
DNA Copyright in the Administrative State

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For nearly three decades, academics have toyed with the question of copyright protection for recombinant DNA sequences. Recent interest in synthetic biology has prompted a resurgence of such dubious speculation. But current advocates of DNA copyright have gone further than academic conjecture, attempting to register nucleotide sequences with the United States Copyright Office. Not surprisingly, the Register of Copyrights refused the application, setting the stage for a possible appeal to federal court. This scenario raises the general administrative law question as to the degree of deference a court should give to a registration decision of the Copyright Office. The issue is surprisingly complex, and precedents are sparse. In this paper I take up the question of administrative deference as it applies to synthetic biology and other technologies that could be the subjects of questionable copyright registration.

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INTRODUCTION

For nearly three decades, academics have toyed off and on with the question of copyright protection for recombinant DNA sequences. The idea of DNA copyright was promulgated in the late 1980s as a bit of an intellectual escapade;¹ the notion was quickly dispelled by commentators who pointed out the poor fit between the constraints of copyright law and the functional nature of recombinant DNA.² But recent interest in synthetic biology has prompted a resurgence of such dubious speculation.³ New advocates of DNA copyright have gone further than academic exhibitionism, in fact attempting to register nucleotide sequences with the United States Copyright Office (the “Office”).⁴ Not surprisingly, the Register of Copyrights refused the application, setting the stage for a possible appeal to federal court.⁵

This recent attempt to register a technical artifact with the Copyright Office is not a unique occurrence; the Copyright Office regularly rejects registration applications for items ranging from genetically modified fish to crash test dummies.⁶ Attempts have been

¹ See Irving Kayton, *Copyright in Living Genetically Engineered Works*, 50 GEO. WASH. L. REV. 191 (1982). While Kayton offered the first detailed treatment of the concept, and is often credited as its originator, the earliest published discussion of DNA copyright appears to be Thomas D. Kiley, *Learning to Live with the Living Invention*, 3 AM. PAT. L. ASS'N Q.J. 220, 233-34 (1979).

² See, e.g., 2 IVER P. COOPER, *BIOTECHNOLOGY AND THE LAW* § 11.02 (rev. ed. 2000); Dan L. Burk, *Copyrightability of Recombinant DNA Sequences*, 29 JURIMETRICS J. 469 (1989); Jorge A. Goldstein, *Copyrightability of Genetic Works*, 2 BIO/TECHNOLOGY 138, 140 (1984).

³ See, e.g., Christopher M. Holman, *Copyright for Engineered DNA: An Idea Whose Time Has Come?*, 113 W. VA. L. REV. 699 (2011) (advocating DNA copyright for synthetic biology); Andrew W. Torrance, *DNA Copyright*, 46 VAL. U. L. REV. 1 (2011) [hereinafter *DNA Copyright*].

⁴ Christopher M. Holman, Claes Gustafsson & Andrew W. Torrance, *Are Engineered Genetic Sequences Copyrightable?: The U.S. Copyright Office Addresses a Matter of First Impression*, 35 BIOTECHNOLOGY L. REP. 103, 104 (2016).

⁵ Chris Holman, *Copyright for Engineered DNA (Part 3)*, GQ LIFE SCI. BLOG (Mar. 8, 2016), <https://www.lexology.com/library/detail.aspx?g=4f24f8cc-1319-487f-b307-f949f215967d> (discussing the possibility of an appeal from registration denial).

⁶ See, e.g., Letter from William J. Roberts, Jr., Copyright Office Review Bd., to Tamsen Barrett (Sept. 5, 2013), http://ipmall.law.unh.edu/sites/default/files/hosted_resources/CopyrightAppeals/2013/GloFishRedZebraDanioGlowing.pdf (explaining to an applicant the Copyright Office's grounds for rejecting an application to register a genetically modified fish); Letter from William J. Roberts, Jr., Copyright Office Review Bd., to Daniel Bliss (Sept. 11, 2014), https://ipmall.law.unh.edu/sites/default/files/hosted_resources/CopyrightAppeals/2014/Q1Q10,Q1.52014.pdf (explaining to an applicant the Copyright Office's grounds for rejecting an application to register a crash test dummy).

made in the past to obtain copyright registration for components of other emerging technologies, such as semiconductor circuitry.⁷ No doubt such attempts will continue to occur as new technologies are developed in the future. The advent of any new technology seems to occasion calls for the application of copyright law; for example, some have recently suggested the application of copyright to nanotechnology.⁸ The Copyright Office will undoubtedly have occasion in the future, as it has in the past, to screen uncopyrightable technical artifacts from registration. And at least some of those refusals will be contested, and so possibly reviewed by federal courts.

Thus, the particular instance of DNA copyright registration denial implicates a more general administrative law question as to the degree of deference a court should give to a registration decision of the Copyright Office. Should the Copyright Office's decision on DNA registration be subjected to judicial review, what weight does the decision of the expert agency carry? The issue is surprisingly complex, and precedents are sparse. Scholarship on the subject is equally sparse.⁹ Nonetheless, the question of deference to the Copyright Office on subject matter eligibility will be important not only to treatments of new technologies including synthetic DNA, but offers also an opportunity to consider the position of the Copyright Office as an administrative agency.

Such consideration of the Copyright Office is long overdue. Recent scholarship has been rife with explorations of administrative deference as it applies to the Copyright Office's sister agency, the United States Patent and Trademark Office ("USPTO"),¹⁰ bolstering increased

⁷ See Steven P. Kasch, *The Semiconductor Chip Protection Act: Past, Present, and Future*, 7 BERKELEY TECH. L.J. 71, 72-73 (1992).

⁸ See Cecilia R. Dickson, *Creating and Protecting Intellectual Property Rights for Nanotechnology*, JONES DAY (2010), http://www.jonesday.com/practiceperspectives/nanotechnology/protecting_rights.html.

⁹ A rare but rather scant scholarly explication of the topic is found in Thomas G. Field, Jr., *Judicial Review of Copyright Examination*, 44 IDEA 479 (2004).

¹⁰ See, e.g., Stuart Minor Benjamin & Arti K. Rai, *Administrative Power in the Era of Patent Stare Decisis*, 65 DUKE L.J. 1563 (2016); Stuart Minor Benjamin & Arti K. Rai, *Who's Afraid of the APA? What the Patent System Can Learn from Administrative Law*, 95 GEO. L.J. 269 (2007) [hereinafter *Who's Afraid of the APA?*]; Michael J. Burstein, *Rules for Patents*, 52 WM. & MARY L. REV. 1747, 1747-48 (2011); John M. Golden, *Working Without Chevron: The PTO as Prime Mover*, 65 DUKE L.J. 1657 (2016); Jonathan S. Masur, *Regulating Patents*, 2010 SUP. CT. REV. 275; Sarah Tran, *Administrative Law, Patents, and Distorted Rules*, 80 GEO. WASH. L. REV. 831 (2012); Sarah Tran, *Patent Powers*, 25 HARV. J.L. & TECH. 609 (2012); Melissa F. Wasserman, *The Changing Guard of Patent Law: Chevron Deference for the PTO*, 54 WM. & MARY L. REV. 1959 (2013) [hereinafter *Changing Guard*]; see also Adam Mossoff, *The Use and Abuse of IP*

Supreme Court attention to the administrative aspects of patent practice.¹¹ Other areas of intellectual property have similarly become the subject of administrative law scrutiny.¹² But this wave of new scholarship has not yet considered the intersection of administrative law with the law of copyright, despite the fact that the Copyright Office occupies a peculiar administrative posture that is distinctly different than that of the USPTO.

In this Article I begin to address this gap in the literature on administrative law as applied to the Copyright Office. Specifically, I take up the question of administrative deference as it applies to case of synthetic biology and other technologies that could be the subjects of dubious copyright registration applications. I begin by tracing the history of DNA copyright arguments, highlighting the very solid basis in copyright law that the Register of Copyrights has relied upon in rejecting a functional DNA sequence registration. I then discuss as a matter of administrative law the standards that are applicable to judicial review of the Copyright Office. In particular, I review the Supreme Court's deferential *Chevron*¹³ and *Skidmore*¹⁴ doctrines as those might apply to an appeal from the Copyright Office.

I then turn to the characteristics of the Copyright Office that will determine the standard to be applied by a reviewing court. Using the example of the DNA registration application, I attempt to untangle the fairly difficult knot of judicial precedent, statutory language, and administrative practice that points in somewhat contradictory directions regarding the Copyright Office's status as an administrative agency. I find that although the registration decisions of the Office are

at the Birth of the Administrative State, 157 U. PA. L. REV. 2001, 2002-07 (2009) (noting that intellectual property law and administrative law have historically been cabined to separate jurisprudential domains).

¹¹ See, e.g., *Cuozzo Speed Techs. v. Lee*, 136 S. Ct. 2131 (2016) (holding that the Patent Office has administrative authority to issue interpretive regulation for *inter partes* review); *Kappos v. Hyatt*, 566 U.S. 431 (2012) (discussing administrative standards for review for Patent Office decisions); *Dickinson v. Zurko*, 527 U.S. 150 (1999) (holding that the Administrative Procedure Act applies to Patent Office findings of fact); see also *Tafas v. Doll*, 559 F.3d 1345, 1350-51 (Fed. Cir. 2009), *vacated*, 328 Fed. Appx. 658 (Fed. Cir. 2009) (vacated opinion discussing the scope of the USPTO rulemaking powers).

¹² See, e.g., Sapna Kumar, *Expert Court, Expert Agency*, 44 UC DAVIS L. REV. 1547 (2011) (administrative law analysis of the International Trade Commission); Melissa F. Wasserman, *What Administrative Law Can Teach the Trademark System*, 93 WASH U. L. REV. 1511 (2016) (administrative law analysis of the United States Trademark Office) [hereinafter *What Administrative Law Can Teach*].

¹³ *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837 (1984).

¹⁴ *Skidmore v. Swift & Co.*, 323 U.S. 134 (1944).

entitled to very substantial statutory deference, the Office probably does not qualify for *Chevron* deference. Despite that conclusion, I walk through the *Chevron* analysis as it might apply to the Office's DNA registration decision, concluding that the decision stands on a very solid legal footing and is likely to be upheld with or without *Chevron* deference. I close with a few words regarding my analysis in light of pending developments in administrative law.

I. HISTORY OF DNA COPYRIGHT

There is nothing new, and little that is original, in the suggestion of copyright for recombinant DNA molecules. The idea dates back at least to a 1982 article by patent practice expert and impresario Irving Kayton, which argued that copyright might serve as an alternative to patent in protecting the rapidly developing science of molecular genetics.¹⁵ Since the initial round of responses following Kayton's article, the topic of DNA copyright has periodically re-appeared in the literature, typically in writings that recapitulate the same analysis published years before.¹⁶ The topic has been a perennial favorite for student law review notes,¹⁷ but various lawyers, scientists, and

¹⁵ See Kayton, *supra* note 1. Kayton is perhaps best known as the flamboyant founder of a wildly successful review course for the patent agent's examination. See Kathryn Alfisi, *Legends in the Law: Donald R. Dummer*, WASH. LAW. (Nov. 2009), <https://www.dcbar.org/bar-resources/publications/washington-lawyer/articles/november-2009-legends-in-the-law.cfm> ("Irving Kayton was a larger-than-life type of guy who was very bright and had all kinds of imaginative ideas on how to teach patent law . . .").

¹⁶ See, e.g., Tani Chen, *Can a Biological Sequence Be Copyrighted?*, 19 NO. 3 INTELL. PROP. & TECH. L.J. 1 (2007); Maurits Dolmans, *Protection for Biotechnology: rDNA as a Protectable Database and Copyrighted Work?*, 6 INT'L INTELL. PROP. L. & POL'Y 11-1 (2001); Joseph N. Michelotti, *Genes as Intellectual Property*, 11 MICH. ST. U. J. MED. & L. 71 (2007); Michael D. Murray, *Post-Myriad Genetics Copyright of Synthetic Biology and Living Media*, 10 OKLA. J.L. & TECH. 72 (2014); James G. Silva, *Copyright Protection of Biotechnology Works: Into the Dustbin of History?*, 2000 B.C. INTELL. PROP. & TECH. F. 12801 (2000); Stephen R. Wilson, *Copyright Protection for DNA Sequences: Can the Biotech Industry Harmonize Science With Song?*, 44 JURIMETRICS 409 (2004). For discussions of DNA copyright in jurisdictions outside the United States, see 2 M. VITORIA ET AL., *THE MODERN LAW OF COPYRIGHT AND DESIGNS*, ch. 38 (4th ed. 2011); Adrian Speck, *Genetic Copyright*, 17 EIPR 171 (1995) (UK); Gunnar W.G. Karnell, *Protection of Results of Genetic Research by Copyright or Design Rights*, 17 EIPR 355 (1995) (UK).

¹⁷ See, e.g., Mark Christopher Farrell, Comment, *Designer DNA for Humans: Biotech Patent Law Made Interesting for the Average Lawyer*, 35 GONZ. L. REV. 515, 532-34 (1999/2000); Doreen M. Hogle, Comment, *Copyright for Innovative Biotechnological Research: An Attractive Alternative to Patent or Trade Secret Protection*, 5 HIGH TECH. L.J. 75 (1989); Donna Smith, Comment, *Copyright Protection for the Intellectual Property Rights to Recombinant Deoxyribonucleic Acid: A Proposal*, 19 ST. MARY'S L.J. 1083

business entrepreneurs have revisited the idea as well. Frequently the authors of such offerings appear unfamiliar with the actual functioning of intellectual property law.¹⁸ Little has been added to the state of the topic as it stood around 1990.

Most recently, certain patent scholars have resurrected Kayton's notion in a raft of articles advocating DNA copyright in the context of "synthetic biology."¹⁹ Broadly stated, the synthetic biology movement attempts to apply engineering and manufacturing design concepts to recombinant genetics, standardizing, modularizing, and automating the assembly of genetic components.²⁰ Some commentators have worried that the most obviously applicable form of intellectual property, patents, will not adequately address the innovation needs of this effort.²¹ Consequently, a scholarly hunt has begun to determine IP alternatives for synthetic biology. A few such scholars have hit upon Kayton's notion of DNA copyright as their preferred alternative. While this recent scholarship largely recapitulates the discussion that has

(1988); see also Jimmy J. Zhuang, *Copyright: Better Fitting Genes*, 97 J. PAT. & TRADEMARK OFF. SOC'Y 442, 443 (2015) (student proposal for "genetic copyright").

¹⁸ See, e.g., Willem P.C. Stemmer, *How to Publish DNA Sequences with Copyright Protection*, 20 NATURE BIOTECHNOLOGY 217 (2002) (displaying confusion on a wide range of copyright doctrines including subject matter, idea/expression distinction, functionality, derivative work, and fair use); see also Kristen Philipkoski, *Staking Claim to Your DNA*, WIRED (Aug. 17, 2001, 2:00 AM), <https://www.wired.com/2001/08/staking-claim-to-your-dna> (reporting on the launch of the "DNA Copyright Institute," which for \$1500 would assist celebrities to record copyright in their DNA profile in order to deter unauthorized cloning).

¹⁹ See, e.g., Christopher M. Holman, *Charting the Contours of a Copyright Regime Optimized for Engineered Genetic Code*, 69 OKLA. L. REV. 399 (2017); Holman, *supra* note 3; Torrance, *DNA Copyright*, *supra* note 3; Andrew W. Torrance & Linda J. Kahl, *Bringing Standards to Life: Synthetic Biology Standards and Intellectual Property*, 30 SANTA CLARA HIGH TECH. L.J. 199 (2014); Andrew W. Torrance, *Synthesizing Law for Synthetic Biology*, 11 MINN. J.L. SCI. & TECH. 629 (2010).

²⁰ See David Singh Grewal, *Before Peer Production: Infrastructure Gaps and the Architecture of Openness in Synthetic Biology*, 20 STAN. TECH. L. REV. 143, 146-47, 156-60 (2017) (describing the goals of synthetic biology).

²¹ See, e.g., Sapna Kumar & Arti Rai, *Synthetic Biology: The Intellectual Property Puzzle*, 85 TEX. L. REV. 1745 (2007); Arti Rai & James Boyle, *Synthetic Biology: Caught Between Property Rights, the Public Domain, and the Commons*, 5 PLOS BIOLOGY 389 (2007), <https://doi.org/10.1371/journal.pbio.0050058>; see also *supra* note 19 and sources cited therein (asserting the need of synthetic biology for alternative IP protection). Despite all of the hyperventilating over synthetic biology, I remain deeply skeptical that it entails either at present, or anywhere in the foreseeable future, any innovative characteristic that cannot be encompassed within the patent system. Cf. DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* (2009) (discussing the structural flexibility of the patent statute to foster innovation in new technologies). But that is a discussion for another day.

gone before, a novel development has been the attempt by current DNA copyright enthusiasts to register a DNA sequence with the Copyright Office, thus moving the discussion over DNA copyright out of the academic literature and into administrative and perhaps judicial review.²²

The doctrinal infirmities of such a maneuver have been apparent since the initial round of responses to Irving Kayton in the 1980s. Perhaps the major obstacle barring nucleotide sequences from copyright is the limitations that define the subject matter of the copyright system. Section 102 of the Copyright Act specifies the subject matter of copyright as original works of expression.²³ In copyright parlance a “work” is the intangible authorial creation to which copyright attaches once it has been tangibly fixed.²⁴ Copyright doctrine has long held that the type of work covered by copyright must be expressive, and not utilitarian or functional.²⁵ The statute also lists eight categories of artistic and aesthetic works that would qualify as eligible subject matter: choreography, sculpture, drama, literature, music, and the like. The statute states that “works of authorship include” such categories, leaving open the possibility of additional categories that might also qualify.²⁶

Thus, the typical rhetorical move for DNA copyright advocates, both historically and currently, is to either attempt to shoehorn nucleotide sequences into the definition of one of the statute’s explicitly enumerated categories, or to argue that it constitutes a separate qualifying category that the statute might include. In pursuing either of these lines of argument, comparisons are inevitably drawn to the copyright protection of computer software. Kayton recognized the beginnings of this comparison in his initial article, but the argument gained serendipitous traction from judicial decisions in the late 1980s and early 1990s regarding copyright protection for computer software.

Congress added computer programs to the copyright statute in 1980 when it appeared that software might be excluded from patent protection. Early software copyright cases struggled with the proper scope of protection for what was essentially a type of machine, initially

²² See Holman, Gustafsson & Torrance, *supra* note 4.

²³ 17 U.S.C. § 102(a) (2018).

²⁴ *Id.* § 101.

²⁵ See *Baker v. Selden*, 101 U.S. 99, 104-07 (1879) (holding method of accounting was not protected by copyright); see also Dan L. Burk, *Method and Madness in Copyright Law*, 2007 UTAH L. REV. 587, 587-88 (2007) (delineating the implications of the *Baker* holding for functional subject matter).

²⁶ 17 U.S.C. § 102(a).

attempting to confer on software the same scope of protection afforded to fully expressive works.²⁷ But by the mid-1990s a fairly stable judicial consensus emerged that only the sparse expressive features, and not technical functions of software, were covered by copyright.²⁸ Overall, software has proven to be a poor fit to copyright doctrine, and current understanding of copyright leaves little room for protection of functional code, whether in carbon or in silicon.²⁹

Not surprisingly, current advocates of DNA copyright look for comfort to the recent decision of the United States Court of Appeals for the Federal Circuit in *Oracle v. Google*,³⁰ which offers a surprisingly broad scope of protection to the sequence, structure, and organization of functional application programming interfaces.³¹ But as a number of recent commentators have pointed out, the *Oracle* decision is something of a throwback to the early decisions on software copyright in the 1980s, a judicial sport that resembles neither the current judicial consensus on software copyright nor the software copyright precedent of the Circuit that the Federal Circuit purported to follow.³² And, even were the *Oracle* analysis defensible on its merits,

²⁷ See, e.g., *Whelan Assocs., Inc. v. Jaslow Dental Lab., Inc.*, 797 F.2d 1222 (3d Cir. 1986); *Apple Comput., Inc. v. Franklin Comput. Corp.*, 714 F.2d 1240 (3d Cir. 1983).

²⁸ See, e.g., *Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807, 815 (1st Cir. 1995), *aff'd without opinion*, 516 U.S. 233 (1996); *Apple Comput., Inc. v. Microsoft Corp.*, 35 F.3d 1435, 1443-44 (9th Cir. 1994); *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 696-97 (2d Cir. 1992); *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1514 (9th Cir. 1992); *Atari Games Corp. v. Nintendo of Am. Inc.*, 975 F.2d 832, 839-40 (Fed. Cir. 1992); see also Peter S. Menell, *Rise of the API Copyright Dead?: An Updated Epitaph for Copyright Protection of Network and Functional Features of Computer Software*, 31 HARV. J.L. & TECH. 305, 313-43 (2018) (extensively detailing the history of cases addressing computer software copyright).

²⁹ See Christopher Buccafusco & Mark A. Lemley, *Functionality Screens*, 103 VA. L. REV. 1293, 1295-97 (2017) (discussing the exclusion of functional works from copyright); Mark P. McKenna & Christopher Jon Sprigman, *What's In, and What's Out: How IP's Boundary Rules Shape Innovation*, 30 HARV. J.L. & TECH. 491, 500-02 (2017) (same); Pamela Samuelson, *Strategies for Discerning the Boundaries of Copyright and Patent Protections*, 92 NOTRE DAME L. REV. 1493, 1524 (2017) (same).

³⁰ 750 F.3d 1339 (Fed. Cir. 2014).

³¹ See Holman, Gustafsson & Torrance, *supra* note 4, at 109.

³² See Wendy J. Gordon, *How Oracle Erred: The Use/Explanation Distinction and the Future of Computer Copyright*, in COPYRIGHT IN AN AGE OF EXCEPTIONS AND LIMITATIONS 375, 375-76 (Ruth Okediji ed., 2017); Clark D. Asay, *Copyright's Technological Interdependencies*, 18 STAN. TECH. L. REV. 189, 228-35 (2015); Pamela Samuelson, *Three Fundamental Flaws in CAFC's Oracle v. Google Decision*, 37 E.I.P.R. 702 (2015); Menell, *supra* note 28.

it applies to a Congressionally endorsed category of subject matter, which DNA sequences are not.

It is of course possible to chart other hypothetical routes for nucleotides through the Copyright Act's statutory provisions. For example, as I first showed in 1989, since recombinant DNA constitutes a three-dimensional nanostructure, one might try to treat it as a kind of sculptural work under the existing subject matter categories.³³ Or, as I also discussed, it is conceptually possible to map nucleotides onto other types of code, such as musical notation, and in this different guise try to infiltrate the copyright system, rather like crashing an exotic masquerade ball.³⁴ Each of these intellectual excursions leads the analyst on a merry path through different portions of the copyright statute; through the useful articles doctrine, or through the section 101 definitions of the subject matter categories.³⁵ But at the end of the day, every path leads to the same dead end: copyright does not encompass functional subject matter, even for categories of works such as software and architecture that have been explicitly mandated by Congress for inclusion into the statute.³⁶ There is no persuasive reason to believe that functional works that have *not* been Congressionally mandated belong anywhere in the copyright system.

Thus, as in the initial scholarly exchanges following Kayton's article thirty years ago, more careful commentators on the prospects for DNA copyright remain deeply skeptical if not entirely dismissive of the proposal.³⁷ As Professor Karjala pointed out, copyright doctrine not only excludes utilitarian or functional subject matter, it is instead tailored to the type of expressive works listed in the statute.³⁸ Indeed, the enthusiasm on the part of some commentators for DNA copyright remains a bit of a puzzle. Copyright law seems an exceptionally poor vehicle for fostering the development of a new biological technology, offering protection that is simultaneously too narrow and too broad to produce the proper incentives. Even were copyright to be applied to

³³ Burk, *supra* note 2, at 501-03.

³⁴ *Id.* at 501 n.198.

³⁵ 17 U.S.C. § 101 (2018).

³⁶ See Pamela Samuelson, *Functional Compilations*, 54 HOUS. L. REV. 321, 328-29 (2016) (discussing software and architecture).

³⁷ See Dennis S. Karjala, *Protecting Innovation in Computer Software, Biotechnology, and Nanotechnology*, 16 VA. J.L. & TECH. 1, 3-4 (2011); Kumar & Rai, *supra* note 21, at 1763-64; Pamela Samuelson, *Evolving Conceptions of Copyright Subject Matter*, 78 U. PITT. L. REV. 17, 82-85 (2016) [hereinafter *Evolving Conceptions*]; Samuelson, *supra* note 29, at 1529-31.

³⁸ See Karjala, *supra* note 37.

synthetic nucleotide sequences, it would exclude any functional characteristics and protect only non-functional, expressive characteristics. Thus, the sequences would garner little if any actual copyright protection. Moreover, the present duration of copyright extends to the lifetime of the author plus seventy years.³⁹ Why it would be desirable to encumber a rapidly developing technology with exclusive rights lasting a century or more remains a mystery.

II. DNA REGISTRATION REFUSAL

The manifest infirmities of the argument for DNA copyright, as rehearsed above, were not lost on the Copyright Office, which rejected the DNA copyright enthusiasts' application. After an initial refusal of their DNA registration application, the enthusiasts requested reconsideration of the application.⁴⁰ The registration refusal was affirmed in a letter from Robert Kasunic, Associate Register of Copyrights, which sets out clearly and in detail multiple grounds for the refusal.⁴¹

First, the Office found that the DNA sequence did not fit into any existing category of statutory subject matter, and the Office believed that it lacks the statutory authority to create new ones.⁴² Second, the Office pointed out as a practical matter that it lacks the resources to determine the degree of originality or authorship in a DNA sequence.⁴³ Third, the letter opines that the sequence constitutes the naked formula or recipe for a biological process, and processes or methods of operation are explicitly precluded from copyrightable subject matter.⁴⁴ Finally, the Office found the DNA sequence to be functional rather than expressive, and better suited to the subject matter of patent than that of copyright.⁴⁵ The letter explicitly rejects for copyright registration purposes the analogy between nucleotide sequences and computer programs, noting that the DNA molecule neither fits the formal computer program definition of instructions "used directly or

³⁹ 17 U.S.C. § 302(a). In the case of works made for hire, the term can extend up to 120 years. *Id.* § 302(c).

⁴⁰ See Holman, Gustafsson & Torrance, *supra* note 4, at 104.

⁴¹ Letter from Robert J. Kasunic, Assoc. Register of Copyrights, U.S. Copyright Office, to Howard Simon (Feb. 11, 2014) (available in 35 BIOTECHNOLOGY L. REP. 119 (2016)).

⁴² *Id.* at 120-21.

⁴³ *Id.* at 120.

⁴⁴ *Id.* at 122.

⁴⁵ *Id.* at 122-23.

indirectly in a computer,” nor does it in the alternative convey meaning to a human being.⁴⁶

The Kasunic letter is detailed and specific in its reasoning, plainly setting forth the Office’s application of the relevant statutory language to the facts as presented in the applicant’s submission and in the request for re-consideration.⁴⁷ The letter relies in part for its subject matter analysis on a 2012 Statement of Policy regarding the registration of compilations, published in the Federal Register.⁴⁸ This statement, the letter says, sets forth the Office’s interpretation of the statutory language in section 102 with regard to statutory subject matter, based upon the Office’s understanding of Congressional intent. The letter further supports its position by reference to passages from the legislative history accompanying the enactment of the current Copyright Act.⁴⁹ In rejecting the analogy of DNA to software, the letter also relies upon a 1967 Copyright Office circular⁵⁰ that sets forth the requirements for registering computer programs prior to Congress’ amendment of the statute to explicitly include computer programs; the Office points out that DNA lacks characteristics such as “observable authorship” that were apparent in the registration of computer source code.⁵¹

The Copyright Office’s rejection of the DNA copyright enthusiasts’ registration application is neither surprising, nor novel, nor unprecedented.⁵² Since Kayton’s initial exploration of the idea, the Office had made clear that it would not accept registration of DNA sequences, for the reasons that I have reviewed above.⁵³ This has been

⁴⁶ *Id.* at 123.

⁴⁷ *Cf.* Robert Kasunic, *Copyright from Inside the Box: A View from the U.S. Copyright Office*, 39 COLUM. J.L. & ARTS 311 (2016) (address by the Associate Register of Copyrights and Director of Registration Policy and Practice repeatedly emphasizing the importance of clear and reasoned responses by the Copyright Office to rejected applicants).

⁴⁸ Letter from Robert J. Kasunic, *supra* note 41, at 120.

⁴⁹ *Id.* at 120-21.

⁵⁰ Copyright Office Circular 31D (Jan. 1965), *reprinted in* 6 C.L.S.R. 1167 (1978).

⁵¹ Letter from Robert J. Kasunic, *supra* note 41, at 121.

⁵² *See* UNITED STATES CONGRESS OFFICE OF TECHNOLOGY ASSESSMENT, NEW DEVELOPMENTS IN BIOTECHNOLOGY: PATENTING LIFE — SPECIAL REPORT 84 (1989) (Copyright Office position that recombinant DNA is not registrable subject matter); *see also* Philipkoski, *supra* note 18 (statement of Copyright Office spokesman that DNA does not constitute “an original work of authorship”).

⁵³ *See supra* note 52 and sources cited therein. The Copyright Office’s Compendium of Practices lists, both in the current 4th edition and the previous 3rd edition, DNA sequences, whether natural or artificially created, as examples of uncopyrightable subject matter that will not receive registration. *See, e.g., U.S.*

the consistent historical stance of the Office with regard to new utilitarian technologies that might carry the veneer of expressivity. There is a long history of attempts to register with the Copyright Office new technological artifacts, and of Copyright Office skepticism regarding such registration. Typically, the rationale for seeking copyright registration is that the technology is ineligible for patenting, but displays low replication costs, and so displays some of the economic features characteristic of copyright's subject matter.⁵⁴ Nonetheless, these characteristics are not the formal criteria for copyright protection or for registration, and utilitarian technical items, whether easily replicated or not, are routinely rejected by the Office.

For example, with the rise of integrated semiconductor circuits for computing devices, semiconductor chip manufacturers began registering circuit designs with the Copyright Office.⁵⁵ While the Office accepted two-dimensional drawings depicting the circuits, it advised registrants that in its opinion the registration did not extend to the three-dimensional construction of the circuit. This prohibition followed the longstanding distinction that has been maintained in copyright doctrine between the expressive subject matter of a drawing and its functional instantiation.⁵⁶ The Office routinely accepted registration of blueprints or other two-dimensional depictions of utilitarian items, without accepting registration of the items themselves, or considering the registration of the drawings to extend to the items depicted.⁵⁷

Intel Corporation eventually attempted to force to its crisis the question of circuit registration proper by submitting to the Copyright Office a semiconductor chip product; this application was rejected. Intel filed a mandamus action to challenge the denial and litigation

COPYRIGHT OFFICE, COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 313.3(A) (3d ed. 2014), <https://www.copyright.gov/comp3/prior-editions.html>.

⁵⁴ See Burk, *supra* note 2, at 520-27 (discussing these criteria with regard to recombinant DNA).

⁵⁵ See Kasch, *supra* note 7 (discussing the Semiconductor Chip Protection Act and early efforts to protect semiconductor technology).

⁵⁶ See Burk, *supra* note 2, at 502-04.

⁵⁷ Copyright law at the time provided a similar distinction for architectural works, covering the two-dimensional architectural drawing as protected subject matter, but precluding copyright in the three-dimensional, functional architectural structure. Congress later amended the Act to bring non-functional aspects of architectural construction under the copyright act as well. See *id.* at 503; see also Kevin Emerson Collins, *The Hidden Wisdom of Architectural Copyright Before the AWCPA: Defeasible Intellectual Property*, WASH. UNIV. LEGAL STUDIES RESEARCH PAPER SERIES, Feb. 2017, at 1-2, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2655743.

ensued.⁵⁸ The matter was resolved when Congress intervened to enact legislation that created a separate form of intellectual property protection, and a separate registration scheme, for semiconductor circuit designs. Congress specifically considered, but ultimately rejected the idea of expanding copyrightable subject matter to include circuit designs.⁵⁹

The history of Copyright Office registrations for computer software, on which the DNA copyright argument relies heavily for analogies, is similar. Under the 1909 Copyright Act, the Copyright Office accepted registration of computer program printouts, or other source code documentation, on the theory that it could be read by humans, and so was expressive.⁶⁰ Policies formally requiring human-readable versions of computer programs were eventually adopted for registration.⁶¹ The Office accepted printed copies of object code under its “rule of doubt” on the theory that, while readable, such deposits were not comprehensible.⁶² That left the knottier problem regarding registration of machine-readable programs, which the Office was reluctant to accept, as such formats were more obviously functional rather than expressive.⁶³ It remained unclear whether registration of printed code extended any protection to actual running code, or only to similarly human-readable printouts.⁶⁴ The question regarding such registration was addressed (although not immediately resolved) by Congressional amendments to the 1976 Act, specifying that computer programs were included within the scope of copyright.⁶⁵

The same principle certainly applies to functional nucleotide sequences. The Office might very well register the printed representation of a given nucleotide sequence — indeed, one can assume that the Office regularly registers biology textbooks and scientific journal articles that include textual representations of both

⁵⁸ Under the 1909 Act, a mandamus action was the sanctioned procedure to challenge denial of a registration; this has been superseded by appeal under the Administrative Procedure Act. See *infra* notes 130–140 and accompanying text.

⁵⁹ See Pamela Samuelson, *Creating a New Kind of Intellectual Property: Applying the Lessons of the Chip Law to Computer Programs*, 70 MINN. L. REV. 471, 485 (1985).

⁶⁰ See Duncan M. Davidson, *Protecting Computer Software: A Comprehensive Analysis*, 1983 ARIZ. ST. L.J. 611, 652 (1983).

⁶¹ Copyright Office Circular 31D (Jan. 1965), reprinted in 6 C.L.S.R. 1167 (1978).

⁶² See Evan Finkel, *Copyright Protection for Computer Software in the Nineties*, 7 SANTA CLARA HIGH TECH. L.J. 201, 210 (1991). Regarding the rule of doubt, see *infra* notes 152–53 and accompanying text.

⁶³ See Davidson, *supra* note 60, at 653.

⁶⁴ Finkel, *supra* note 62, at 203.

⁶⁵ *Id.* at 204.

naturally occurring and synthetically created nucleotide sequences. But the registration of such texts does not extend registration, or any presumption of copyright validity, to the chemical instantiation of the molecules represented. Neither does registration of such texts imply that copyright in the text itself extends to any factual, functional, or non-expressive characteristic of the text. It is likely that nearly any textual representation of the nucleotides in a DNA sequence can be freely copied, either because the represented sequence does not originate with whoever has expressed it, or because everything represented in the text is entirely utilitarian, or because that text as printed is the only feasibly recognized expression of the particular nucleotide sequence that merges expression and the underlying idea.

III. STATUTORY REVIEW STANDARDS

The Copyright Office's refusal to register nucleotide sequences is eligible for judicial review, raising the surprisingly complicated question as to how a court should consider the Office's action. Determination of the proper judicial standard of review for any federal agency begins by considering the statute that generally governs agency action and review, the Administrative Procedure Act ("APA"). The APA provides a degree of uniformity among the myriad federal administrative agencies, providing a set of default or "gap-filling" rules that are applicable to agencies in the absence of more specific or tailored administrative standards.⁶⁶

Thus, the first inquiry regarding the review of any agency is whether that agency's animating statute specifically provides for a particular treatment or standard of review, or whether the court should look to the APA for the proper standard.⁶⁷ In some instances the applicable standard in an agency's organic statute will be clear and express; in other cases, some searching is required to determine what standard Congress intended. For example, considerable thought, speculation, and ultimately litigation has gone into determining whether the USPTO is an agency subject to the APA, as there is no explicit indication in the Patent Act that it is.⁶⁸ In the case of the copyright

⁶⁶ See S. Rep. No. 79-752, at 1 (1945), *reprinted in* LEGISLATIVE HISTORY OF THE ADMINISTRATIVE PROCEDURE ACT, 1944-46, at 187 (1946).

⁶⁷ See *Am. Paper Inst., Inc. v. Am. Elec. Power Serv. Corp.*, 461 U.S. 402, 412 n.7 (1983) (stating that courts are to follow the APA standard in the absence of a more specific directive).

⁶⁸ Nonetheless the Supreme Court has made clear that the APA applies to the Patent Office. See *Dickinson v. Zurko*, 527 U.S. 150, 152-54 (1999).

statute, the applicable standard is relatively straightforward: the statute expressly provides that, outside a particular exception for production of deposited works, the APA applies to actions of the Copyright Office.⁶⁹

Looking then to the APA's articulated standards, the statute generally provides that agency action is reviewed under an arbitrary, capricious, or abuse of discretion standard.⁷⁰ However, administrative doctrine distinguishes among different types of agency actions, separating them into factual determinations, legal determinations, and policy setting. These types of actions are subject to different review standards. Findings of fact and findings of law are familiar to most legal scholars and practitioners, as they are also fundamental to judicial holdings as well as to agency actions. The distinction between an agency's legal actions and the third type of agency action, policy setting, may tend to blur somewhat, but policy or discretionary determinations are those in which the agency is not so much interpreting its organic statute as it is choosing one of the options available within statutory ambiguity.⁷¹

Policy setting is reviewed under the arbitrary, capricious, or abuse of law standard.⁷² In applying the standard, the Supreme Court has said that reviewing courts are to consider whether the agency took a "hard look" at contrary considerations and has offered an explanation for rejecting those other possibilities.⁷³ There must be a rational connection between the facts found in the record and the agency's choice.⁷⁴ The agency's choice fails the standard if the agency decision is contrary to available evidence, or neglects to consider important aspects of the problem, or lies beyond the range of plausible viewpoints.⁷⁵ In particular, post hoc justifications for agency decisions are viewed by the Court with great skepticism, so that to meet the standard the agency's rationale were better articulated contemporaneously, rather than after, the policy is challenged.⁷⁶

Additionally, administrative law treats agency proceedings differently depending upon whether they are classified as formal or

⁶⁹ 17 U.S.C. § 701(e) (2018).

⁷⁰ 5 U.S.C. § 706(2)(a) (2018).

⁷¹ See Benjamin & Rai, *Who's Afraid of the APA?*, *supra* note 10, at 302.

⁷² *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 41 (1983).

⁷³ *Id.* at 43.

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ See *SEC v. Chenery Corp. (Chenery I)*, 318 U.S. 80, 93-94 (1943).

informal. Formal proceedings are hearings that create a record on which a presiding officer bases a decision; evidence is presented and the parties may rebut or engage in cross-examination.⁷⁷ Where there is no hearing to develop such a record, an adjudication is considered informal under section 554 of the APA.⁷⁸ Thus, different types of actions are reviewed differently based not only on the type of action, but on the degree of formal procedure attending the agency action. Under section 706 of the APA, judicial review of agency findings of fact in informal proceedings considers whether the findings are arbitrary, capricious, or an abuse of discretion; findings of fact in formal proceedings are reviewed to determine whether they are supported by substantial evidence.⁷⁹

A. *The Chevron Doctrine*

Against the backdrop of these explicitly articulated standards of administrative review, the Supreme Court has developed the *Chevron* canons for deferential treatment of agency actions. *Chevron* deference becomes a particular issue when federal courts, the arbiters of statutory meaning, review the statutory interpretation of administrative agency. *Chevron* deference is expressly intended to re-allocate such interpretive authority between an expert agency and a reviewing court; under *Chevron*, interpretive authority is considered implicitly granted at the intersection of statutory ambiguity and administrative responsibility. The *Chevron* doctrine therefore instantiates a particular set of assumptions regarding the separation of powers in an administrative state, and regarding the inferences to be drawn from open statutory language. The doctrine recognizes that it is the purview of responsible agencies to make policy choices where Congress has delegated such choices to them, and the need for choice becomes manifest when Congressional direction on a particular issue is unclear.

The *Chevron* doctrine was articulated as a two-step test, instructing courts to ask first whether the language of the statute is silent or ambiguous on the matter that the agency has interpreted, or whether Congress has instead spoken clearly to the exact question that is addressed by the agency interpretation. This determination follows familiar rules of statutory construction, assessing the text, structure,

⁷⁷ 5 U.S.C. §§ 554-557 (2018).

⁷⁸ John F. Stanley, *The "Magic Words" of § 554: A New Test for Formal Adjudication Under the Administrative Procedure Act*, 56 HASTINGS L.J. 1067, 1073-75 (2005).

⁷⁹ 5 U.S.C. § 706.

purpose, and history of the statute, as well as its relationship to other statutes.⁸⁰ If the statute is deemed to be unambiguous, then the statutory language controls the question, and any contrary or deviant agency interpretation is set aside. The Congressional meaning — as determined by the reviewing court — supersedes whatever meaning the agency has determined.

If on the other hand the language is deemed ambiguous, then the agency is considered to have received from Congress some delegated latitude to determine the statute's meaning, and the reviewing court proceeds to step two, asking whether the agency interpretation falls within the plausible range of interpretations. Agency interpretations that are not reasonable interpretations of the statute are also set aside, but if the agency has adopted a reasonable interpretation of an ambiguous statute, the courts are instructed to defer to the agency's reading. The court is not to substitute its own reading of the statute for the reasonable interpretation adopted by the agency; although in practice the court's determination as to what is ambiguous, and its understanding of what is a reasonable reading of an ambiguous statute, brackets the agency's interpretive freedom.

This judicial algorithm is also subject to a collection of caveats and exceptions that, because they precede the two steps of the test, have been dubbed "Chevron Step Zero"; if these preliminary criteria are not met, a court will not even reach Chevron Step One.⁸¹ Specifically, the particular agency promulgating the interpretation must have been charged with administering the statute in question. Additionally, the Supreme Court has limited the *Chevron* framework to agency actions in which exercise of Congressionally delegated authority binds parties with the force of law — agency interpretations do not merit *Chevron* deference for mere guidelines or opinions. If the agency's actions fail to meet such criteria, then any ambiguous language remains for the reviewing court to resolve.⁸²

Thus, as a practical matter, the Supreme Court has gradually curtailed the deferential agency review it articulated in *Chevron*, particularly in its subsequent ruling in *United States v. Mead Corp.*⁸³ *Mead* concerned a "ruling letter" issued by the U.S. Customs Service regarding the tariff rate for imported products. The Supreme Court declined to apply *Chevron* deference to the ruling letter, holding that

⁸⁰ *Gen. Dynamics Land Sys. v. Cline*, 540 U.S. 581, 600 (2004).

⁸¹ Thomas W. Merrill & Kristin E. Hickman, *Chevron's Domain*, 89 *Geo. L.J.* 833, 836 (2001).

⁸² Cass R. Sunstein, *Chevron Step Zero*, 92 *Va. L. Rev.* 187, 196 (2006).

⁸³ *See* 533 U.S. 218, 236-37 (2001).

Chevron applies only where there is a Congressional intent to delegate interpretive authority, and that there has been no such intent regarding the tariff rate. The Court particularly observed that notice and comment rulemaking, or formal adjudication, are hallmarks of Congressional delegation, but were absent in the case of the tariff decision. *Mead* has therefore been taken to mean that formal rulemaking or formal adjudicatory authority are primary indicators of the interpretive delegation that would trigger *Chevron* analysis. While these indicators are sufficient, they may not be necessary; in rare instances less formal rulemaking may also warrant *Chevron* deference.⁸⁴

Chevron itself began as a gloss on the Supreme Court's previous jurisprudence of agency review, which remains as figure to *Chevron*'s ground. When *Chevron* does not apply, courts are instead to look to the alternative standard associated with the Supreme Court's decision in *Skidmore v. Swift & Co.*,⁸⁵ nearly always mentioned in the same breath as the *Chevron* standard. So-called *Skidmore* deference accords administrative agency interpretations a lesser modicum of consideration; the interpretation adopted by an agency may still be entitled to judicial consideration, and may be followed if it is sufficiently persuasive.

Thus, *Skidmore* deference might not be viewed as deference at all, but more a measure of judicial acknowledgement or respect; the *Skidmore* trope leaves the reviewing court the final arbiter of statutory meaning, but allows the agency a persuasive role as technical experts in the regulated area. In practice it is clear that *Skidmore* deference is not a uniform metric for considering an agency's interpretation, but encompasses a range of standards that range from "great respect" to "near indifference," depending on persuasive factors such as the thoroughness of an agency's procedures.⁸⁶ Indeed, *Chevron* and *Skidmore* may simply anchor the ends of a deferential continuum, where *Chevron* signifies a particularly doctrinaire form of *Skidmore* deference.

Deference to agency expertise additionally arises within a complex ecosystem of administrative actions through which the threads of *Chevron* and *Skidmore* run in multiple directions. Although *Chevron* is most often associated with statutory readings, it applies both to agency

⁸⁴ See, e.g., *Barnhart v. Walton*, 535 U.S. 212, 221-22 (2002) (applying *Chevron* in the absence of formal rulemaking); see also *Mead*, 533 U.S. at 231 (suggesting that formal adjudication is not always required for *Chevron* deference).

⁸⁵ See 323 U.S. 134, 140 (1944).

⁸⁶ *Mead*, 533 U.S. at 228.

interpretations of statutes and to the application of those standards to factual findings.⁸⁷ Additionally, the Supreme Court has in the past held that reviewing courts should defer to an agency's interpretation of its own governing regulations unless the agency's interpretation is "plainly erroneous or inconsistent with the regulation" or does not reflect a considered interpretation.⁸⁸ Such "Auer deference," named for the case in which the criteria were formulated, closely tracks the *Chevron* two-step analysis.⁸⁹ In cases where the agency interpretation fails the criteria for Auer deference, the Court may apply a *Skidmore* type standard, following the agency's reasoning only to the extent that its interpretation is persuasive.⁹⁰

Having sketched out these broad, deceptively dogmatic statements describing the *Chevron* doctrine, it is important to immediately acknowledge that *Chevron* is a mercurial doctrine with multiple forms, largely lacking consistency that simple recitations of its black-letter dogma might imply.⁹¹ The Supreme Court has at times emphasized the first or second step of the test,⁹² or at times simply declared the test inapplicable to review of a particular agency interpretation.⁹³ Some commentators have detected a movement away from *Chevron*, and certainly recent cases have imposed distinct limits on its deployment.⁹⁴ Justice Thomas has opined that the standard is simply incompatible with both the APA and with separation of powers under Articles I and III of the U.S. Constitution.⁹⁵ Justice Breyer has asserted that *Chevron* merely added an additional consideration to the *Skidmore* inquiry, which is to determine whether Congress intended delegation to an

⁸⁷ *INS v. Cardoza-Fonseca*, 480 U.S. 421, 448 (1987).

⁸⁸ *Auer v. Robbins*, 519 U.S. 452, 461 (1997).

⁸⁹ See *Decker v. Nw. Env'tl. Def. Ctr.*, 568 U.S. 597, 613 (2013).

⁹⁰ See *Christopher v. SmithKline Beecham Corp.*, 567 U.S. 142, 158-59 (2012).

⁹¹ See Nicholas R. Bednar & Kristin E. Hickman, *Chevron's Inevitability*, 85 *GEO. WASH. L. REV.* 1392, 1398 (2017).

⁹² See generally Kristin E. Hickman, *The Three Phases of Mead*, 83 *FORDHAM L. REV.* 527 (2014) (surveying Supreme Court applications of *Mead's* limitations on *Chevron*).

⁹³ See *King v. Burwell*, 135 S. Ct. 2480, 2488-89 (2015) (declaring *Chevron* deference inapplicable where the public policy issue is too important to infer deference).

⁹⁴ See Lisa Heinzerling, *The Power Canons*, 58 *WM. & MARY L. REV.* 1933, 1937-38 (2017); Michael Herz, *Chevron Is Dead; Long Live Chevron*, 115 *COLUM. L. REV.* 1867, 1868 (2015); Linda D. Jellum, *The Impact of the Rise and Fall of Chevron on the Executive's Power to Make and Interpret Law*, 44 *LOY. U. CHI. L.J.* 141, 188 (2012); Jonas J. Monast, *Major Questions About the Major Questions Doctrine*, 68 *ADMIN. L. REV.* 445, 447 (2016).

⁹⁵ *Michigan v. EPA*, 135 S. Ct. 2699, 2712-13 (2015) (Thomas, J., concurring).

agency.⁹⁶ Even Justice Stevens, articulating the original standard in *Chevron* itself, apparently believed that he was simply restating established principles of administrative review rather than promulgating a formulaic test.⁹⁷

Rather than explore all the possible flavors of *Chevron* jurisprudence, in my analysis here, I will for the most part follow the usual dogmatic consensus statement of the *Chevron* test while recognizing certain caveats. First, the Supreme Court has never entirely integrated its *Chevron* jurisprudence with the standards of review mandated under the APA; to the extent it has done so, it has hinted that *Chevron* stems from the arbitrary and capricious standard of agency review under section 706.⁹⁸ Second and relatedly, the Court has in recent years increasingly identified its first step of *Chevron* with the requirement from *Motor Vehicle Manufacturers Ass'n v. State Farm Mutual Automobile Insurance Co.*,⁹⁹ holding that the 706 arbitrary and capricious standard requires an agency to contemporaneously justify policy choices by articulating a reasonable basis for the choice.¹⁰⁰ Third, there are numerous circuit splits and variations in the understanding and application of *Chevron* among the federal courts of appeal, so that the venue in which review is undertaken could matter.¹⁰¹ In particular, the D.C. Circuit, the prime contender for the situs of appeal from any Copyright Office decision, has developed its own additional inquiry into whether an agency recognized or acknowledged that an interpreted statute was ambiguous.¹⁰²

⁹⁶ *City of Arlington v. FCC*, 569 U.S. 290, 308-12 (2013) (Breyer, J., concurring); *Christensen v. Harris County*, 529 U.S. 576, 596-97 (2000) (Breyer, J., dissenting).

⁹⁷ See Thomas W. Merrill, *The Story of Chevron: The Making of an Accidental Landmark*, in ADMINISTRATIVE LAW STORIES 400, 412-21 (Peter L. Strauss ed., 2006).

⁹⁸ See *Chevron U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 843-44 (1984).

⁹⁹ 463 U.S. 29 (1983).

¹⁰⁰ See *Encino Motorcars, LLC v. Navarro*, 136 S. Ct. 2117, 2125 (2016) (combining the *Chevron* and *State Farm* analyses); *Michigan*, 135 S. Ct. at 2706-07 (invoking *State Farm* in connection with *Chevron* review); *Judulang v. Holder*, 565 U.S. 42, 52 n.7 (2011) (equating *Chevron* step two and *State Farm* analysis).

¹⁰¹ See Orin S. Kerr, *Shedding Light on Chevron: An Empirical Study of the Chevron Doctrine in the U.S. Courts of Appeals*, 15 YALE J. ON REG. 1, 30 (1998) (empirical study showing variations in appellate application of *Chevron*).

¹⁰² Daniel J. Hemel & Aaron L. Nielson, *Chevron Step One-and-a-Half*, 84 U. CHI. L.J. 757, 760 (2017); see also Bednar & Hickman, *supra* note 91, at 1401 (discussing the D.C. Circuit's version of the *Chevron* test).

IV. CHARACTERIZING THE COPYRIGHT OFFICE

As described in the preceding sections, the degree of deference accorded to agency action is dependent upon a complex constellation of factors, chiefly on the type of activity the agency is engaged in, legal authority that the agency exercises, and the formality of the particular proceedings in question. These factors are in turn dependent on the structure and role of the particular agency. Thus, in order to assess the proper treatment of Copyright Office refusals to register, it becomes necessary to consider the relevant aspects of the Copyright Office's organization and procedures, so as to determine how well they fit the criteria surrounding *Chevron's* "Step Zero."

A. *The Office's Structure*

The Copyright Office is a relatively small organization by the standards of federal agencies, constituting several hundred staff organized into seven operating divisions.¹⁰³ The Examining Division is of chief interest to us here, as it reviews materials submitted for registration.¹⁰⁴

The Office's primary purpose is to issue registrations for copyrighted works and to act as a conduit for deposit of registered works into the Library of Congress. In addition to its responsibilities for registering initial and renewal claims to copyrighted works, the Office also records instruments that transfer copyright interests.¹⁰⁵

The Office additionally oversees a *mélange* of administrative copyright functions, such as collecting and distributing royalties for jukebox performance of musical works and royalties for secondary cable transmissions. The Office includes within its organization the Copyright Royalty Board that sets the rates for certain statutory licenses.¹⁰⁶ The Office is responsible for conducting periodic hearings on exceptions to the anti-circumvention provisions of the Digital Millennium Copyright Act, and for recommending to the Librarian of Congress exceptions to those provisions, based on the information collected.¹⁰⁷ It additionally advises Congress on copyright matters and prepares reports on aspects of copyright as directed by Congress.¹⁰⁸

¹⁰³ See JAMES E. HAWES & BERNARD C. DIETZ, COPYRIGHT REGISTRATION PRACTICE § 3:2 (2d ed. 2012).

¹⁰⁴ PAUL GOLDSTEIN, GOLDSTEIN ON COPYRIGHT § 3.19 (3d ed. 2017).

¹⁰⁵ *Id.*; HAWES & DIETZ, *supra* note 103, § 3:4.

¹⁰⁶ HAWES & DIETZ, *supra* note 103, § 3:2.

¹⁰⁷ 17 U.S.C. § 1201(a)(1)(C) (2018).

¹⁰⁸ See 17 U.S.C. § 701(b).

In order to sort out the proper relationship between the actions of the Copyright Office and those of the judicial branch, we are forced to begin by acknowledging that the Copyright Office occupies an exceedingly odd position within the structure of the American government. Administrative agencies are typically situated and organized within the executive branch of the U.S. government, led by personnel who are appointed or chosen by the President, or by cabinet secretaries, or other ranking executive officials. Their duties typically subsist of executing or enforcing specific statutes as instructed by Congress. While the executive branch certainly has its own inherent constitutional authority in certain areas, for example military and foreign affairs, administrative agencies are largely in the business of executing the agenda enacted by the legislative branch. Much of modern administrative law is concerned with analyzing when and how and whether administrative agencies exercise authority delegated to them by Congress.

The Copyright Office departs rather substantially from this model. While entrusted with duties that would appear to fit easily into the brief of an executive branch agency, the Office is organizationally housed within the Library of Congress.¹⁰⁹ The head of the Copyright Office, denominated the Register of Copyrights, is appointed by, and reports to, the Librarian who heads the Library of Congress.¹¹⁰ The Library of Congress is of course a subsidiary of the legislative branch, providing research and support services to Congress. Thus, some question exists as to the constitutional propriety of Congress essentially delegating activity to itself rather than to officers of the executive branch.¹¹¹

Legislation introduced in the current Congress is intended to begin addressing such peculiarities, by altering the appointment process and characteristics the Register of Copyright position. The bill would make the Register a presidential appointee, confirmed by the Senate, and to a term of ten years.¹¹² But the legislation would not alter the fundamental organizational or institutional peculiarity of the Copyright Office itself, leaving the Copyright Office ensconced within

¹⁰⁹ *Id.* § 701(a); HAWES & DIETZ, *supra* note 103, § 3:1.

¹¹⁰ *See id.*; HAWES & DIETZ, *supra* note 103, § 3:2.

¹¹¹ E. Fulton Brylawski, *The Copyright Office: A Constitutional Confrontation*, 44 GEO. WASH. L. REV. 1, 5 (1975); Michael W. Carroll, *Fixing Fair Use*, 85 N.C. L. REV. 1087, 1131-33 (2007).

¹¹² Register of Copyrights Selection and Accountability Act of 2017, H.R. 1695, 115th Cong. § 2(a)(5)(B) (2017).

the Library of Congress, and indeed the legislative change would situate a presidential appointment within the legislative branch.

B. Registration Procedures

The mechanics of the copyright registration process are fairly straightforward. Applicants submit to the Office a copy of the work to be registered, along with required forms and a fee; the application materials are directed to a Copyright Examiner who will review the suitability of the application.¹¹³ If unsatisfied with the merits of the application, the Copyright Examiner will respond with an initial notification of refusal. The applicant is entitled to request reconsideration of the refusal. If reconsideration again culminates in a refusal to register the work, the applicant will receive a letter from the head of Examining Division stating the reasons for refusal. Dissatisfied applicants are entitled to an internal appeal to a Board of Appeals comprising the Register, the General Counsel of the Office, the Chief of the Examining Division, or their designees.¹¹⁴ The decision of the Board is rendered in writing, and constitutes final agency action on the application.

The responsibility of the Register to assess a registration application, and not to merely record it, derives from the Office's organic statute. Section 410 of the Copyright Act, in addition to requiring a copyright holder to register a work before enforcement of the copyright in court, specifically provides that before registration the Register shall determine that the work constitutes copyrightable subject matter.¹¹⁵ The substantive validity of registration encompasses several different elements that must be considered by the Office, including originality, authorship, copyrightability, and compliance with statutory formalities.¹¹⁶ This statutory imperative has been read by some as granting the Register some discretion in determining copyrightable subject matter in the registration context.¹¹⁷

The Register is to further assess whether the "legal and formal requirements" for registration have been met, and shall refuse

¹¹³ See HAWES & DIETZ, *supra* note 103, § 22:10.

¹¹⁴ Modification of Appeal Procedure, 60 Fed. Reg. 21,983, 21,984 (May 4, 1995) (to be codified at 37 C.F.R. pt. 202).

¹¹⁵ 17 U.S.C. § 410 (2018).

¹¹⁶ Carol Barnhart, Inc. v. Econ. Cover Corp., 603 F. Supp. 432, 433 (E.D.N.Y. 1985), *aff'd*, 773 F.2d 411 (2d Cir. 1985).

¹¹⁷ See 2 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 7.21[A] (2017).

registration not only if the work is not copyrightable subject matter, but also if the claim to copyright is otherwise invalid “for any other reason.”¹¹⁸ One commentator has argued that this language regarding assessment of “legal requirements” suggests or implies that the Office has a responsibility to construe ambiguous statutory provisions relating to registration.¹¹⁹ However, the Copyright Office does not determine the validity, nor scope of a copyright in a given work; it decides only on the propriety of registration.¹²⁰

Given that the primary function of the Copyright Office revolves around registration, assessing the requirements for registration is a determination for which the Office might be recognized as possessing special expertise, and so might be entitled to a degree of deference. However, there may be differing degrees of competence within the registration assessment. Copyright examination creates no detailed paper trail in the fashion of patent prosecution histories. Specifically, unlike the Patent Office, the Copyright Office does not make factual determinations to acts exterior to the Office;¹²¹ the Copyright Office applies the statutory requirements to a submitted work as the characteristics of the work appear on its face. For example, the Copyright Office makes no inquiry into the circumstances of the work’s creation or authorship.¹²² Rather, when examining an application, any factual determinations are generally limited to commonly known facts or to facts that are facially evident from the application or deposit.¹²³

Thus, as one leading commentator has observed, the Copyright Office is simply not equipped to gauge originality, which would require an external inquiry, and so the Office might legitimately be regarded as having less authority or expertise on that matter.¹²⁴ The Office is on the other hand better equipped to gauge copyrightability from the face of the registration application, and so might be regarded as possessing special expertise on that question.¹²⁵ Indeed, although the Office does not perform an in-depth examination of registration

¹¹⁸ 17 U.S.C. §§ 410(a-b).

¹¹⁹ See NIMMER & NIMMER, *supra* note 117, § 7.21[A].

¹²⁰ GOLDSTEIN, *supra* note 104, § 3.19.

¹²¹ U.S. COPYRIGHT OFFICE, COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 602.4(D) (3d ed. 2014), <https://www.copyright.gov/comp3/prior-editions.html>.

¹²² Estate of Hogarth v. Edgar Rice Burroughs, Inc., 342 F.3d 149, 166 (2d Cir. 2003).

¹²³ GOLDSTEIN, *supra* note 104, § 3.14.

¹²⁴ NIMMER & NIMMER, *supra* note 117, § 12.11[B][3].

¹²⁵ *Id.*

applications, subject matter is among the very few topics on which the Office does engage in substantive examination.¹²⁶ Section 410(a) of the Copyright Act specifically directs the Office to make subject matter determinations pursuant to registration.¹²⁷

Additionally, the Office has some ability to cancel an improper registration if contrary circumstances come to light after a registration certificate issues.¹²⁸ This may be due to technical or procedural problems, such as failure to pay the proper fee or timely deposit copies of the work. But it may also occur due to substantive defects that did not come to light during examination. While the Office will attempt to resolve minor technical discrepancies in an issued registration,¹²⁹ failure to satisfy the substantive legal standard for subject matter is typically not a defect that can be corrected.

C. External Review

If the Copyright Office Board of Appeals affirms the refusal to register, the applicant's recourse lies outside the Copyright Office, in judicial review of the decision. Under the current statute, two routes are available for review of the Office's decision to deny registration. The first is an appeal for administrative review under section 702 of the APA.¹³⁰ The second means of judicial review, via the Copyright Act, requires the presence of an infringer.¹³¹ Under section 411(a) of the Copyright Act, the owner of a work may file an infringement suit and serve notice of infringement action on the Register.¹³² The Register may then enter a timely appearance in the suit, but failure of the Register to join the suit does not deprive the Court of jurisdiction to determine the issue. This procedure effectively deals with the problem of enforcing a copyright when no certificate of registration is available, as normally registration is required before filing suit.¹³³ Joining the Register allows a disappointed registration applicant to assert copyright against an infringer, even without a registration certificate.

¹²⁶ *Id.*

¹²⁷ 17 U.S.C. § 410(a) (2018).

¹²⁸ 37 C.F.R. § 201.7 (2017).

¹²⁹ *Id.* § 201.7(d).

¹³⁰ *See* 5 U.S.C. § 702 (2018).

¹³¹ *See* GOLDSTEIN, *supra* note 104, § 3.14.

¹³² 17 U.S.C. § 411(a) (2018).

¹³³ *Id.*

However, the copyright holder may potentially avail herself of both types of actions, as they address different issues.¹³⁴ Judicial review under the APA of the Office's decision not to register the work is a decision regarding the Register's abuse of discretion, not regarding the copyrightability of the subject work.¹³⁵ Consequently, loss of the APA appeal does not necessarily bar subsequent infringement action, so long as the Register is served with notice of the infringement action *sans* registration certificate. And, oddly, under neither review procedure does the statute give the courts any authority to order issuance of a certificate, leaving the courts generally only an option to remand for the Register to reconsider a registration refusal.¹³⁶ Nonetheless, failure to serve the Register as required by section 411(a), so as to give the Register the opportunity to intervene, results in dismissal of the infringement claim.¹³⁷

Other review options may be available, but they are speculative. Under the now superseded 1909 Copyright Act, the available recourse for a refusal to register was an action in mandamus, to compel the Copyright Office to register the work.¹³⁸ Judge Levanthal has suggested that federal courts might still properly entertain such an action when there is no infringement, and so no recourse against the Register under section 411(a).¹³⁹ The Ninth Circuit has disagreed, holding that the combination of APA review and infringement joinder provides an adequate set of remedies so that, being unnecessary, mandamus no longer will lie.¹⁴⁰ This reasoning is not altogether persuasive; as Judge Levanthal points out, the presumption of validity carried with registration may be important to avoid infringement, so that the copyright owner might require registration before the infringement action is available.¹⁴¹ This problem is not necessarily cured by APA review, as the question decided in such an action is the propriety of the Register's action, not the validity of the underlying work.

¹³⁴ NIMMER & NIMMER, *supra* note 117, § 7.21[B] n.33.

¹³⁵ See *OddzOn Prods., Inc. v. Oman*, 924 F.2d 346, 350 (D.C. Cir. 1991); *Coach, Inc. v. Peters*, 386 F. Supp. 2d 495, 497 (S.D.N.Y. 2005).

¹³⁶ See *Kasunic*, *supra* note 47, at 321 (noting the statutory absence of a remedy).

¹³⁷ *Sadler-Cisar, Inc. v. Commercial Sales Network, Inc.*, 786 F. Supp. 1287, 1297 (N.D. Ohio 1991).

¹³⁸ See, e.g., *G.P. Putnam's Sons v. Lancer Books, Inc.*, 251 F. Supp. 210, 213 (S.D.N.Y. 1966).

¹³⁹ *Esquire, Inc. v. Ringer*, 591 F.2d 796, 807-08 (D.C. Cir. 1978) (Levanthal, Cir. J., concurring).

¹⁴⁰ *Nova Stylings, Inc. v. Ladd*, 695 F.2d 1179, 1181-82 (9th Cir. 1983).

¹⁴¹ *Esquire*, 591 F.2d at 807-08 (Levanthal, Cir. J., concurring).

Some courts have hinted at the possibility of an additional option: that a disappointed registrant might file a declaratory judgment action in a bid to compel the Copyright Office to change its regulations concerning the classification of a submitted work, or its policies regarding registration.¹⁴² Some case law hints that such an action might be viewed as an illegitimate attempt to make an end run around the statutorily approved APA appeal or infringement suit.¹⁴³ On the other hand, such a challenge could be seen to sound in a different administrative theory; rather than challenging whether the Office was arbitrary or capricious in applying its own rules, the action could be directed to whether the Office had the proper authority to issue the rules at all, or to issue them in the form that they take.

Whichever of the two clearly available routes is pursued, judicial consideration of copyright registration typically arises in one of two circumstances: either denial of registration or its allowance. Successful registration confers upon the applicant a certificate, which constitutes prima facie evidence of validity.¹⁴⁴ This presumption attaches only if the registration takes place within five years of publication of the work.¹⁴⁵ While registration is taken as prima facie evidence of validity, this is by no means an unusual or determinant presumption; a long line of Supreme Court precedent holds that the actions of a federal agency are presumed valid, so that the burden of establishing invalidity lies on the plaintiff challenging the action.¹⁴⁶ Normally, courts would and should presume the validity of copyright registration under general principles of agency law. Section 410 of the Copyright Act may be viewed as codifying that presumption for the act of copyright registration.¹⁴⁷

Thus, in an infringement action, the certificate has the effect of shifting the burden of proof on validity to the defendant.¹⁴⁸ However, the copyright statute goes on to state that the evidentiary weight

¹⁴² See, e.g., *Whimsicality, Inc. v. Rubie's Costume Co., Inc.*, 891 F.2d 452, 455 (2d Cir. 1989).

¹⁴³ Cf. *Nova Stylings, Inc.*, 695 F.2d at 1181-82.

¹⁴⁴ *Durham Indus., Inc. v. Tomy Corp.*, 630 F.2d 905, 908 (2d Cir. 1980).

¹⁴⁵ 17 U.S.C. § 410(c) (2018).

¹⁴⁶ See, e.g., *Citizens to Pres. Overton Park, Inc. v. Volpe*, 401 U.S. 402, 415 (1971) ("Certainly, the Secretary's decision is entitled to a presumption of regularity."); *Hynes v. Grimes Packing Co.*, 337 U.S. 86, 101 (1949) ("An administrative order is presumptively valid.").

¹⁴⁷ For a similar argument regarding the presumption of validity for patents, see Benjamin & Rai, *Who's Afraid of the APA?*, *supra* note 10, at 281.

¹⁴⁸ *Carol Barnhart, Inc. v. Econ. Cover Corp.*, 773 F.2d 411, 414 (2d Cir. 1985); *Oboler v. Goldin*, 714 F.2d 211, 212 (2d Cir. 1983).

accorded to the certificate lies within the discretion of the court.¹⁴⁹ The presumption of validity conferred by the registration certificate is therefore rebuttable, so that courts often consider it simply a factor in their own determination.¹⁵⁰ For example where a registered set of technical drawings appeared to be dictated by entirely functional considerations, and so contained no original expression, the presumption conferred by the certificate was rejected.¹⁵¹

An intermediate circumstance between refusal and full allowance may arise when registration has been allowed under the Office's "rule of doubt." The Office has long followed a rule of doubt under which it will accept for registration dubious or borderline works, or where the Office cannot discern the work's copyright eligibility, or at least where reasonable minds could differ on the question. A certificate issues in such circumstances, although it indicates the Office's reservations as to the legitimacy of the registration. Thus, registration under these conditions carries with it the stigma that the certificate was issued despite uncertainty on the part of an expert agency, and that the agency has significant reservations regarding the status of the work.¹⁵² There is therefore some authority holding that registration under the rule of doubt is not entitled to presumption of validity.¹⁵³

V. PRIOR JUDICIAL TREATMENT

With the Office's unusual procedural backdrop in mind, we turn to the opinions produced by courts in one of the two possible procedural pathways. The Copyright Office has been a fixture of the federal government for a very long period of time, and judicial review of Copyright Office actions has occurred for most of its existence. One might therefore hope that an explicit statement of the proper standard for reviewing Copyright Office actions would be found in the opinions of courts that have engaged in such reviews. Unfortunately, such discussions of judicial review are rare, often contradictory, and generally unhelpful. While a few clues as to the proper standards may

¹⁴⁹ 17 U.S.C. § 410(c).

¹⁵⁰ See *Carol Barnhart, Inc. v. Econ. Cover Corp.*, 603 F. Supp 432, 433 (E.D.N.Y. 1985), *aff'd*, 773 F.2d 411 (2d Cir. 1985).

¹⁵¹ *ATCS Int'l LLC v. Jefferson Contracting Corp.*, 807 F. Supp. 2d 516, 518 (E.D. Va. 2011) (finding that the "highly sophisticated engineering skill and expertise" reflected in the drawing was not copyrightable expression).

¹⁵² See *HAWES & DIETZ*, *supra* note 103, § 22:3.

¹⁵³ *Superchips, Inc. v. St. & Performance Elecs., Inc.*, 61 U.S.P.Q.2d (BNA) 1589, 1592 (M.D. Fla. 2001); *Compaq Comput. Corp. v. Procom Tech., Inc.*, 908 F. Supp. 1409, 1417 (S.D. Tex. 1995).

be gleaned from reviewing court opinions, they contain nothing like an authoritative statement regarding the application of *Chevron* to the Copyright Office, let alone a full analysis applying the *Chevron* test.

On the rare occasion that a court reviewing a Copyright Office registration decision has mentioned the *Chevron* standard, the discussion typically leaves unclear whether deference is a matter of the APA abuse of discretion standard, or the *Chevron* test, or a sort of *Skidmore* recognition of the Office's superior expertise.¹⁵⁴ Some few decisions explicitly apply the *Chevron* framework to Copyright Office actions.¹⁵⁵ Other decisions find that *Skidmore* deference is instead the proper standard for review of the Office.¹⁵⁶ And some courts have simply (and unhelpfully) punted on the issue, affording deference to the Office without specifying the particular framework to be adopted.¹⁵⁷

One of the few extended judicial contemplations regarding *Chevron* and the Copyright Office is that of Judge Silberman in *Atari v. Oman*.¹⁵⁸ The *Atari* decision concerned the Copyright Office's rejection of a registration application for the video game "Breakout," which the Office's explanatory letters characterized as too graphically simplistic to meet the requirement for creativity. The registrant appealed from final rejection under the APA review provisions. Reviewing the rejection under the abuse of discretion standard, the court initially remanded the rejection to the Copyright Office for clarification.¹⁵⁹ Concurring in the result, Judge Silberman observed that the Office might be due *Chevron* deference if the Register were making a categorical decision regarding registration, that is, if the Register were interpreting the Copyright Act to deny registration to a class of works that were characterized by a lack of creativity or other copyright requirement.

¹⁵⁴ See *Custom Chrome, Inc. v. Ringer*, 35 U.S.P.Q.2d (BNA) 1714, 1717 (D.D.C. 1995) (equating *Chevron* deference with the abuse of discretion standard).

¹⁵⁵ See, e.g., *Satellite Broad. & Commc'ns Ass'n of Am. v. Oman*, 17 F.3d 344, 347-48 (11th Cir. 1994); *Cablevision Sys. Dev. Co. v. Motion Picture Ass'n of Am.*, 836 F.2d 599, 607 (D.C. Cir. 1988).

¹⁵⁶ See, e.g., *Varsity Brands, Inc. v. Star Athletica LLC*, 799 F.3d 468, 479 (6th Cir. 2015); *Morris v. Bus. Concepts, Inc.*, 283 F.3d 502, 505-06 (2d Cir. 2002); see also *Inhale, Inc. v. Starbuzz Tobacco, Inc.*, 755 F.3d 1038, 1041-42 (9th Cir. 2014) (finding *Skidmore* rather than *Chevron* deference applies to Copyright Office manuals and opinion letters).

¹⁵⁷ See, e.g., *Bonneville Int'l Corp. v. Peters*, 347 F.3d 485, 490 (3d Cir. 2003).

¹⁵⁸ 888 F.2d 878 (D.C. Cir. 1989).

¹⁵⁹ *Id.* at 879; see also Kasunic, *supra* note 47, at 316 (noting the importance of the *Atari* decision in schooling the Office to issue detailed reasons for refusal).

It is somewhat difficult to know what to make of Judge Silberman's *Atari* comments, concurring essentially in a judgment to remand the case. The concurrence offers no real *Chevron* analysis of Congressional delegation of authority to the Copyright Office, but simply acknowledges the deference due administrative agencies. Particularly puzzling is the observation that a categorical rejection might be treated differently than a particular rejection. The distinction might be based on deferential treatment of an agency's own internal regulations, as opposed to its interpretation of a generally applicable statute. Or, the concurrence may be drawing a distinction between an agency's findings of fact and its conclusions of law, if what Judge Silberman meant is that a categorical rule sounds in a legal determination, while a particular rejection would sound in the application of the categorical rule.

Similar lip service to the idea of agency deference, without any detailed analysis, appears in a number of other decisions. Some courts have expressly recognized that the Register has authority to interpret copyright laws and interpretation is entitled to judicial deference if reasonable,¹⁶⁰ although how seriously they take this trope is questionable — Office interpretations that conflict with a court's interpretation may quickly be held unreasonable.¹⁶¹ The Supreme Court has in passing opined that the statutory interpretation of the Copyright Office, so far as it is addressed to the Office's responsibility of registration, is entitled to a degree of judicial deference,¹⁶² as is the historical practice of the Office,¹⁶³ although the Court has also been quick to set aside both if unsupported by what it considers persuasive reasoning.¹⁶⁴ The case for *Chevron* treatment is stronger when the Register has a clear statutory role; where Congress has instructed the Copyright Office to collect and distribute compulsory licensing fees for cable retransmission, the D.C. Circuit has held that the Office's authority to promulgate regulations mandates *Chevron* deference.¹⁶⁵

One confounding factor in the courts' consideration of Copyright Office actions is the procedural circumstance by which the registration

¹⁶⁰ *Marascalco v. Fantasy, Inc.*, 953 F.2d 469, 473 (9th Cir. 1991).

¹⁶¹ *See, e.g., Bartok v. Boosey & Hawkes, Inc.*, 523 F.2d 941, 946-47 (2d Cir. 1975) (holding that on a matter of first impression the interpretation of the Copyright Office need not be given controlling weight).

¹⁶² *See De Sylva v. Ballentine*, 351 U.S. 570, 577-78 (1956).

¹⁶³ *See Mazer v. Stein*, 347 U.S. 201, 213-14 (1954).

¹⁶⁴ *See De Sylva*, 351 U.S. at 578-79.

¹⁶⁵ *Cablevision Sys. Dev. Co. v. Motion Picture Ass'n of Am.*, 836 F.2d 599, 608-09 (D.C. Cir. 1988) (applying *Chevron* standard to the Copyright Office's interpretation of 17 U.S.C. § 111).

action comes to a reviewing court. Both the statutory option of allowing registration rejections to be challenged in an infringement suit, as well as the option to implead the Register, have been viewed by courts as significant factors in determining the proper degree of deference to Copyright Office rejections.¹⁶⁶ Review under the APA and review in an infringement suit may possibly entail different standards of deference.¹⁶⁷ In an APA challenge to the Office's refusal to register, the issue is the propriety of the Register's decision, rather than the copyrightability of the underlying work.¹⁶⁸ Under section 411(a), however, the court determines the full range of questions relating to infringement, including validity.¹⁶⁹ In the absence of any presumption attending the registration certificate, courts have tended to set aside the question of registration to review the work's validity *de novo*.¹⁷⁰

This implicates a second complicating factor, which is whether the registration question comes to a reviewing court after a denial or after an allowance. The Office's determination to *allow* registration of a work, as opposed to its denial of registration, has received widely varying treatment by reviewing courts. This variation is in part due to the courts' treatment of the certificate of registration; recall that registration results in a certificate that carries with it a presumption of validity. In many cases allowance of registration is conceptually separated out from the statutory presumption of validity attached to the issued certificate.¹⁷¹ Courts may treat the certificate differently with regard to originality and copyrightability, sometimes deferring to the Office on the question of originality, but engaging in independent analysis on copyrightability.¹⁷² Professor Nimmer observes some irony in this position, given that the agency in fact has considerable expertise on copyrightability, but not originality.¹⁷³ Some courts

¹⁶⁶ See *Paul Morelli Design, Inc. v. Tiffany & Co.*, 200 F. Supp. 2d 482, 485-86 (E.D. Pa. 2002).

¹⁶⁷ See *Darden v. Peters*, 488 F.3d 277, 285-86 (4th Cir. 2007).

¹⁶⁸ *Darden v. Peters*, 402 F. Supp. 2d 638, 641 (E.D.N.C. 2005), *aff'd*, 488 F.3d 277, 283 (4th Cir. 2007).

¹⁶⁹ See *Ward v. Nat'l Geographic Soc'y*, 208 F. Supp. 2d 429, 445-46 (S.D.N.Y. 2002).

¹⁷⁰ See *id.* at 445-48.

¹⁷¹ See NIMMER & NIMMER, *supra* note 117 (collecting cases addressing allowance of registration).

¹⁷² See *Masquerade Novelty, Inc. v. Unique Indus., Inc.*, 912 F.2d 663, 669 n.7 (3d Cir. 1990) (according registration *prima facie* validity regarding originality but opining that the court was in as good a position as the Office to determine copyrightability).

¹⁷³ NIMMER & NIMMER, *supra* note 117, at n.62.1.

appear to accord a degree of deference to the decision to register, but the majority appear to simply reach their own determination regarding the work, without deference to (or even acknowledgement of) the Office's expertise.

Setting aside the statutory question as to the deference courts should give to determinations of the Copyright Office, and considering as a practical matter the deference that the courts in fact have given to the Copyright Office, the picture is extremely mixed. Beneath a thin doctrinal veneer that sometimes includes references to the APA, one finds a consistent, if perhaps grudging, recognition of the Office's expertise in a highly specialized legal area, while at the same time reservation as to the prerogatives of the judicial system. Occasionally the courts are openly dismissive of the Office, at times asserting that it has no business defining or interpreting statutory terms.¹⁷⁴ However, at other times courts have taken the position that plaintiffs who sue for infringement after refusal of registration carry a "heavy" burden to show validity, as the determination of the Copyright Office is entitled to "considerable" weight.¹⁷⁵ In particular, the DC Circuit, where APA review of the Copyright Office will lie, has tended to hold that the decision to refuse registration must be upheld unless it is unreasonable.¹⁷⁶

The fairly inconsistent treatment of the Office by the federal courts appears to stem from a sense as to the relative competence of the two institutions. Clearly, the Copyright Office deals with copyright matters on a daily basis, more frequently than even the east and west coast federal courts that are known to handle substantial numbers of copyright lawsuits. Courts that review the Copyright Office's actions are aware of this. Yet, rather than the kind of technical expertise incorporated into many regulatory agencies including the Patent Office, the Copyright Office's expertise lies in parsing the copyright statute and applying it to specific instances in registration.¹⁷⁷ Courts have particularly noted the Office's expertise in separating

¹⁷⁴ See *Bartok v. Boosey & Hawkes, Inc.*, 523 F.2d 941, 946-47 (2d Cir. 1975) (finding the Office not entitled to define legal terms or give legal opinions). *But see* *Cablevision Sys. Dev. Co. v. Motion Picture Ass'n of Am.*, 836 F.2d 599, 608-09 (D.C. Cir. 1988), in which the D.C. Circuit read the *Bartok* opinion as dismissing the Copyright Office's interpretation of the statute because it was contrary to legislative intent — which would of course be a *Chevron* Step Two conclusion.

¹⁷⁵ *Gemveto Jewelry Co. v. Jeff Cooper, Inc.*, 568 F. Supp. 319, 329 (S.D.N.Y. 1983).

¹⁷⁶ *Custom Chrome, Inc. v. Ringer*, 35 U.S.P.Q.2d (BNA) 1714, 1717 (D.D.C. 1995).

¹⁷⁷ See *Norris Indus. v. Int'l Tel. & Tel. Corp.*, 696 F.2d 918, 922 (11th Cir. 1983).

uncopyrightable functionality from copyrightable expression.¹⁷⁸ And, even though they may not deal with copyright matters as frequently as the Office, courts are likely to see themselves also as repositories of legal expertise, equally capable of learning and applying the law. Consequently, practical deference to the Office on matters such as statutory interpretation may tend to be diminished or absent.

An additional consideration raised by this review is that most of the recent scholarship bringing administrative law principles to intellectual property law and practice has often been framed in terms of the shortcomings of the United States Court of Appeals for the Federal Circuit, the court to which appeals are taken from the Patent Office, the Trademark Office, and the International Trade Commission.¹⁷⁹ Clearly the Federal Circuit has been slow to recognize administrative law principles that should apply to such agencies. But the Federal Circuit has no particular oversight of the Copyright Office, and so cannot be held responsible for the indeterminate administrative jurisprudence regarding the Copyright Office — none of the several other federal appellate courts that have had opportunities to clarify the law in the area have taken the trouble to do so. Admittedly, as we have seen, the Copyright Office looks even less like a prototypical administrative agency than does an agency such as the Patent Office. But the review of copyright cases here suggests that the problems dogging judicial review of intellectual property agencies may be a generalized problem in the interactions between the relevant agencies and the courts.

VI. APA DEFERENCE

Since existing judicial opinions have not, somewhat surprisingly, explicitly laid out the analysis regarding the proper standard for Copyright Office deference, we are forced to address the question from first principles. Having reviewed the criteria for judicial deference to administrative agencies, and the particular characteristics of the Copyright Office, we should be equipped to engage the tricky question as to whether, and how well, the Copyright Office fits the deference framework typically found in American administrative law. The

¹⁷⁸ *Id.*

¹⁷⁹ See, e.g., Benjamin & Rai, *Who's Afraid of the APA?*, *supra* note 10 (critiquing the Federal Circuit's review of the Patent Office); Kumar, *supra* note 12 (critiquing the Federal Circuit's review of the International Trade Commission); Wasserman, *Changing Guard*, *supra* note 10 (critiquing the Federal Circuit's review of the Patent Office); Wasserman, *What Administrative Law Can Teach*, *supra* note 12 (critiquing the Federal Circuit's review of the Trademark Office).

rejection of synthetic DNA gives us a specific vehicle for the inquiry, although the same general analysis would apply to other technological artifacts.

The first step in such an assessment is to determine whether the Copyright Office is subject to the Administrative Procedure Act, specifically, whether it is an “agency” for APA purposes.¹⁸⁰ As noted above, the Office occupies a somewhat unusual organizational niche, housed within the structure of the Library of Congress, which is part of the legislative branch.¹⁸¹ Given its organizational position, some judicial opinions hold that the Library should not be considered an agency for purposes of the APA.¹⁸² However, the D.C. Circuit has (perhaps surprisingly) held that the Copyright Office may be treated separately from the Library organization in which it is housed, and constitutes an agency for APA purposes.¹⁸³

To the extent that the odd organizational placement might leave the applicability of the APA to the Office in doubt, section 701(e) of the copyright provisions in the U.S. Code explicitly subjects all actions taken by the Register of Copyrights under Title 17 to the Administrative Procedure Act.¹⁸⁴ The sole exceptions to this are the regulations covering the conditions of deposit for copyrighted articles.¹⁸⁵ Thus, unlike the statutes creating and empowering the Patent Office or Trademark Office, the Copyright Act explicitly directs us to the APA and places the Office under its provisions.

Nonetheless, even though the Office’s organic statute places it squarely within the purview of the APA, the odd placement and structure of the Office is problematic for APA analysis, as we shall see. Both the *Chevron* doctrine and the APA itself anticipate, sometimes explicitly and sometimes implicitly, certain features, characteristics, and capabilities in a modern administrative agency. To the extent that the Copyright Office departs from that paradigmatic model, lacking such features and capabilities, it may fit poorly into the structure of conventional administrative law, making analysis of its administrative functions troublesome.

¹⁸⁰ See 5 U.S.C. § 701(b)(1) (2018) (defining “agency” broadly for APA purposes).

¹⁸¹ See *supra* note 109 and accompanying text.

¹⁸² *Ethnic Emps. of the Library of Cong. v. Boorstin*, 751 F.2d 1405, 1416 n.15 (D.C. Cir. 1985); see also *Kissinger v. Reporters Comm’n for Freedom of the Press*, 445 U.S. 136, 145 (1980) (holding that the Library of Congress is not an “agency” for purposes of the Freedom of Information Act).

¹⁸³ *Boorstin*, 751 F.2d at 1416 n.15.

¹⁸⁴ 17 U.S.C. § 701(e).

¹⁸⁵ See *id.*

Looking then to the APA, we must begin by determining which APA standards are applicable, which requires us to characterize the agency action in question: registration. As already noted,¹⁸⁶ the APA prescribes different standards for different types of agency activities, depending upon the nature and classification of the activity. In particular, factual findings and legal interpretations are treated differently. But it is not immediately clear what category of agency action copyright registration involves. For example, in the case of the DNA registration application, the work submitted was judged by the Office to be functional, and not to fit existing categories of statutory subject matter such as “literary works,” and not to be sufficiently similar to existing categories of registrable works to be “included” within copyrightable subject matter. Are examiners making factual determinations when they draw such distinctions regarding the works submitted for registration, or are they making legal judgments?

Most likely they are doing some of each. The Copyright Office generally, and the Examining division in particular, does not typically take evidence as a court or formal administrative proceeding would do. Naturally, the decision whether or not to register a work must depend on some factual determination, such as what classification the work belongs in, or whether it has utilitarian features that are physically separable from its expressive features. But such underlying facts are dependent on the materials presented by the applicant, supplemented with facts of general notice. The Office does not undertake independent investigation of applications, or the type of detailed scrutiny applied to patent or trademark applications.¹⁸⁷ So while the APA standard for reviewing factual determinations will apply, one of the powerful rationales undergirding this standard — that an expert agency will typically engage in investigative fact-finding — might temper the force of the standard.

There is then the matter of separating the Office’s factual conclusions from its legal conclusions. Like other legal institutions, the Copyright Office will take action based on its findings of fact and its conclusions of law; that is, based on evidence that it accumulates regarding the state of the world and on its understanding of the relevant rules, statutes, and judicial holdings.¹⁸⁸ In theory these

¹⁸⁶ See *supra* notes 23–26.

¹⁸⁷ See *Carol Barnhart, Inc. v. Econ. Cover Corp.*, 594 F. Supp. 364, 367 (E.D.N.Y. 1984).

¹⁸⁸ See *Carol Barnhart, Inc. v. Econ. Cover Corp.*, 603 F. Supp. 432, 433–34 (E.D.N.Y. 1985), *aff’d*, 73 F.2d 411 (2d Cir. 1985) (“[W]hile authorship and originality are, at least initially, questions of fact, copyrightability is largely an

constitute separate institutional determinations, but in practice they are always dependent on one another, and may at times be sufficiently intertwined to be indistinguishable.

This commonplace distinction may seem entirely straightforward, but as Justice Roberts might say, even in an apparently obvious instance, an illustration cannot hurt.¹⁸⁹ Thus, in considering a given registration application, the Office might be called upon to determine whether the work in question (such as a DNA sequence) fits into the statutory category of a “literary work.”¹⁹⁰ This exercise is ostensibly drawing a conclusion of law: whether the work falls into the legal category listed in the statute. But the Office’s conclusion will be based upon factual findings regarding the characteristics of the candidate work. Section 101 defines a literary work as “works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia”¹⁹¹ Consequently, in deciding whether the work fits the legal category of a literary work, the Office will have to make a factual decision as to whether it is expressed in words, numbers, or similar indicia.

But such findings of fact require some interpretation as to the meaning of the criteria listed in the section 101 statutory definition. The Office must have some concept as to what constitute “words” and “numbers” — for example, are a series of organized textured bumps drawn from the Braille system “words” in the same statutory sense as the sequences of visual marks found organized on this page? And in particular, if the work is not expressed in what would be readily regarded as words or numbers, but in some other form, the Office will have to make a determination as to what is encompassed within the conceptually broader statutory categories of “symbols” or “indicia.” Might these terms include the lined patterns of bar codes? Might they include the toothed wheel of a music box or the punched holes of a piano roll? Determining such “facts” therefore requires interpretive category constructions that are at a minimum informed by legal interpretation, and which may be nearly indistinguishable from drawing legal conclusions.

I belabor the example of Office determinations regarding “literary works,” “words,” “numbers,” “symbols,” and “indicia” because the APA relies on distinctions between findings of fact and conclusions of

application of law to undisputed facts in the form of the object sought to be copyrighted.”).

¹⁸⁹ *Impression Prods., Inc. v. Lexmark Int’l., Inc.*, 137 S. Ct. 1523, 1532 (2017).

¹⁹⁰ 17 U.S.C. § 106 (2018).

¹⁹¹ *Id.* § 101 (2018).

law, and treats each type of determination differently for purposes of judicial review. This distinction makes considerable sense as a matter of institutional competence: expert agencies entrusted with executing the law almost always possess by design specialized factual or technical competence in the areas for which they have responsibility. They may also possess specialized legal expertise regarding the statutes whose implementation they oversee. As suggested above, federal courts also possess a high degree of legal expertise (one would hope) but seldom possess the specialized factual or technical competence that is concentrated in administrative agencies. Even courts with specialized jurisdiction, such as the Federal Circuit, are seldom in a position to draw on the same depth of technical knowledge as an analogously specialized executive agency.

Bearing such distinctions in mind, we may turn then to the question of how a reviewing court should address the Office's particular finding that recombinant or otherwise artificially constructed nucleotide molecules are in fact a functional category of creations. Here the Office has engaged in what seems likely to be a factual determination — finding functionality — that, applied to copyright law's exclusion of functional inventions from its scope, leads to the agency action of registration refusal. As I have detailed above, this finding necessarily entails some legal conclusions, specifically understanding of the Copyright Act's subject matter provisions and how functional or utilitarian artifacts are defined under the statute. The Office's action may therefore be based upon mixed findings of fact and law. But to the extent that the Office's action is based upon the finding of functionality, denying registration should be treated with a high degree of deference, sustained unless arbitrary or unfounded. The arbitrary and capricious standard for findings of fact, set forth in the APA, is likely satisfied by a reasonable and articulate statement from the Copyright Office of its rationale for refusing registration,¹⁹² which here is satisfied by the Kasunic letter. And in order to determine whether the Office's accompanying legal conclusions regarding the meaning of the statute are entitled to deference, we turn to consideration of the Copyright Office's position under the *Chevron* doctrine.

VII. CHEVRON CRITERIA AND INDICIA

When considering an agency's conclusions of law regarding statutory meaning, the APA seems to direct courts to apply *de novo*

¹⁹² See *Coach, Inc. v. Peters*, 386 F. Supp. 2d 495, 498 (S.D.N.Y. 2005).

review; this is tempered either by the Supreme Court's direction to incorporate at least *Skidmore* respect for the reading, or by applying the deferential *Chevron* test. A court applies *Chevron* beginning with "Step Zero" by assessing the characteristics of the agency and its particular action to determine whether to apply *Chevron* at all. As we have seen, the ultimate question to be decided in assessing *Chevron* Step Zero for DNA registrations will be whether, in accepting or rejecting registrations, Congress intended the Copyright Office to "speak with the force of law." The case for deference would be strongly bolstered if the Office is either engaged in formal adjudication or if it is empowered to engage in notice and comment rulemaking. Assuming such indicators of delegated authority get us past *Chevron* Step Zero, we would then need to decide whether there is ambiguity or room for interpretation in the relevant sections of the Copyright Act, and if so, whether the Copyright Office's reading of the statute is reasonable.

The *Mead* indicators for applying *Chevron* are not strong with regard to Copyright Office registration. The activity of the Register in registering works has been described by the Office itself as being "ministerial."¹⁹³ While noting that the Register has some discretion in interpreting the relevant statute, the Office's role is not adjudicatory or quasi-judicial, and when an applicant meets the requirements of the statute, the Register has no choice but to accept the application.¹⁹⁴ This characterization also implies, conversely, that the Register has little latitude to accept for registration items that appear to depart from the statutory requirements.

This characterization tends to suggest that the Copyright Office may not be an agency empowered to speak "with the force of law." According to the Supreme Court, administrative rulings such as the tariff decisions in *Mead* that are "churned out" by ministerial officials are unlikely to qualify as rulings carrying "the force of law."¹⁹⁵ Copyright examiners might be regarded as such "ministerial" officials, largely processing a host of registrations as the applications come in — that appears to be the implications of the Office's self-description.¹⁹⁶ It certainly could be argued that, because the examiners conduct a fairly

¹⁹³ SUBCOMM. ON PATENTS, TRADEMARKS & COPYRIGHTS OF THE S. COMM. ON THE JUDICIARY, 86TH CONG., 2D SESS., STUDY NO. 18, AUTHORITY OF THE REGISTER OF COPYRIGHTS TO REJECT APPLICATIONS FOR REGISTRATION 94 (Caruthers Berger) (Comm. Print 1960) [hereinafter SUBCOMMITTEE STUDY NO. 18].

¹⁹⁴ *Id.*

¹⁹⁵ *United States v. Mead Corp.*, 533 U.S. 218, 233 (2001).

¹⁹⁶ *See* SUBCOMMITTEE STUDY NO. 18, *supra* note 193, at 91.

cursorily review of the application, the registration is largely a mechanical process; as discussed above, the examiners do not conduct a detailed or searching examination in the manner of a patent application or even a trademark registration application. Typically, the examination merely determines whether the application meets the formalities for registration, and whether it appears on its face to fall within the statutory limitations including subject matter, originality, and expressivity.

The purely ministerial view of copyright registration cannot be quite correct, however. While acknowledging the rote process of most copyright examination, we must also acknowledge that registration is not mere recordation, and application for registration does not trigger a rubber stamp. The Office is statutorily required to assess the suitability of the application, albeit on the face of the application rather than searching prior art.¹⁹⁷ Examiners must exercise judgment in screening out ineligible applications. As we have seen, registration refusals do occur, and such refusals have legal consequences.¹⁹⁸ Registration decisions can be contested, and they are overseen by multiple levels of internal and external review. Some discretion on the part of the Register is clearly expected and is routinely exercised.

The Register's exercise of discretion is underscored by the Office's practice of registration under the rule of doubt. Recall that certificates issued in such instances indicate the Office's reservations regarding the work, so that the presumption of validity does not apply.¹⁹⁹ Both of these aspects of the rule of doubt — that the Office has apparent discretion to issue a certificate that does not convey *prima facie* validity, and that the courts will defer to that decision — weigh in favor of the existence of administrative discretion in registration. Similarly, we have noted that the Office has discretion to cancel or retract a registration certificate if new and contrary circumstances come to light.²⁰⁰ This suggests that issuance of a registration certificate cannot be an entirely rote or ministerial task, but one that requires some measure of judgment and perception.

However, even under the most generous view of the registration process, in terms of administrative law, it rises at best to the level of an

¹⁹⁷ See *supra* notes 115–122 and accompanying text.

¹⁹⁸ See *supra* notes 142–151 and accompanying text. In addition to the presumption of validity accompanying a registration certificate, registration is a prerequisite to remedies such as statutory damages and attorney's fees. See 17 U.S.C. § 412 (2018).

¹⁹⁹ See *supra* notes 152–157 and accompanying text.

²⁰⁰ See *supra* notes 128–129 and accompanying text.

informal proceeding and cannot be considered a formal administrative proceeding.²⁰¹ The proceeding in no way resembles adjudication on the merits. Registration is based upon submission of the work along with a fairly simple form and a fairly modest fee. The examiner does not preside as a hearing officer to develop a formal record. To be certain, whatever the applicant submits, and any reply from the Office in the case of refusal, constitutes a sort of rudimentary record. But the record of the examination is minimal; indeed, only when an application is rejected does the examiner provide an explanation of the action. No explanation or reasoning is provided for *allowance* of a registration. No detailed inquiry into the merits of the application, nor substantive submission of evidence, and certainly no cross-examination, rebuttal, or other formal procedural safeguards.

The registration process is simply not intended to develop a substantial record.

Where registrations are rejected, and an explanation of the agency action such as the Kasunic letter is provided, it is as we have seen based on written policies, such as Copyright Office circulars and published notices.²⁰² Many of these policies are gathered into an official “Compendium” of procedures covering registration — indeed the two most recent editions of the Compendium have specified that DNA sequences, whether natural or artificially constructed, are not copyrightable subject matter.²⁰³ But such statements and policies, although they have legal effects, are not considered to carry the force of law in the *Chevron* sense. The Supreme Court has stated that “policy statements, agency manuals, and enforcement guidelines” are “beyond the *Chevron* pale,” and so get at best *Skidmore* treatment.²⁰⁴

Another indicator as to whether Congress seems to have delegated authority to “speak with the force of law” is to examine the significance and effect of the particular agency action in question. Copyright registration is an action of mixed significance. In some senses, the registration of copyright might be deemed inconsequential. Unlike patents, which originate only upon approval of a governmental agency, copyrights arise without any formal action by the Copyright Office. Copyright instead arises spontaneously upon the fixation of an original work in a tangible medium of expression.²⁰⁵ We have noted that copyright registration does not entail an in-depth examination of

²⁰¹ See *supra* notes 77–79 and accompanying text.

²⁰² See *supra* notes 47–51 and accompanying text.

²⁰³ See *supra* note 53 and accompanying text.

²⁰⁴ *United States v. Mead Corp.*, 533 U.S. 218, 234 (2001).

²⁰⁵ 17 U.S.C. § 102(a) (2018).

the work, as occurs for patent applications and, to a somewhat lesser degree, trademarks; the work of the copyright examiner is largely culling applications that fall clearly outside the limits of copyright (i.e., excluding applications to register facts, short phrases, useful articles, and the like).

Nonetheless, we have seen that there are indeed legal consequences from failing to register, or for being denied registration. Copyright registration is legally significant when it comes to enforcing or asserting the copyright that has already vested at the time the work is fixed in a tangible medium. Registration is generally required in order to initiate an infringement action to enforce copyright in federal court.²⁰⁶ Where registration has been refused, the copyright owner must at least have attempted registration before going to court.²⁰⁷ Registration also confers certain evidentiary benefits once enforcement of a copyright is underway. The certificate of registration that is issued to successful applicants changes the character of subsequent legal proceedings, serving as *prima facie* evidence of validity in litigation or other copyright enforcement. Registration therefore has legal consequences, but is not necessarily a legal judgement.

Chevron Step Zero additionally takes into account the general grant of authority to an agency and whether it has been delegated authority to resolve statutory ambiguities. The copyright statute grants certain authority to the Office to regulate its own actions. Section 702 of the Copyright Act explicitly gives the Register authority to promulgate regulations “not inconsistent with law” regarding the Copyright Office’s functions and duties.²⁰⁸ These are subject to approval by the Librarian of Congress. With regard to the particular agency action of interest here, section 408(c) confers on the Register an explicit general grant of authority to promulgate procedural regulations relating to registration, such as the administrative class into which different types of works are to be placed, and the number, type, and nature of deposits accompanying registration.²⁰⁹

The section also grants authority to create specialized regulations for the deposit of groups of works.²¹⁰ Under that authority, detailed mechanics of the registration process are spelled out in 37 C.F.R. 202.3. 37 C.F.R. 202.1 also enumerates examples of materials not subject to copyright, for which registration will be declined, such as

²⁰⁶ See *supra* notes 132–139 and accompanying text.

²⁰⁷ 17 U.S.C. § 411(a).

²⁰⁸ *Id.* § 702.

²⁰⁹ *Id.* § 408(c)(1) (2018).

²¹⁰ *Id.* § 408(c)(2).

words and short phrases, typeface, systems, and devices. The examples listed are in general those recognized as a matter of copyright doctrine to lack originality or to constitute functional artifacts “as distinguished from the particular manner in which they are expressed or described in a writing.”²¹¹

The Copyright Office therefore clearly has the authority to promulgate some regulations through notice and comment, but the provisions related to registration concern the Office’s own internal policies and procedures. The Office certainly is entitled to *Auer* deference regarding its interpretation of such regulations when they are ambiguous.²¹² But the provisions just described do not entail the sort of *substantive* rulemaking authority that signals the applicability of *Chevron* when the Office interprets the Copyright Act. These are not regulations regarding the application or enforcement of copyright law generally; rather, the regulations authorized are those dealing with the Office’s own internal workings and responsibilities.

In other contexts, the Office does sometimes engage in substantive regulatory rulemaking, but as with everything related to the Office, the provenance of such activity is often muddled. For example, the Office promulgates notices and conducts hearings in the process of establishing periodic exceptions to the anti-circumvention provisions of the Digital Millennium Copyright Act.²¹³ But this rulemaking process is by statute engaged by the Librarian of Congress, on the basis of a recommendation formulated by the Register of Copyright²¹⁴ — it is not a rule promulgated by, or adopted by, the Office itself.²¹⁵

In other situations, for example where the Office has a substantive statutory role in determining and promulgating fee schedules for compulsory licensing, the case for *Chevron* on the relevant statutory provisions may be much stronger.²¹⁶ But even this example proves to be complicated and probably indeterminate: the Register by statute collects statutory licensing fees according to requirements the Office prescribes by regulation.²¹⁷ But statutory royalties from the fees are

²¹¹ 37 C.F.R. § 202.1 (2017).

²¹² See *supra* notes 88–89 and accompanying text.

²¹³ See 17 U.S.C. § 1201(a)(1)(B).

²¹⁴ *Id.* § 1201(a)(1)(C).

²¹⁵ And, as I have noted above, the Library has been held not to constitute an agency for APA purposes. See 5 U.S.C. § 701(b)(1) (2018).

²¹⁶ See, e.g., *Cablevision Sys. Dev. Co. v. Motion Picture Ass’n of Am.*, 836 F.2d 599, 608–09 (D.C. Cir. 1988) (applying *Chevron* standard to the Copyright Office’s interpretation of 17 U.S.C. § 111).

²¹⁷ 17 U.S.C. §§ 111(d)(1), (6) (2018).

distributed by the *Librarian* of Congress, as authorized by judges of the Copyright Royalty Board.²¹⁸ The Copyright Royalty Judges are appointed by the Librarian, and supported by the budget of the Library, rather than that of the Copyright Office.²¹⁹ The Royalty Board is not answerable to nor reviewed by the Register.²²⁰ Thus while the Office has a statutory mandate to promulgate regulations regarding the collection of fees, its connection to the overall rulemaking and adjudicatory functions of the Copyright Royalty Board are, for purposes of inferring delegated authority, at best unclear.

The import of the Office's rulemaking authority for *Chevron* purposes therefore seems very like the hortatory story about the blind men and the elephant — one's conclusion depends on whether one is examining the tail or the trunk. The agency actions related to the Office constitute a grab-bag of copyright-related functions some of which appear to signal the application of *Chevron* and many of which may not. But the Supreme Court's recent jurisprudence indicates that the *Chevron* "force of law" inquiry is not an all or nothing conclusion, and certainly not a blanket determination. *Chevron* may apply statute by statute, but it may also apply provision by provision,²²¹ and agencies that are unquestionably entitled to *Chevron* deference on some questions may not be entitled to it on others.²²² If there were ever a compelling case for provision by provision determination of *Chevron*, the Copyright Office may be it.

VIII. THE *CHEVRON* TEST

To summarize the analysis to this point: looking to the standard of review in the APA, in a direct section 706 appeal from a registration rejection, the Office's decision seems likely entitled to the APA's deferential "arbitrary or capricious" standard on the issue of

²¹⁸ *Id.* § 111(d)(2).

²¹⁹ *Id.* § 801(a).

²²⁰ The Register may assign "other duties" to Copyright Royalty Judges when they are not fulfilling their statutory licensing duties. *See id.* § 801(b)(8).

²²¹ Kristin E. Hickman, *The (Perhaps) Unintended Consequences of King v. Burwell*, 2015 PEPP. L. REV. 56, 62 (2015).

²²² Compare *King v. Burwell*, 135 S. Ct. 2480, 2488-89 (2015) (holding *Chevron* inapplicable to the Internal Revenue Service interpretation where the statutory question was too important for implicit delegation to be inferred), with *Mayo Found. for Med. Educ. & Research v. United States*, 562 U.S. 44, 55 (2011) (IRS statutory interpretation entitled to benefit of *Chevron* deference). *See also* *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 159-60 (2000) (declining to apply *Chevron* to economically important agency interpretation).

registration eligibility, and so on a work's entitlement to a presumption of validity. Although the Office does little investigation, and so makes few factual determinations in the registration process, registration is premised on factual determinations that the Office makes from the face of the work. This standard might not apply if the Register is joined in a collateral infringement suit, as a reviewing court would not be considering the decision to register *per se*, but the decision to register as an input to the court's *de novo* decision regarding the rejected work's validity.

When it comes to interpretation of the Copyright Act, the Office is likely not entitled to strong *Chevron* deference on matters of registration, or at least not obviously entitled to such deference. The agency indicators articulated by the Supreme Court in *Mead* as indicating deference do not line up in the Office's favor: registration constitutes an informal proceeding, the Office does not formally propose and develop rules that regulate copyright validity outside of the Office's own procedures, and the Office is not an agency that engages in adjudicatory proceedings even outside of the informal action of registration. Neither do the Office's actions, particularly in its registration functions, seem likely candidates for the Supreme Court's occasional bestowal of *Chevron* deference without the *Mead* indicia.²²³ The Office is of course nonetheless entitled to *Skidmore* deference on its understanding of the copyright statute.

However, in case the Supreme Court might opt to apply *Chevron* to any Copyright Office treatment of the Act based on the Office's sporadic authority to issue substantive rules,²²⁴ or in case the Court might view the Office as the rare case where Congress intended to speak with the force of law outside of formal proceedings,²²⁵ it is useful to examine how the *Chevron* test might proceed if the analysis were to get past Step Zero. Such analysis is also useful even in the case of *Skidmore* respect for the Office's interpretation, as it would help indicate the persuasive power of the Office's approach. Our example for the analysis remains the DNA nucleotide rejection, both as a matter of particular interest, and as a vehicle to illustrate how the Office's statutory interpretation might be treated generally.

²²³ See *supra* note 83 and accompanying text.

²²⁴ See *supra* notes 210–11 and accompanying text.

²²⁵ See *supra* note 84 and accompanying text.

A. *Chevron Step One: Statutory Ambiguity*

The question of implicitly delegated authority only arises under *Chevron* where there is a statutory ambiguity that requires an agency interpretation. Thus, in the particular instance contemplated here, *Chevron* is an issue only if the statutory provisions at issue in copyright registration are ambiguous, and particularly if they are ambiguous with regard to the registration of nucleotides. The Kasunic letter sets forth in some detail the Office's understanding of the relevant statutory provisions. The provisions interpreted and applied in the Kasunic letter are those in which Congress designates proper subject matter for copyright, either generally such as "work of authorship," or specifically such as "literary work." The statute's statement that proper subject matter "includes" the stated categories is a term of particular importance.

Courts applying *Chevron* judge the ambiguity or clarity of administratively interpreted statutes by applying the same tools used to construe statutes in other contexts: plain meaning, canons of construction, legislative history, and the like. Human language always requires some degree of interpretation, and so is never wholly unambiguous. The Copyright Act is no exception. But a degree of linguistic valence is altogether different from indeterminacy as to the legislature's intended meaning. There are strong reasons to believe that the copyright statute provisions involved in our example do not entail the interpretive latitude that a court would normally view as rising to the level of *Chevron* ambiguity.

It is also necessary to separate linguistic ambiguity from legislatively intended inclusion. In some places in the text of the Copyright Act, Congress clearly intended to leave the statute open to future definitional interpolation, either by the courts or by the Copyright Office, to accommodate unforeseen changes in technology. For example, the section 101 definition of a "copy" requires that it must be perceptible either directly or with the aid of a "machine or device," and in the section 101 definition of "machine or device," the statute includes "one [i.e., a machine or device] now known or later developed,"²²⁶ thus allowing the definition of "machine or device" to evolve over time. Congress unquestionably wanted courts to read the Act flexibly to cover new technologies, rather than requiring repeated amendments to update.²²⁷

²²⁶ 17 U.S.C. § 101 (2018).

²²⁷ See *WGN Cont'l Broadcasting Co. v. United Video, Inc.*, 693 F.2d 622, 627 (7th Cir. 1982).

The statute clearly allows for similar evolution of the canon of subject matter by use of the term “include[s]” in section 102. This section specifies that the statute is intended to cover original works of authorship fixed in any expressive medium, “whether now known or later developed,” and which can be “perceived, reproduced or otherwise communicated with the aid of a machine or device.”²²⁸ As already noted, the statutory definition of “machine or device” is technologically inclusive.²²⁹ The statute thus contains multiple indicators that the copyright canon is to be capacious with regard to the means or medium in which an expressive work is fixed.

Congress then offers a series of categories of copyrightable works of authorship.²³⁰ The categories constitute typical or known types of expressive works, expressed by different means or media. For example, the statutory category of “literary work” is constituted by original works of authorship expressed by means of symbols or indicia.²³¹ Thus, the fundamental question to whether something constitutes a “literary work” is whether there is an underlying original work of authorship, and not how the work is instantiated.²³² Significantly, section 102 also concludes with a list of categories of works that are explicitly *barred* from copyrightable subject matter; these include either categories such as ideas and principles that are too abstract to constitute expression, or categories such as procedures, processes, and methods of operation that are functional rather than expressive.²³³

Thus, as explained by William Patry, the subject matter limitation in the statute is not found in the term “including,” but rather in the requirement for “original works of authorship” — that is to say, all original works of authorship are “included” under the current statute, whether or not enumerated in the current list of eligible works.²³⁴ The statutory definition of “copy” in section 101, along with the language of section 102(a), makes clear that inclusion of original works of

²²⁸ 17 U.S.C. § 102(a).

²²⁹ See *supra* note 226 and accompanying text.

²³⁰ See *supra* note 226 and accompanying text.

²³¹ 17 U.S.C. § 101.

²³² See R. Anthony Reese, *Copyrightable Subject Matter in the “Next Great Copyright Act,”* 29 BERKELEY TECH. L.J. 1489 (2014); Samuelson, *Evolving Conceptions*, *supra* note 37, at 49.

²³³ 17 U.S.C. § 102(b); see also Pamela Samuelson, *Why Copyright Excludes Systems and Processes from the Scope of Its Protection*, 85 TEX. L. REV. 1921, 1921 (2007) (discussing in detail the excluded categories in section 102(b)).

²³⁴ 2 WILLIAM F. PATRY, PATRY ON COPYRIGHT § 3:15 (2017).

authorship within statutory subject matter is not dependent on the medium in which the work is expressed.²³⁵ Any of the listed categories of works, or for that matter any other original work of authorship, is covered by the current statute in any medium, now known or later developed.

Consequently, as the Kasunic letter makes clear, the Office does not find DNA sequences are excluded from registration simply due to their medium of expression.²³⁶ A work of authorship, such as a motion picture or musical composition, could certainly be encoded in a DNA strand, and made perceptible to a viewer or listener with the aid of a machine.²³⁷ But it is the *work* that is subject to copyright, whether fixed in celluloid, vinyl, nucleotide, or other medium — not the medium. The DNA sequence submitted to the Office by the DNA copyright enthusiasts was excluded from registration because it fixed no original work of authorship, but only the functional sequence of a molecular formula.²³⁸

The legislative deployment of the term “include” is thus not ambiguous in the sense that Congress has given the Office unintelligible direction, or has failed to give any direction at all, but only in the sense that the statute has been deliberately left open for the Office to address unforeseen technical advances that fit within the other criteria established by Congress. The statutory latitude offered by the term “include” is therefore highly constrained; the Office has some license to recognize new categories of works, but this is limited by the doctrinal requirements of the statute, including fixation, expressivity, and originality.

For example, one might imagine a future populated with sensory devices conveying expressive “feelies,” by which tactile artists produce for their recipients defined arrangements of sensations, or “smellies” by which olfactory artists provide the public with series of selected odors for their education and entertainment.²³⁹ Neither of these

²³⁵ See Samuelson, *Evolving Conceptions*, *supra* note 37, at 49. Professor Samuelson points out that this distinguishes the 1976 Copyright Act from its predecessor 1909 Act, under which copyright eligibility was dependent on the particular means or medium of expression. *Id.*

²³⁶ See Letter from Robert J. Kasunic, *supra* note 41, at 122-23.

²³⁷ And indeed has been. See Angela Chen, *A New Place to Share GIFs: The DNA of Living Bacteria*, VERGE (July 12, 2017, 3:54 PM), <https://www.theverge.com/2017/7/12/15959036/dna-storage-cell-crispr-gif-bacteria-information>.

²³⁸ See Letter from Robert J. Kasunic, *supra* note 41, at 123.

²³⁹ These were of course imagined by ALDOUS HUXLEY, *BRAVE NEW WORLD* (1932); see also A.P. Herbert, *The Din-Palace, The Smellies and the Future of the Theatre*, PUNCH (May 8, 1929) (a slightly earlier imagining of cinematic “feelies”). See generally Laura

technologies would fit the definition of any category listed in the current section 102, but the Office could presumably register such expressive works without having to wait for explicit Congressional approval to include them in the canon of registrable subject matter.

Incorporating into the canon a *non-expressive* or functional category of work, in any medium, is another question altogether. This would constitute recognizing a new category of *work*, rather than a new medium for existing works, a recognition that would require new legislative authorization. As indicated by the Kasunic letter, the Copyright Office lacks the authority to recognize such new categories of works.²⁴⁰ The language, history, and structure of the existing statute indicate this clear distinction between new ways of expressing currently copyrightable subject matter, which are protected without need for statutory revision, and new subject matter, which would require statutory amendment.²⁴¹

This is not the case for the categories of computer programs or architectural works. Congress has specifically spoken to the inclusion of computer programs in the statute. Section 101 explicitly defines the term computer program;²⁴² the section 101 definition of “literary work” includes numerical indicia such as computer programs; and statutory sections such as section 117 explicitly discuss the limitations of copyright in computer programs. In the case of architectural works, Congress has added them as a separate category of copyright subject matter and has defined their protectable features.²⁴³ These categories have received special legislative approval and are protected as to their expressive features.

The fact that non-expressive works are barred from existing subject matter does not necessarily mean that Congress could not add functional or non-expressive categories of works to the statute. The legislative record of the Copyright Act makes clear that the current Act was not intended to reach the constitutional limits of Congressional power under Article I, Section 8, Clause 8.²⁴⁴ The Supreme Court has indicated that a basic level of creativity is constitutionally required to invoke Congress’ copyright power, but expression may be a different

Frost, *Huxley’s Feelies: The Cinema of Sensation in “Brave New World,”* 52 TWENTIETH-CENTURY LITERATURE 443, 443 (2006) (discussing how Huxley’s fictional “feelies” and “smellies” stemmed from his dismay at the advent of talking motion pictures).

²⁴⁰ See Letter from Robert J. Kasunic, *supra* note 41, at 121.

²⁴¹ See PATRY, *supra* note 234, § 3:60.

²⁴² 17 U.S.C. § 101 (2018).

²⁴³ *Id.*

²⁴⁴ See H.R. Rep. No. 94-1476, at 51 (1976).

matter.²⁴⁵ We have already seen one example in which Congress protected a category of functional works, mask works, under Title 17 via the Semi-Conductor Chip Protection Act.²⁴⁶ But nowhere does the statutory language or statutory scheme currently support the inclusion of functional works such as nucleotide sequences.

B. *Chevron Step Two: Reasonable Interpretation*

The analysis thus far shows the relevant statutory provisions involve language which is open, but not ambiguous as to its purpose, meaning, or intent. The language is not ambiguous, but pretty clearly discretionary, leaving to the Copyright Office a policy decision regarding future subject matter, a policy decision subject to the arbitrary and capricious standard and to the *State Farm* “hard look” standard.²⁴⁷ Thus, if we were to apply the *Chevron* framework to the Office’s reading of the statute’s subject matter provisions, the question likely would not move past *Chevron* Step One, as there are very substantial reasons to find that the statute unambiguously precludes functional subject matter such as nucleotides from copyright’s subject matter, and so from Copyright Office registration. Nonetheless, in the unlikely event that a court might reach *Chevron* Step Two, I give here consideration as to whether the Office’s interpretation of the statute would be deemed reasonable, and so eligible for judicial deference.

In the case of the DNA copyright enthusiasts’ application, this prong of the analysis may be relatively short. The reasonable interpretation phase of the *Chevron* test should be satisfied by any sensible interpretation of an ambiguous statute. The Kasunic letter sets forth in considerable detail the Office’s rationale for denying the application, based on its understanding of the statute: nucleotide sequences are functional, the statute contemplates only original, non-functional works of expression, and adding functional or non-expressive categories of works to the categories in the statute would require Congressional amendment. Much of the statutory analysis traced in the previous section can be readily deployed to bolster this view of the statutory provisions regarding copyrightable subject matter, the scope of the subject matter categories in section 102, and the meaning of the term “include.” To the extent that any of these might be deemed ambiguous, the Office’s treatment of them seems fully supported.

²⁴⁵ See *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345 (1991).

²⁴⁶ See *supra* notes 55–59 and accompanying text.

²⁴⁷ See *supra* notes 72–76 and accompanying text.

IX. DEFERENCE WITHOUT *CHEVRON*

To this point I have attempted to sort out how *Chevron* might or might not apply to the actions of the Copyright Office. But there is a sense in which this inquiry may not matter. During the waning days of the Obama administration, and again just after the inception of the Trump administration, the House of Representatives passed legislation that was ostensibly and expressly intended to legislatively overturn the *Chevron* doctrine. The Separation of Powers Restoration Act would amend the APA to require that courts reviewing agency decisions do so *de novo* and specifically forbids a reviewing court from interpreting any gap or omission in a statute as constituting an implicit delegation of authority to the implementing agency.²⁴⁸ The gist of the proposal seems to be that Congress will not ever implicitly delegate statutory interpretive responsibility to an expert executive agency, but absent an express provision that the executive is to do so, will always implicitly delegate the interpretive authority to the decidedly non-expert judiciary.

The intent and the purpose of the bill remain something of a mystery. Certainly, the rhetoric of the bill's sponsors seems plain enough, as encapsulated in the bill's title: deploring the usurpation of authority by administrative agencies and purporting to restore Congressional authority as paramount for regulation. The *Chevron* doctrine is identified as the cause of a runaway administrative state, and the bill's sponsors have stated their intent to legislatively overrule it. Yet, bizarrely, as detailed above, the *Chevron* doctrine emerged as an interpretive tool expressly intended to vindicate Congressional authority, recognizing Congress' prerogative to delegate interpretive authority to an agency in preference to that of the judiciary. Legislative repeal of the doctrine, particularly by mandating a *de novo* standard, places interpretive prerogatives back into the hands of the judicial branch, rather than restring anything to the legislative branch.

As of this writing, the same party controls both houses of the legislature as well as the executive branch. While one can understand that the party in the majority might want to curtail the influence of executive agencies under the control of a different party, it is difficult to understand why it might want to curtail the influence of agencies under its own control. If the concern is for the future, when the executive and legislative branches may be under separate control, then it remains nonetheless puzzling why the current Congress would want to elevate the statutory interpretation of the judiciary, a branch of

²⁴⁸ Separation of Powers Restoration Act, H.R. 5, 115th Cong. (1st Sess. 2017).

government that at any given time may or may not be solicitous to the goals of the current Congress.²⁴⁹ Indeed, the proponents of the act are in large measure politicians who have derided so-called “judicial activism” under the guise of statutory interpretation. The proposed legislation seems to simply invite such activism.

But, ultimately the legislation, even if it passes, may make neither any practical difference nor any analytical difference.²⁵⁰ Professor Hickman for example argues that *Chevron* is consistent with a *de novo* approach anyway, that is, that under the *Chevron* test courts only reach the point of according deference to the administrative agency’s interpretation *after* the court has concluded that Congressional intent as expressed in the particular statute is unclear.²⁵¹ This means that the initial inquiry will always be a *de novo* reading of the statute by the reviewing court. The agency’s interpretation is only reached after the court’s *de novo* reading proves ambiguous or comes up empty.

Indeed, as a practical matter, Hickman points out that courts reaching this point — where their own *de novo* reading of the statute shows it to be impossibly ambiguous — are likely to follow the logic of *Chevron* regardless. The alternative to deference to the reading offered by the expert agency is for the court to substitute its own preferences for the agency’s. The court cannot follow Congress’s intent, since that is indeterminate, so unless the court adopts the preferred reading of the agency, it is simply following its own preference — something that many judges are loathe to do, and which in the current political climate it is anathema for a judge to admit. Judges who either do not believe the courts should properly determine policy on their own, or who are reluctant to admit that they are doing so, are likely to adopt the agency reading of the statute. Consequently, whether Congress amends the APA or not, some type of *Chevron* deference is likely to continue.

CONCLUSION

The Copyright Office’s refusal to register DNA sequences stands on a very solid doctrinal footing, although the administrative law status of its action remains ambiguous under the unusual procedures and

²⁴⁹ See Adrian Vermeule, *The Separation of Powers Restoration Act (in the Age of Trump)*, YALE J. ON REG.: NOTICE & COMMENT (Nov. 10, 2016), <http://yalejreg.com/nc/the-separation-of-powers-restoration-act-in-the-age-of-trump-by-adrian-vermeule>.

²⁵⁰ See *id.*; Kristin E. Hickman, *The Proposed Separation of Powers Restoration Act: Why?*, 41 ADMIN. & REG. L. NEWS 6, 7 (2016).

²⁵¹ See Bednar & Hickman, *supra* note 91; Hickman, *supra* note 250.

contradictory precedent surrounding the Office. To the extent that the rejection rests on informal factual findings, it appears well supported and well within the Office's discretion. To the extent the rejection rests on legal conclusions, they are surely persuasive under *Skidmore*.²⁵² But there is no guarantee that future technologies will present such a straightforward set of characteristics, so clarifying and solidifying the administrative status of the Copyright Office is a priority when future-proofing copyright law.

²⁵² Cf. Kasunic, *supra* note 47, at 323-24 (emphasizing the importance of persuasive explanations by the Copyright Office for *Skidmore* purposes).