAPIXEL (Sept. 19, 2024), https://petapixel.com/2024/09/19/ai-video-generator-runway-partners-with-major-hollywood-studio-lionsgate/ [https://perma.cc/5Z8Q-633V].

593. *Terminator Creator James Cameron Joins Board of AI Company*, BBC (Sept. 25, 2024), https://www.bbc.com/news/articles/cqxr4732pxwo [https://perma.cc/D835-SMWZ].

594. Elizabeth Stanton, *'Gladiator II' Director Ridley Scott Backtracks on AI After Calling It a 'Technical Hydrogen Bomb,'* FOX NEWS (Aug. 16, 2024, 2:00 AM), https://www.foxnews.com/entertainment/gladiator-ii-director-ridley-scott-back tracks -ai-after-calling-technical-hydrogen-bomb [https://perma.cc/XB5P-AVES].

595. *See* Elias Leight & Kristin Robinson, 5 *Ways AI Has Already Changed the Music Industry*, BILLBOARD (Aug. 4, 2023), https://www.billboard.com/lists/ways-ai-has-changed-music-industry-artificial-intelligence/ [https://perma.cc/XTT4-D3N7]. In a critical letter urging AI companies to stop developing AI irresponsibly, more than two hundred musicians still recognized that "AI has enormous potential to advance human creativity." Artist Rights Alliance, *200+ Artists Urge Tech Platforms: Stop Devaluing Music*, MEDIUM (Apr. 1, 2024), https://artistrightsnow.medium.com/200-artists-urge-tech-platforms-stop-devaluing-music-559fb109bbac [https://perma.cc/S7LE-3ZZF].

596. Mike Huppe, *The Promise of AI: 5 Ways Musicians Are Making the Most of AI Tools*, FORBES (May 13, 2024, 8:45 AM), https://www.forbes.com/councils/forbesbusinesscouncil/2024/05/13/the-promise-of-ai-5-ways-musicians-are-making-the-most-of-ai-tools/ [https://perma.cc/8MQX-Y25C].

it can do for me as a producer, as an artist—as a tool."[597] Yet, the more musicians use AI, the more they risk not qualifying for copyright under the Copyright Office's rigid approach. As a *Rolling Stone* article starkly put it, "Because the USCO took a firm stance that raw AI output cannot be copyrightable, it presents a risk to anyone using it."[598]

G. *The Copyright Office's Approach Is Costly and Obsolete*

The Copyright Office's approach will significantly increase administrative costs. Every application to register the copyright for a work created with generative AI will now require the Copyright Office to examine whether the work includes some human editing or additional contribution that survives the Office's test of human authorship. It is no exaggeration to suggest that, in the near future, the vast majority of commercial works registered for copyright will rely at least in part on generative AI tools, given their widespread integration with creative applications.[599] We are in the midst of what AI-researcher Mustafa Suleyman calls the next "wave" in which a new technology proliferates rapidly and globally, changing society.[600] Indeed, it is hard to imagine a creative application avoiding obsolescence without incorporating a generative AI feature.[601] Google, Apple, and Samsung are

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597. Ashley Hume & Larry Fink, *Donny Osmond Says AI is a 'Tool, Not a Substitute,'* FOX NEWS (Sept. 20, 2024, 2:00 AM), https://www.foxnews.com/entertainment/donny-osmond-says-artificial-intelligence-tool-not-substitute [https://perma.cc/GFP7-P2EQ]; *see also* David Salazar, *'It's the Future': Recording Academy CEO Harvey Mason Jr. on AI in the Music Industry*, FAST CO. (Oct. 15, 2024), https://www.fastcompany.com/91207341/recording-academy-harvey-mason-ai-music [https://perma.cc/5KLS-MCTU] (describing similar thoughts by the CEO of the Recording Academy, Harvey Mason Jr., and showing how AI has been implemented into Grammy elgibility rules).

598. Gideon Kimbrell, *How Generative AI Can Impact Music and Content Creation*, ROLLING STONE (May 9, 2023), https://www.rollingstone.com/culture-council/articles/how-generative-ai-can-impact-music-content-creation-1234731365/ [https://perma.cc/ZWN4-N86U].

599. *See generally* David De Cremer et al., *How Generative AI Could Disrupt Creative Work*, HARV. BUS. REV. (Apr. 13, 2023), https://hbr.org/2023/04/how-generative-ai-could-disrupt-creative-work [https://perma.cc/S5VF-WGVH] (discussing how creative workers may feel the impact of generative AI in their fields).

600. *See* SULEYMAN, *supra* note 6, at 3–4.

601. Some tech companies, such as Procreate, have taken "anti-AI pledges," vowing not to adopt AI, however. *See* Rashi Shrivistava, *The Prompt: Anti-AI Pledges Gain Popularity*, FORBES (Aug. 20, 2024, 3:38 PM), https://www.forbes.com/sites/rashishrivastava/2024/08/20/the-prompt-anti-ai-pledges-gain-popularity/ [https://perma.cc/AM2W-3ABD].

already integrating AI into their smartphones, enabling people to use AI to create new elements in both images and actual photographs,[602] and ushering in "the Era of the A.I. Smartphone."[603] Generative AI tools are likely to increase the total amount of creative works produced each year, given the efficiency, speed, and decreased costs these tools provide.[604]

Under the prior approach of the Copyright Office, registrations did not require a searching review; most applications were approved. In 2022, the Copyright Office handled 486,428 registration applications and denied only 3.4 percent of them.[605] For its denials, the Office received only "429 first requests for reconsideration and [ninety] second requests. The Review Board issued twenty-two written decisions on second requests for reconsideration involving fifty-three separate works."[606] With the explosion of generative AI, all these numbers are likely to increase. Businesses attempting to commercialize works generated through AI tools have an economic interest in securing copyright registration, even if that requires requests for reconsideration, appeals to the Review Board, and ultimately litigation in federal court.

The extra administrative cost on the Copyright Office to police AI works is simply not worth the expense. That is especially so given the ongoing advances in generative AI tools, which provide people with increasing levels of control over what is generated, including the arrangement of elements and staging of scenes.

The parallels between photography and AI image generation will only increase—and merge. Indeed, the software in digital cameras, smartphones, and post-processing software, such as

602. *See* Julian Chokkatu, *The Google Pixel 9's AI Camera Features Let You Reshape Reality*, WIRED (Aug. 13, 2024, 1:00 PM), https://www.wired.com/story/all-the-new-generative-ai-camera-features-in-google-pixel-9-phones/ [https://perma.cc/LU9N-DDF5]; *Introducing Apple Intelligence, the Personal Intelligence System that Puts Powerful Generative Models at the Core of iPhone, iPad, and Mac*, APPLE (June 10, 2024), https://www.apple.com/newsroom/2024/06/introducing-apple-intelligence-for-iphone-ipad-and-mac/ [https://perma.cc/T3AJ-N8YM]; Lisa Eadicicco, *After 6 Months, These Are My Favorite Samsung Galaxy AI Features*, CNET (July 24, 2024, 5:00 AM), https://www.cnet.com/tech/mobile/my-favorite-samsung-galaxy-ai-features/ [https://perma.cc/U776-CNBZ].

603. Brian X. Chen, *Welcome to the Era of the A.I. Smartphone*, N.Y. TIMES (June 10, 2024), https://www.nytimes.com/2024/06/10/technology/personaltech/apple-google-ai.html [https://perma.cc/5NBY-GDRL].

604. *See* Burk, *supra* note 17, at 1680.

605. U.S. COPYRIGHT OFFICE ANNUAL REPORT FY 2022, at 18, https://copyright.gov/reports/annual/2022/ar2022.pdf [https://perma.cc/EP7M-3YZN].

606. *Id.*

Photoshop and Capture One, already incorporate AI to alter, enhance, and edit image files.[607] Google's Pixel 8 is equipped with AI software that enables people to alter any image with the "best take" of a person's face, and to reimagine, through AI, the elements of any image.[608] And, now, with AI text-to-creation software, such as Adobe's Generative Fill and Canva's Magic Edit, the lay person can reimagine photographs *and* AI-generated images.[609] By using text prompts in Adobe's Generative Fill, creators can remove elements from an image; add elements to it; and add, extend, or completely change the background in the image to whatever the creators imagine.[610] Virtually every aspect of the image can be changed by human text prompts.[611] The popular AI image generators, such as Stable Diffusion, DALL-E, and Midjourney, all have inpainting functionality enabling people to edit every aspect of an image.[612] Midjourney has also added new functions to create consistent characters and styles across images.[613]

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607. *See, e.g.*, Lewis Bush, *'AI Photography is Here to Stay—Here's Why We Should be Worried*,' ART NEWSPAPER (Apr. 20, 2023), https://www.theartnewspaper.com/2023/04/20/are-ai-photographs-actually-photographs [https://perma.cc/3J4H-WSVY]; *What's New*, CAPTURE ONE: FEATURES, https://www.captureone.com/blog/spring-news-2023 [https://perma.cc/M3UQ-4LPR]; Antonio G. Di Benedetto, *Sony's New A7R V Camera Uses a Dedicated AI Processor to Identify and Track Subjects*, VERGE (Oct. 26, 2022, 3:34 PM), https://www.theverge.com/2022/10/26/23424298/sony-alpha-a7rv-full-frame-camera-ai-video-price-specs-features [https://perma.cc/QMY9-USK6]; John Aldred, *Fujifilm X-S20 Shoots 6.2K Video with AI-Based Autofocus System*, DIY PHOTOGRAPHY (May 24, 2023), https://www.diyphotography.net/fujifilm-x-s20-shoots-6-2k-video-with-ai-based-autofocus-system/ [https://perma.cc/GS4J-PYFK].

608. Patrick Holland, *Google Pixel 8 Review: 'Best Take' Levels Up AI-Enhanced Photos*, CNET (Oct. 11, 2023, 7:47 PM), https://www.cnet.com/tech/mobile/google-pixel-8-review-best-take-levels-up-ai-enhanced-photos/ [https://perma.cc/JCL7-9T5F]; Kimberley Gedeon, *Google's New 'Reimagine' Feaure Uses AI to Transform Objects in Pictures — and I Saw It in Action*, MASHABLE (Aug. 13, 2024), https://mashable.com/article/google-reimagine-pixel-event-2024 [https://perma.cc/VJ8D-58PA]; *see also Gigapixel™*, TOPAZ LABS, https://www.topazlabs.com/gigapixel-ai [https://perma.cc/VH4Y-EYV7] (explaining that Gigapixel AI software uses AI to improve the resolution of any image by enhancing it with AI's recomposition).

609. *See Edit Images with Generative Fill*, *supra* note 453.

610. *Id.*

611. *Id.*

612. *See* Robert Lavigne, *Comparing DALL-E, Stable Diffusion, and Midjourney Prompt Engineering* (2024), MEDIUM (Jan. 13, 2024), https://medium.com/@RLavigne42/comparing-dall-e-stable-diffusion-and-midjourney-prompt-engineering-2024-4bf19ac11256 [https://perma.cc/UUU9-NZL7].

613. *See* Towards AGI, *Update: Midjourney's Consistent Character Feature*, MEDIUM (Mar. 13, 2024), https://towards-agi.medium.com/update-midjourneys-consistent-character-feature-d6a685f5a7a6 [https://perma.cc/7HE2-5X5B].

Other tools will offer even greater controls. Adobe's project Gingerbread AI, which combines text prompts with 3D modeling, enables people simply to drag and drop visual 3D elements to position them in an AI-generated image.[614] Gingerbread is touted as "offering unparalleled control and precision in AI-assisted design."[615] Likewise, DragGAN AI Tool, developed by the Max Planck Institute, enables people to alter the look and position of any image.[616] Meta's Make-a-Scene project[617] and Project GLIGEN[618] provide similar functionality. So does Google's Magic Editor,[619] and many AI photo apps.[620]

These examples show the magnitude of AI development. The Copyright Office's examination of which of the many images enhanced by AI contains the traditional elements of authorship leaves "only room for arbitrariness," to borrow Pouillet's words.[621] Or, as scholar Zachary Cooper recently put it, "Absurdly, regulatory bodies that wish to enforce this new dichotomy are seeking to undertake a seemingly impossible audit of the creative process of (just about) every artwork from here-on-in to check if it meets an uncertain authorship threshold."[622]

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614. *See* Theodore McKenzie, *Gingerbread: A New AI-Powered Image Generation Tool From Adobe*, 80LV (June 29, 2023), https://80.lv/articles/gingerbread-a-new-ai-powered-image-geneation-tool-from-adobe/ [https://perma.cc/8QC2-XQM5].

615. AI News, *Adobe's NEW Gingerbread AI Just Took The Entire Industry By Surprise (5 FUNCTIONS ANNOUNCED)*, YOUTUBE (July 8, 2023), https://youtu.be/Wi2lrgSHtVc [https://perma.cc/5MK2-8S39].

616. *See DragGan AI Tool: Power of AI for Image Editing*, DRAGGAN AI TOOL, https://dragganaitool.com/ [https://perma.cc/EC5K-PVC3].

617. *See Greater Creative Control for AI Image Generation*, META (July 14, 2022), https://ai.meta.com/blog/greater-creative-control-for-ai-image-generation/ [https://perma.cc/K688-WYFU].

618. *See* Computer Vision in the Wild, *GLIGEN: Open-Set Grounded Text-to-Image Generation* (CVPR 2023, Demo Video), YOUTUBE (Feb. 27, 2023), https://youtu.be/-MCkU7IAGKs [https://perma.cc/NL4Y-ETPU].

619. Shimrit Ben-Yair, *Magic Editor in Google Photos: New AI Editing Features for Reimagining your Photos*, GOOGLE (May 10, 2023), https://blog.google/products/photos/google-photos-magic-editor-pixel-io-2023/ [https://perma.cc/A9U4-W8MX].

620. Team YouCam, *12 Best AI Photo Editors: AI Photo Editing Made Easy*, PERFECT (Apr. 17, 2024), https://www.perfectcorp.com/consumer/blog/photo-editing/best-ai-photo-editor-apps [https://perma.cc/HP5J-Z74E].

621. Sarony v. Burrow-Giles Lithographic Co., 17 F. 591, 600 (C.C.S.D.N.Y. 1883) (quoting Eugene Pouillet, *Property in Photographs*, in Traite Theorique et Pratique de la Propriete Litteraire et Artistique (1879) (William Alexandre Heydecker translation)).

622. Zachary Cooper, The AI Authorship Distraction: Why Copyright Should Not Be Dichotomised Based on Generative AI Use 3 (Sept. 17, 2024) (unpublished

IV. ADDRESSING CRITICISMS OF THE BARE MINIMUM APPROACH TO AUTHORSHIP

This final Part addresses some of the major criticisms of the bare minimum approach advanced by this Article.

A. *Allowing Too Many Works to Be Copyrighted*

Copyright scholars have criticized the increasingly expansive scope of copyright, including its automatic grant upon fixation of a work and elimination of formalities,[623] its lengthy copyright term,[624] its very low standard of originality,[625] and its broad right to make derivative works.[626] This expansion has led to the perception that "[c]opyright is everywhere."[627] The pervasiveness of copyright can lead to copyright thickets and recurring litigation, such as in the music industry,[628] and exploitative practices of so-called copyright trolls.[629] Especially among those who favor a minimalist scope of copyright (often called the "copyleft"[630]) or the growth of a vibrant public domain, my recommendation that courts reaffirm the bare minimum approach may prompt great skepticism, if not outright hostility.

Having written about the importance of the public domain to society[631] and having been involved as a lawyer in the

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manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4932612 [https://perma.cc/V3CD-DR6Y].

623. *See, e.g.*, Christopher Sprigman, *Reform(aliz)ing Copyright*, 57 STAN. L. REV. 485, 539 (2004).

624. *See, e.g.*, *id.* at 536.

625. *See, e.g.*, Joseph Scott Miller, *Hoisting Originality*, 31 CARDOZO L. REV. 451, 458 (2009).

626. *See, e.g.*, Derek E. Bambauer, *Faulty Math: The Economics of Legalizing* the Grey Album, 59 ALA. L. REV. 345, 391 (2008); Christina Bohannon, *Taming the Derivative Works Right: A Modest Proposal for Reducing Overbreadth and Vagueness in Copyright*, 12 VAND. J. ENT. & TECH. L. 669, 692–94 (2010).

627. Miller, *supra* note 625, at 457.

628. *See* Edward Lee & Andrew Moshirnia, *Does Fair Use Matter? An Empirical Study of Music Cases*, 94 S. CAL. L. REV. 471, 492–95 (2021).

629. *See* Brad A. Greenberg, *Copyright Trolls and the Common Law*, 100 IOWA L. REV. BULL. 77, 82–83 (2015).

630. *Copyleft*, BRITANNICA (June 3, 2024), https://www.britannica.com/topic/copyleft [perma.cc/8L5D-S67R].

631. *See generally* Edward Lee, *The Public's Domain: The Evolution of Legal Restraints on the Government's Power to Control Public Access Through Secrecy or Intellectual Property*, 55 HASTINGS L.J. 91 (2003) (explaining the importance of the public domain in several areas of law, including "First Amendment right of access, government secrecy, espionage law, laws regulating classified information and munitions lists, and the Freedom of Information Act").

unsuccessful constitutional challenges in both *Eldred* and *Golan* on the losing end, I understand these concerns. Yet, if these concerns drive the sentiment to reject copyright for prompt-engineered works, the concerns are misplaced. It is noteworthy that Lawrence Lessig, lead counsel in *Eldred*[632] and advocate for the free culture movement,[633] also supports the copyrightability of AI-generated works.[634] Ultimately, questions about scaling back copyright to grow the public domain raise important policy concerns that go far beyond AI-generated works and apply to the proper balance of the overall copyright system in the twenty-first century. As *Eldred*, *Golan*, and other Supreme Court cases all consistently recognize, these important matters of overall copyright policy are reserved to Congress to decide.[635]

The bare minimum approach has its own limitation on copyright: as the Court recognized in *Feist*, authorship by selection or arrangement is entitled to a thin copyright that protects against only identical copies.[636] If some courts strayed from this approach and recognized a broader scope of copyright for works based on selection or arrangement, it is time for them to adhere to the *Feist* standard.[637] The bare minimum approach will also result in the denial of copyright to autonomously generated AI works in which a human contribution is far too

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632. Eldred v. Ashcroft, OYEZ, https://www.oyez.org/cases/2002/01-618 [https://perma.cc/Q6VU-7G4L].

633. *Free Culture*, LESSIG, https://lessig.org/product/free-culture/ [https://perma.cc/D5AV-J9ST].

634. *See* Nilay Patel, *Harvard Professor Lawrence Lessig on Why AI and Social Media are Causing a Free Speech Crisis for the Internet*, VERGE (Oct. 24, 2023, 10:00 AM), https://www.theverge.com/23929233/lawrence-lessig-free-speech-first-amendment-ai-content-moderation-decoder-interview [https://perma.cc/MPL6-Z5HM].

635. *See* Eldred v. Ashcroft, 537 U.S. 186, 198 (2003); Golan v. Holder, 565 U.S. 302, 324 (2012); *see also supra* notes 226–29 and accompanying text.

636. *See* Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 349 (1991).

637. Although the case concerning it settled, photographer Mannie Garcia's photograph of Barack Obama, which Garcia did not stage but simply took at a public event, was original based on the selection or arrangement in the way Garcia decided what to shoot in the image. *See* Fresh Air, *Mannie Garcia: The Photo That Sparked 'Hope*,*'* NPR (Feb. 26, 2009, 10:42 AM), https://www.npr.org/2009/02/26/101184444/mannie-garcia-the-photo-that-sparked-hope [perma.cc/HF7N-RGEL]; Bruce E. Boyden, *The Obama "Hope" Poster Case — Mannie Garcia Weighs In*, MARQ. UNIV. L. SCH. (July 13, 2009), https://law.marquette.edu/facultyblog/2009/07/the-obama-hope-poster-case-mannie-garcia-weighs-in/ [perma.cc/Q6L3-95SB]. But, as other commentators have concluded, the photograph probably deserves only a very thin copyright. *See* Hughes, *supra* note 430, at 390*; see also* Skidmore v. Led Zeppelin, 952 F.3d 1051, 1076 n.13 (9th Cir. 2020) (discussing the infringement test for selection and arrangement authorship).

remote. Plus, under my approach, many prompt-engineered works will not even meet the bare minimum because the human input—such as in a basic, one-word prompt—did not embody a minimal level of creative selection or arrangement of elements. Thus, many AI works—potentially billions—will fail to meet the bare minimum and will enter the public domain immediately upon creation.[638]

Another way to understand how the bare minimum operates is that it incentivizes people to contribute *more* to the creative process when using generative AI. If a person's only contribution in the process is a basic, one- or two-word prompt, the person risks not satisfying the bare minimum. But, if, as Kashtanova and Allen reportedly did, the person creates numerous iterations of works through prompt engineering, making refinements and a selection or arrangement of the elements, then the bare minimum is more likely satisfied. Granted, it is possible that generative AI will become so advanced that the need for prompt-engineering will dissipate.[639] In an insightful article, Professor Dan Burk suggested that AI may soon offer a "*synthetic substitute for human creativity*."[640] Even if that becomes the case, the bare minimum approach still requires a modicum of human creativity for a work to receive a copyright. AI cannot substitute for the bare minimum.

Market forces are also likely to encourage, if not ensure, that the production of works—movies, music, books, etc.—are based on *human* contributions, even if they involve some AI assistance. The Writers Guild of America's new deal with the Alliance of Motion Picture and Television Producers contains a provision stipulating that "AI can't write or rewrite literary material, and AI-generated material will not be considered source material under the MBA, meaning that AI-generated material can't be used to undermine a writer's credit or

638. *See* Edward Lee, *Copyright Re-Alignment: The Growth of New Works Outside the Copyright System*, CHI.-KENT L. REV. (forthcoming 2025), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4904725 [https://perma.cc/YJN9-D6BT].

639. *See, e.g.*, Chrisantha Fernando et al., *Promptbreeder: Self-Referential Self-Improvement Via Prompt Evolution*, GOOGLE DEEPMIND at 9 (2023), https://arxiv.org/pdf/2309.16797.pdf [https://perma.cc/FCE9-5KDF] (discussing the development of Promptbreeder, which "not only evolves task-prompts, but . . . also evolves mutation-prompts that govern the way [Promptbreeder] modifies task-prompts").

640. Burk, *supra* note 17, at 1680.

separated rights."[641] Musicians have also spoken out in favor of promoting human creativity as AI tools develop.[642] If both the copyright system and the market for works heavily favor and value *human* creations, then AI's chance of undermining human creators is diminished. By valorizing human contributions that meet the bare minimum, copyright can play an important role in this cultivation of human creativity.

B. *Potential Infringement by AI Platforms*

Another criticism of my approach is that it ignores the possibility that AI-prompt-engineered works are unlawfully created on AI platforms that are infringing the copyrights of other authors, whether in the training of AI or in the works people generate using AI. These issues will be resolved in the pending copyright lawsuits against AI platforms.[643] Even if aspects of the training of an AI platform are deemed to be infringing, such a finding would not establish that an infringement occurs in every single output people generate using an AI platform.[644] As the courts presiding over AI litigation have correctly held, the test of infringement must be applied to each alleged infringement to examine whether the defendant's work is substantially similar to the plaintiff's.[645] While some outputs of AI generators may be infringing, it is a fallacy to believe that *every* output is. The courts have correctly rejected that "collage" tool theory.[646]

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641. Cynthia Littleton, *New WGA Contract Explained: AI Is Not a Writer, Solo Scribe Shows Don't Need Minimum Staff and More*, VARIETY (Sept. 26, 2023, 7:21 PM), https://variety.com/2023/biz/news/wga-new-contract-strike-ai-writers-room-staffs-residuals-1235736648/ [https://perma.cc/FK5T-6U9E].

642. *See* Artist Rights Alliance, *supra* note 595.

643. *See supra* notes 9–10 and accompanying text.

644. *See, e.g.*, Andersen v. Stability AI, Ltd., No. 23-cv-00201, 2024 WL 3823234, at *6 (N.D. Cal. Aug. 12, 2024) ("[P]laintiffs do not dispute that Stable Diffusion is capable of substantial noninfringing uses, like creating art from inputs that do not reference particular artists or invoke particular artists' styles or have any substantial similarity to plaintiffs' works.").

645. *See id.* (rejecting the plaintiffs' theory that every output is an infringing derivative work even if not substantially similar to the plaintiffs' works); Kadrey v. Meta Platforms, Inc., No. 23-cv-03417, 2023 WL 8039640, at *2 (N.D. Cal. Nov. 20, 2023) (same); Tremblay v. OpenAI, Inc., No. 23-cv-03223, 2024 WL 557720, at *9 (N.D. Cal. Feb. 12, 2024) (same).

646. *See supra* notes 644–45 and accompanying text. *But see Andersen*, 2024 WL 3823234, at *6, *19 denying in part motion to dismiss copyright claims based on theory that Stable Diffusion model has "compressed copies" of plaintiffs' works).

C. *Sui Generis Protection*

Some commentators may believe the better approach for AI-generated works is for Congress to enact a sui generis law under its Commerce Clause power.[647] That idea deserves Congress's consideration, and the bare minimum approach advanced by this Article affords Congress the discretion to consider it. Indeed, the bare minimum approach maximizes Congress's discretion in setting copyright and sui generis policies. By contrast, recognizing a *constitutional* restriction that bars Congress from adopting a more liberal construction of "Authors" drastically limits Congress's power. My approach keeps the copyright system as the central regulatory system for creative works—instead of allowing it to fade in importance.

CONCLUSION

This Article critiques the Copyright Office's rigid approach to the copyrightability of AI-generated works and shows why it is wrong. The approach imposes newfound requirements of so-called "traditional" authorship—the prediction of results ahead of time, dictation of specific results, and avoidance of randomness—found nowhere in the Progress Clause, Supreme Court precedent, or the Copyright Act. This misguided approach ignores the Progress Clause's important goal to promote progress by incentivizing creators to use their intellectual efforts to create new works for the public's benefit. Instead of incentivizing the creation of new works, the Office's approach discourages all creators from using any AI tools lest they jeopardize their eligibility for copyrights. A return to the first principles of the Progress Clause provides the better path: creators should receive copyrights for their AI-prompted works that embody a minimally creative selection or arrangement of elements. But the scope of copyright for such works is very thin, protecting against only identical copies. This approach is faithful to the original public meaning of the Progress Clause and to Supreme Court precedent. It incentivizes people to create new works and, ultimately, promotes progress in the United States while not impeding new technologies that offer the public, including people with disabilities, greater accessibility to creative production.

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647. *See, e.g.*, Angela Luna, *COPIED Act of 2024: Protecting Creative Works in the AI Era*, AMERICAN ACTION F. (Aug. 20, 2024), https://www.americanactionforum.org/insight/copied-act-of-2024-protecting-creative-works-in-the-ai-era/ [https://perma.cc/P29U-2ATJ].