UNIVERSITY OF PITTSBURGH LAW REVIEW
Vol. 78 ● Fall 2016

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ISSN 0041-9915 (print) 1942-8405 (online) ● DOI 10.5195/lawreview.2016.427
http://lawreview.law.pitt.edu

EVOLVING CONCEPTIONS OF COPYRIGHT SUBJECT MATTER

Pamela Samuelson*

Copyright is said to "subsist" under U.S. law in "original works of authorship that have been fixed in a tangible medium of expression."[1] The statute enumerates eight categories of works that qualify for protection: literary works, musical works, dramatic works, pantomimes and choreographic works, pictorial, graphic and sculptural works, motion pictures and other audiovisual works, sound recordings, and architectural works.[2] Because the meta-category, "works of authorship," is said to "include" these eight,[3] the enumerated categories would seem to be illustrative, not exhaustive.[4] This suggests that other types of intellectual creations may be eligible for protection as long as they satisfy copyright's originality and fixation requirements. But how far beyond the enumerated categories of works do U.S. copyrights extend?

* Richard M. Sherman Distinguished Professor of Law, Berkeley Law School. For their comments on an earlier version of this article, under its previous title, *Can Gardens, Synthetic DNA, and Yoga Sequences Be Copyrighted?*, I wish to thank Chris Buccafusco, Bob Cooter, Mark Gergen, Bernt Hugenholtz, Justin Hughes, Ariel Katz, Lydia Loren, Jonathan Masur, Mark McKenna, Neil Netanel, David Nimmer, Aaron Perzanowski, Randy Picker, Tony Reese, Jennifer Rothman, Matt Sag, Chris Sprigman, Rebecca Tushnet, and other participants in workshops hosted by the University of Chicago, UCLA, and Berkeley Law Schools as well as participants in the 2012 Intellectual Property Law Scholars conference. James Hicks and Cassandra Havens provided excellent research support for the article.

[1] 17 U.S.C. § 102(a) (2012). For individual works to be copyrighted, they must meet copyright's originality standard and be fixed in a tangible medium. *See also* 17 U.S.C. § 101 (2012) (definition of "fixed"); Feist Pub., Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 346 (1991) (modicum of creativity necessary for a work to be "original").

[2] 17 U.S.C. § 102(a) (2012).

[3] *Id.*

[4] In addition, the definition section of the 1976 Act states that terms such as "including" are "illustrative and not limitative." 17 U.S.C. § 101 (2012).

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Some enterprising individuals have asserted copyright protection in unenumerated subject matters. Consider the following examples:

Chapman Kelley claimed copyright in a garden he designed for Chicago's Grant Park known as "Wildflower Works."[5] After the Chicago Park Department decided to reconfigure and downsize the garden ten years after the initial planting, Kelley filed a lawsuit to challenge the modified garden as a mutilation of his work in violation of the Visual Arts Rights Act ("VARA").[6] An appellate court rejected Kelley's claim, concluding that the garden was not a work of authorship eligible for U.S. copyright protection.[7] Because VARA protection is only available to works of visual art that are themselves eligible for copyright protection,[8] Kelley lost his lawsuit.[9]

Drew Endy is a pioneering researcher in the field of synthetic biology.[10] He and his fellow bioengineers have developed techniques for constructing novel strands of DNA that cause living organisms to behave differently than they would in their natural state.[11] These engineers can also transform the DNA strands from a form in which the DNA can be processed with the aid of a computer, transforming machine-processable forms of DNA into living biological materials.[12] Endy analogizes synthetic biology artifacts to computer programs and believes that they should be as eligible for copyright protection as software is.[13] Copyright may seem desirable to

[5] Kelley v. Chi. Park Dist., 635 F.3d 290, 291 (7th Cir. 2011).

[6] *Id.*, relying on 17 U.S.C. § 106A(a) (2012).

[7] *Kelley*, 635 F.3d at 304. The Seventh Circuit also questioned whether the fixation requirement was satisfied in view of the "inherent[ly] variable" nature of gardens. *Id.* One scholar has taken issue with the Seventh Circuit's analysis of this issue. *See* Roberta R. Kwall, *The Lessons of Living Gardens and Jewish Process Theology for Authorship and Moral Rights*, 14 VAND. J. ENT. & TECH. L. 889, 905–06 (2012).

[8] *Kelley*, 653 F.3d at 298–99.

[9] *Id.* at 308. Kelley asked the U.S. Supreme Court to review this ruling, but the Court declined to grant certiorari. 132 S. Ct. 380 (2011).

[10] *Drew Endy, Associate Professor of Engineering*, STANFORD PROFILES, https://profiles.stanford.edu/drew-endy (last visited Apr. 15, 2016).

[11] Andrew Torrance, *DNA Copyright*, 46 VAL. U. L. REV. 1, 25 (2011).

[12] *Id.* at 6–13, 22–24 (discussing the basics of this technology).

[13] *See, e.g.*, Heidi Ledford, *Bioengineers Look Beyond Patents*, 499 NATURE 16, 16–17 (July 3, 2013), *available at* http://www.nature.com/polopoly_fs/1.13320!/menu/main/topColumns/topLeftColumn/pdf/499016a.pdf; Christopher Holman, *Copyright for Engineered DNA: An Idea Whose Time Has Come?*, 113 W. VA. L. REV. 699 (2011).

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some synthetic biologists because it is easy to obtain, for it attaches automatically by operation of law. Some favor copyright for synthetic DNA to enable synthetic biologists to make their creations available under Creative Commons licenses.[14] One company has tried to register a synthetic biology artifact with the Copyright Office. The Office refused this request and the firm has reportedly appealed.[15]

Bikram Choudhury devised a sequence of twenty-six yoga positions and two breathing exercises some years ago. He wrote books and prepared videos to explain and illustrate the sequence.[16] When some yoga instructors made unauthorized uses of these sequences, Choudhury sought and obtained a copyright registration certificate that he claimed covered the sequence of positions.[17] He had insisted that other instructors can lawfully perform the protected sequence only if they obtained a license from him. Open Source Yoga Unity moved for summary judgment on its claim that sequences of yoga positions are ineligible for copyright protection; however, a federal district court denied its motion.[18]

Various commentators have conjectured that other types of unenumerated subject matters either may or should be eligible for copyright protection, including

[14] This strategy is discussed in Torrance, *supra* note 11, at 39–40.

[15] Ledford, *supra* note 13, at 16–17. *See also* Letter from William J. Roberts, Jr., Copyright Office Review Bd., to Tamsen Barrett (Sept. 5, 2013), *available at* http://ipmall.info/sites/default/files/hosted_resources/CopyrightAppeals/2013/GloFishRedZebraDanioGlowing.pdf (explaining why the Copyright Office had denied registration in a work entitled "GloFish Red Zebra Danio Glowing in Artificial Sunlight" because a genetically engineered fish is not copyrightable subject matter).

[16] *See, e.g.*, BIKRAM CHOUDHURY, BIKRAM'S BEGINNING YOGA CLASS (1981); BIKRAM CHOUDHURY, BIKRAM'S YOGA: THE GURU BEHIND HOT YOGA SHOWS THE WAY TO RADIANT HEALTH AND PERSONAL FULFILLMENT (2007).

[17] Open Source Unity Yoga v. Choudhury, 74 U.S.P.Q.2d (BNA) 1434 (N.D. Cal. 2005) (mentioning the supplemental registration for the sequence).

[18] *Id.* A subsequent case ruled that Choudhury's yoga sequences are uncopyrightable. Bikram's Yoga Coll. of India v. Evolation Yoga LLC, 105 U.S.P.Q.2d (BNA) 1162 (C.D. Cal. 2012), *aff'd*, 803 F.3d 1032 (9th Cir. 2015). *See infra* text accompanying notes 456–77.

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food art,[19] perfume,[20] tattoos,[21] firework displays,[22] jokes,[23] magic tricks,[24] computer programming languages,[25] XML schemas,[26] semiconductor chip designs,[27] TV show formats,[28] and CAD files to print 3D objects.[29]

Almost all of the considerable literature concerning the "works of authorship" concept in U.S. law has focused on the copyrightability of particular types of creations (e.g., gardens or synthetic DNA).[30] There has been no systematic effort to analyze "works of authorship" as a meta-category or to articulate what criteria should

[19] *See, e.g.*, Chris Buccafusco, *On the Legal Consequences of Sauces: Should Thomas Keller's Recipes Be Per Se Copyrightable?*, 24 CARDOZO ARTS & ENT. L.J. 1211 (2007); Lorenzana v. S. Am. Rests. Corp., 799 F.3d 31 (1st Cir. 2015) (affirming denial of copyright claim in chicken sandwich that plaintiff claimed as his original work of authorship).

[20] *See, e.g.*, Charles Cronin, *Genius in a Bottle: Perfume, Copyright, and Human Perception*, 56 J. COPYRIGHT SOC'Y U.S.A. 427 (2009).

[21] *See, e.g.*, Aaron Perzanowski, *Intellectual Property Norms in the Tattoo Industry*, 98 MINN. L. REV. 511 (2013).

[22] The Copyright Office has apparently issued registration certificates also for fireworks displays as choreographic works. *See, e.g.*, Ken Kunkle, *An Oldy But Goody: Copyright and Fireworks*, LEGAL MUSE (Jan. 2009), http://legal-muse.com/ip/copyright/an-oldy-but-goody-copyright-fireworks/. One court has ruled that parades, however, are uncopyrightable subject matter. *See* Production Contractors, Inc. v. WGN Continental Broadcasting, 622 F. Supp. 1500, 1503 (N.D. Ill. 1985).

[23] Dotan Oliar & Christopher Sprigman, *There's No Free Laugh (Anymore): The Emergence of Intellectual Property Norms and the Transformation of Stand-up Comedy*, 94 VA. L. REV. 1789, 1790–92 (2011).

[24] *See, e.g.*, F. Jay Dougherty, *Now You Own It, Now You Don't: Copyright and Related Rights in Magic Productions and Performances*, *in* LAW AND MAGIC 101 (Christine A. Corcos ed., 2010).

[25] *See, e.g.*, Elizabeth G. Lowry, *Copyright Protection for Computer Languages: Creative Incentive or Technological Threat?*, 39 EMORY L.J. 1293 (1990); Pamela Samuelson et al., *Does Copyright Protection Under the EU Software Directive Extend to Computer Program Behaviour, Languages and Interfaces?*, 2012 EUR. INTELL. PROP. REV. 158 (2012).

[26] *See, e.g.*, Trotter Hardy, *The Copyrightability of New Works of Authorship: "XML Schemas" as an Example*, 38 HOUS. L. REV. 855 (2001); Douglas E. Phillips, *XML Schemas and Computer Language Copyright: Filling in the Blanks in Blank Esperanto*, 9 J. INTELL. PROP. L. 63 (2001).

[27] *See infra* Section IV(C)(1).

[28] *See, e.g.*, Stefan Bechtold, *The Fashion of TV Show Formats*, 2013 MICH. ST. L. REV. 451 (2013).

[29] *See, e.g.*, Kyle Dolinsky, *CAD's Cradle: Untangling Copyrightability, Derivative Works, and Fair Use in 3D Printing*, 71 WASH. & LEE L. REV. 591, 627 (2014); James Grimmelmann, *Indistinguishable from Magic: A Wizard's Guide to Copyright and 3D Printing*, 71 WASH. & LEE L. REV. 683 (2014).

[30] *See, e.g.*, Charles Cronin, *Dead on the Vine: Living and Conceptual Art and VARA*, 12 VAND. J. ENT. & TECH. L. 209 (2010); Torrance, *supra* note 11.

ISSN 0041-9915 (print) 1942-8405 (online) ● DOI 10.5195/lawreview.2016.427
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be used to determine whether unenumerated creations should fall within it or be added to the statute.[31] This article seeks to fill that gap.

Part I traces the historical evolution of copyright subject matter rules, mainly concentrating on U.S. law, but with some consideration of copyright subject matter rules elsewhere. Part II reviews some mid-19th to mid-20th century cases that refined the concept of copyright subject matter. Part III discusses the transformation of the U.S. conception of copyright subject matter in the course of the copyright revision process that ultimately led to adoption of the Copyright Act of 1976 ("1976 Act"). Part IV proposes five criteria that courts or policymakers should employ in judging whether unenumerated creations should be eligible for U.S. copyright protection. It posits that limits on copyright subject matter often serve important functions, including retention in the public domain of subject matters that do not require copyright incentives to bring them into existence and maintaining meaningful boundaries between copyright and other forms of intellectual property protection (especially patents). It explores how well gardens, synthetic DNA, and yoga moves, among other creations, fare in light of these criteria.

I. THE EVOLUTION OF STATUTORY SUBJECT MATTER

Copyright subject matter has been conceptualized in two principal ways. Some countries utilize the approach taken in the Berne Convention, which speaks of "literary and artistic works" as the subject matter of copyright.[32] Other countries enumerate specific types of subject matters eligible for copyright protection. England and the United States have been among the jurisdictions that have generally adopted

[31] The closest approximation is R. Anthony Reese, *Copyrightable Subject Matter in the "Next Great Copyright Act,"* 29 BERKELEY TECH. L.J. 1489 (2014), which argues that copyright subject matter should be limited to enumerated categories and offers some principles that Congress should consider in making decisions about whether to add new subject matters to U.S. copyright's domain. Another recent article would construct a broader concept of copyrightable subject matter based on the intent of the creator. *See* Christopher Buccafusco, *A Theory of Copyright Authorship*, 102 VA. L. REV. 1229 (2016). *See generally* KAL RAUSTIALA & CHRISTOPHER SPRIGMAN, THE KNOCKOFF ECONOMY (2012) (exploring ways that creators recoup investments without copyright or other intellectual property protection).

[32] Berne Convention for the Protection of Literary and Artistic Works art. 1, Sept. 28, 1979, S. Treaty Doc. No. 99-27 as last revised at Paris on July 24, 1971, and amended in 1979, S. Treaty Doc. No. 99-27, 828 U.N.T.S. 221 [hereinafter Berne Convention]. The Convention states that this term "shall include every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression," after which it gives a series of examples of such works. *Id.* art. 2(1). *See, e.g.*, Copyright Act 1912, § 1, art. 1 (Neth.) (protection available to authors of literary, scientific and artistic works). Because of the openness of its subject matter provision, Dutch courts have been receptive to claims that perfumes are eligible for copyright protection. *See, e.g.*, Willem Leppink & Michel Veltman, *Netherlands Court Grants Copyright Protection to Perfume Scent*, 1 J. INTELL. PROP. L. & PRAC. 756 (2006).

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the latter approach, although on its face, the 1976 Act would appear to adopt a mixed approach.[33]

Enumerated subject matter has a long history in Anglo-American law. Books were the sole subject matter of the first modern copyright law, the English Statute of Anne of 1710.[34] Entitled "Act to Encourage Learning," it conferred on book authors an exclusive right to print, reprint, publish, and vend their books for a fourteen-year term.[35] The Statute of Anne explained its rationale:

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[33] Copyright, Designs and Patents Act, 1988, c. 1, § 1 (U.K.). *See also id.*, c. 1, §§ 3–6 (defining subject matter terms). One recent article has argued that the UK's enumerated subject matter approach is inconsistent with EU copyright rules. *See* Eleonora Rosati, *Closed Subject-Matter Systems Are No Longer Compatible With EU Copyright Law*, 12 GRUR INT'L 1112 (2014), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2468104. U.S. law is arguably a mixed regime today because of the meta-category of "works of authorship," but in fact, U.S. law has thus far only extended to enumerated subject matters. *See infra* notes 238–55 and accompanying texts.

[34] An Act for the Encouragement of Learning (Statute of Anne), 8 Ann., c. 19 (1710) (Gr. Brit.). Prior to the enactment of this statute, copyright law as such did not exist. There were, however, two ways for English printers or booksellers to obtain exclusive rights to control the market for books. One was to curry favor with a British sovereign and obtain the privilege of a grant of letters patent, that is, open letters issued by the King announcing that the holder had been granted exclusive rights to print and sell certain books or types of books. Letters patent prior to the 18th century were, it should be noted, agnostic as to subject matters. One patent might give rights in a certain book or books; another might cover an invention; a third might confer rights to land; a fourth might recognize the holder as a duke; a fifth might recognize a coat of arms.

The second way to obtain exclusive rights in books was to be a member of the Stationers Company. Members could sign up for exclusive rights to control the market for specific books by registering them with the Company. The Company maintained exclusivity as to these books because of an arrangement with English sovereigns under which only members of the Company were licensed to print books as long as they made sure the books were neither heretical nor seditious. Violations of the licensing rules could result in action before the dreaded Star Chamber. The subject matter of the Stationers' private proto-copyright regime was "copie." This term identified manuscripts in which members of the Company understood themselves to have exclusive rights to print and sell books embodying the copie's contents. Authors had protectable interests only by virtue of their possession of their manuscripts. Printers might have to pay authors to induce them to transfer these manuscripts. But authors were not at the time perceived to have an entitlement to control commerce in books manufactured from their writings. The rights lay instead in the stationer who entered the name of that copie in the Company's register. The Stationers' monopoly in the book trade came to an end in the late 17th century. For thorough treatments of these aspects of copyright's history, *see, e.g.*, L. RAY PATTERSON, COPYRIGHT IN HISTORICAL PERSPECTIVE (1968). *See also* MARK ROSE, AUTHORS AND OWNERS: THE INVENTION OF COPYRIGHT (1995).

[35] Statute of Anne, 8 Ann., c. 19, § 2. These copyrights could be renewed for another fourteen-year term if the author was still living at the end of the first term. Statute of Anne, c. 19, § 11. The Statute of Anne contemplated that authors would transfer their rights to printers or booksellers. Statute of Anne, c. 19, § 2.

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> Whereas Printers, Booksellers, and other Persons, have of late frequently taken the Liberty of Printing, Reprinting, and Publishing, or causing to be Printed, Reprinted, and Published Books, and other Writings, without the Consent of the Authors or Proprietors of such Books and Writings, to their very great Detriment, and too often to the Ruin of them and their Families: For Preventing therefore such Practices for the future, and for the Encouragement of Learned Men to Compose and Write useful Books; May it please Your Majesty, that it may be Enacted . . . .[36]

By its encouragement of learning and of authorship of "useful Books," the Statute of Anne made readers and authors central to achieving copyright's objectives.

Courts interpreted the Statute of Anne's subject matter "books" somewhat flexibly. Printed sheet music, for example, is not a book in the conventional sense of the term; yet, it was held to qualify as a book under British copyright law.[37] Even scientific instruments, whose parts were made of thick paper and bound in books, were for a time deemed protectable by copyright law.[38] The English Parliament added maps, charts, and plans to the statutory subject matter of its copyright law in 1842.[39] Courts generally gave these subject matters a liberal interpretation as well, although some expansive claims were rejected.[40] The English Parliament also enacted several other copyright-like laws to protect other creations, including calico designs and lace patterns, in order to give their creators the right to stop competitive appropriations of the commercial value of these creations in specific industry sectors.[41]

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[36] Statute of Anne, c. 19, § 1.

[37] Bach v. Longman, (1777) 98 Eng. Rep. 1274, 1275 (K.B.). *See also generally* Michael W. Carroll, *The Struggle for Music Copyright*, 57 FLA. L. REV. 907 (2005).

[38] *See, e.g.*, Mario Biagioli, *From Print to Patents: Living on Instruments in Early Modern Europe*, 44 HIST. SCI. 139 (2006).

[39] *See, e.g.*, CATHERINE SEVILLE, LITERARY COPYRIGHT REFORM IN EARLY VICTORIAN ENGLAND 259 (J. H. Baker ed., 1999).

[40] *See, e.g.*, Hollinrake v. Truswell, [1894] 3 Ch. 420 (rejecting copyright in cardboard pattern for making sleeves); Davis v. Comitti, [1885] 52 L.T. 539 (Ch.) (holding the face of a barometer is not copyright subject matter).

[41] *See, e.g.*, An Act for the Encouragement of the Arts of designing and printing Linens, Cottons, Callicoes and Muslins, by vesting the Properties thereof in the Designers, Printers and Proprietors, for a limited time, 27 Geo. 3, c. 38 (1787) (Eng.). For a discussion of this history, *see, e.g.*, Brad Sherman, *What Is a Copyright Work?*, 12.1 THEORETICAL INQUIRIES L. 99, 100 (2011).

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In the early 20th century, the multiplicity of English copyright and copyright-like laws were ultimately consolidated into one law that extended protection to authors of literary, musical, dramatic, and artistic works.[42] This move was inspired in part by Continental European conceptions of authors' rights laws with which British officials became familiar during a series of international conversations about authorial rights leading up to adoption of the Berne Convention for the Protection of Literary and Artistic Works, of which England was a founding member.[43] After conclusion of that treaty in 1886, "literary and artistic works" became the internationally accepted conception of copyright subject matter, although England (later the UK) continued to enumerate subject matters eligible for copyright protection.[44]

During the first century of its existence, the United States was heavily influenced in its conception of copyright law by the Statute of Anne, as is evident from the provision the founders put in the Constitution. It gave Congress the power to enact legislation to grant "exclusive [r]ight[s]" to "[a]uthors" in their "[w]ritings" for "limited times" in order "to promote the [p]rogress of [s]cience."[45] This terse provision contained key elements from the Statute of Anne: the subject matter to be protected, the recognition of authorial interests in their writings, a goal of encouraging learning, the mechanism of a grant of exclusive rights to achieve the goal, and a limit on the duration of rights.[46]

Even more closely modeled on the Statute of Anne was the Copyright Act of 1790 ("1790 Act").[47] It granted, for instance, the same exclusive rights to authors for the same duration as that Statute.[48] Both laws required compliance with formalities, such as registration and deposit of the work.[49] Both laws provided for a civil cause

[42] Sherman, *supra* note 41, at 100–02.

[43] *Id.*

[44] *See supra* note 33 and accompanying text.

[45] U.S. CONST. art. I, § 8, cl. 8.

[46] Similarities between the Statute of Anne and the 1790 Act are discussed at length in Oren Bracha, *The Adventures of the Statute of Anne in the Land of Unlimited Possibilities: The Life of a Legal Transplant*, 25 BERKELEY TECH. L.J. 1427 (2010).

[47] Act of May 31, 1790, ch. 15, 1 Stat. 124 [hereinafter Copyright Act of 1790] (repealed 1802).

[48] Bracha, *supra* note 46, at 1453–56.

[49] *Id.* at 1455.

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of action against infringers who could be enjoined from further wrongs and ordered to pay compensation for past infringements.[50]

One notable difference between the 1790 Act and the Statute of Anne as of 1790 was its somewhat broader subject matter: maps, charts, and books.[51] The U.S. Congress subsequently added numerous new types of subject matters to copyright's domain rather than providing for them separately in new laws, as had been common in England.[52] Engravings, etchings, and prints, for example, were added to the subject matter of U.S. copyright law in 1802, followed by musical compositions in 1831, photographs and negatives in 1865, and paintings, drawings, and statuary, among others, in 1870.[53]

In the early 20th century, Congress passed a substantial revision to U.S. copyright law, the Copyright Act of 1909 (the "1909 Act") under which "the works for which copyright may be secured under this Act shall include all the writings of an author."[54] On its face, this seemed to extend U.S. copyright protection to the fullest array of creations permissible under the U.S. Constitution. Yet, this impression was undercut in the very next section, which required authors to specify into which of the enumerated categories of specific subject matters their works fell.[55]

Notwithstanding the proviso that the enumerated categories "shall not be held to limit the subject-matter of copyright,"[56] the Copyright Office ("Office") expected works to fall into one of the enumerated categories. When they did not, the Office tended to reject the registrations on the ground that the subject matter was ineligible for copyright protection,[57] although the Office occasionally accepted unconventional

[50] *Id.* at 1454–55.

[51] Copyright Act of 1790, ch. 15, § 1.

[52] *See, e.g.*, Oren Bracha, Owning Ideas: A History of Anglo-American Intellectual Property 240–43 (2005) (S.J.D. Dissertation, Harvard Law School), *available at* https://law.utexas.edu/faculty/obracha/dissertation/ (giving examples of trade-specific English copyright laws following the Statute of Anne).

[53] This history is related in *Mazer v. Stein*, 347 U.S. 201, 208–09 (1954). The U.S. copyright law was quite spare during the 19th century. It set forth little besides subject matter and exclusive rights, a limit on duration, and registration, notice, and similar requirements for obtaining protection.

[54] Act of Mar. 4, 1909, ch. 320, § 4, 35 Stat. 1075 (repealed 1976).

[55] *Id.* § 5. The 1909 Act added periodicals, gazetteers, lectures, sermons, and addresses to copyright's subject matter. *Id.*

[56] *Id.*

[57] *See, e.g.*, Brown Instrument Co. v. Warner, 161 F.2d 910 (D.C. Cir. 1947) (upholding refusal to register temperature and pressure recording charts as ineligible subject matter).

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subject matters for registration under its "rule of doubt."[58] Such certificates reflected the Office's skepticism about whether the registered work was actually copyrightable; yet, the rule of doubt certificates gave applicants a chance to persuade courts that the claimed creations actually did qualify for this law's protection.[59]

The Copyright Office was not alone in its desire to fit intellectual creations into the existing categories of statutory copyright subject matters if they possibly could. Courts operated in much the same way. The first lawsuit to recognize copyright in motion pictures, for example, did so by interpreting the category of photographs as broad enough to encompass moving pictures.[60] Soon thereafter, Congress passed legislation adding motion pictures and motion picture photoplays to copyright's subject matter in order to reassure this rising industry that its creations were eligible for protection.[61]

Not until 1971 was another new subject matter, namely, sound recordings, added to the 1909 Act.[62] Although the recording industry had repeatedly asked Congress to extend copyright protection to recordings during the first half of the 20th century, it was not until the mid-1960s that the Copyright Office and Congress became receptive to this proposal.[63] In 1971, the recording industry managed to persuade Congress that it urgently needed federal protection against counterfeiting, and it should not be deprived of this protection during the period in which various controversies that were holding up what became the 1976 Act were resolved.[64]

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[58] In the mid-1960s the Office issued registration certificates under its rule of doubt to computer programs. *See infra* notes 296–304 and accompanying text.

[59] COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 607 (Registration Made Under the Rule of Doubt) (3d ed. 2014) [hereinafter COPYRIGHT COMPENDIUM], *available at* http://copyright.gov/comp3/.

[60] Edison v. Lubin, 122 F. 240 (3d Cir. 1903). For a discussion of the early history of film copyrights, *see, e.g.*, Oren Bracha, *How Did Film Become Property? Copyright and the Early American Film Industry*, *in* 25 COPYRIGHT AND THE CHALLENGE OF THE NEW 141 (Brad Sherman & Leanne Wiseman eds., 2012).

[61] Act of Aug. 24, 1912, ch. 356, 37 Stat. 488.

[62] Sound Recordings Act, Pub. L. No. 92-140, 85 Stat. 391 (1971). Sound recordings made prior to February 15, 1972 were not brought under the new federal law and were left to the states to protect. *See* U.S. COPYRIGHT OFFICE, FEDERAL COPYRIGHT PROTECTION FOR PRE-1972 SOUND RECORDINGS 5 (2011), *available at* http://www.copyright.gov/docs/sound/pre-72-report.pdf [hereinafter PRE-1972 RECORDINGS REPORT].

[63] *See infra* note 269 and accompanying text.

[64] For a fuller account of this history, *see infra* notes 269–94 and accompanying text.

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Before exploring ways in which the statutory conception of copyright subject matter changed in the 1976 Act, this Article reviews several judicial interpretations of copyright subject matter that have profound influences on the contours of U.S. copyright law.

II. THE EVOLUTION OF JUDICIAL PERSPECTIVES ON COPYRIGHT SUBJECT MATTER

Although the U.S. Congress obviously sets the parameters within which conceptions of copyright subject matter can evolve, courts have, from time to time, been called upon to interpret the constitutional power of Congress to enact legislation to protect the "writings" of "authors" and to construe the boundaries of statutorily granted subject matters.[65] Several U.S. court decisions dating from the mid-19th to the mid-20th century grappled with whether certain types of creations were or could be made copyright subject matter.[66] These decisions represent important stages in the evolution of the U.S. understanding about the nature of copyright and subject matters properly lying within that law's domain.

A. Questioning Copyright in Works that Do Not Promote the Progress of Science

In the late 19th and early 20th centuries, some courts interpreted copyright subject matter narrowly on the ground that the works in question did not promote the "progress of science," as the Constitution arguably requires. In *Martinetti v. Maguire*, for instance, a court denied copyright protection to a dramatic composition on the ground that it was obscene and, hence, not a progress-promoting work.[67] In *Stone & McCarrick, Inc. v. Dugan Piano Co.*, another court ruled that false and fraudulent materials were unprotectable by copyright for failure to promote the progress of science.[68] Even without the taint of immorality or illegality, one appellate court questioned the validity of copyrights in commercial advertisements on the

[65] *See, e.g.*, Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 56–58 (1884) (interpreting Congress' authority under the Constitution to include photographs as proper subjects of copyright).

[66] *See infra* Sections II(A)–(D).

[67] 16 F. Cas. 920 (C.C. Cal. 1867) (No. 9,173). A few mid to late 20th century cases have seemingly followed *Martinetti* and similar precedents. *See, e.g.*, Bullard v. Esper, 72 F. Supp. 548 (N.D. Tex. 1947); Devil Films, Inc. v. Nectar Video, 29 F. Supp. 2d 174 (S.D.N.Y. 1998).

[68] 220 F. 837 (5th Cir. 1915).

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ground that these works did not promote the progress of science.[69] The U.S. Supreme Court reversed that ruling, pointing out that the copyright law granted protection to pictorial illustrations and the posters in question fell within this category.[70] Justice Holmes famously quipped that "[a] picture is none the less a picture and none the less a subject of copyright that it is used for an advertisement."[71] Subsequent cases have indicated that the denial of copyright in immoral or false content is an inappropriate strategy for regulating immoral or fraudulent acts.[72]

B. Questioning Copyright in Judicial Rulings and Laws

Several significant 19th century cases involved disputes over claims of copyright in compilations of legal materials, such as judicial opinions. In *Wheaton v. Peters*, the U.S. Supreme Court decided that no claim of copyright could lie in judicial opinions themselves, although a compilation of judicial decisions could be copyrighted if the compiler satisfied copyright's statutory requirements, which Wheaton had apparently failed to do.[73] English precedents supported the proposition that judicial opinions were not protectable by copyright.[74] Later U.S. cases concurred, although pointing out that a compiler of judicial decisions could claim copyright in headnotes, annotations, arrangements, and other original materials contributed to the compilation.[75]

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[69] Courier Lithographing Co. v. Donaldson Lithographing Co., 104 F. 993, 996 (6th Cir. 1900), *rev'd sub nom.* Bleistein v. Donaldson Lithographing Co., 188 U.S. 239 (1903). *Bleistein* is discussed *infra* notes 132–40 and accompanying text.

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

[71] *Bleistein*, 188 U.S. at 251.

[72] *See, e.g.*, Mitchell Bros. Film Group v. Cinema Adult Theatre, 604 F.2d 852 (5th Cir. 1979) (rejecting argument that copyright should be denied to obscene or pornographic materials). *But see* Ann Bartow, *Pornography, Coercion, and Copyright Law 2.0*, 10 VAND. J. ENT. & TECH. L. 101 (2008) (arguing that pornographic works should be ineligible for copyright unless their makers complied with regulations aimed at preventing exploitation that is rampant in that field); *see also* Belcher v. Tarbox, 486 F.2d 1087 (9th Cir. 1973) (rejecting defense that plaintiff's copyrighted works were un-protectable because fraudulent).

[73] 33 U.S. 591, 668 (1834) ("It may be proper to remark that the court are unanimously of opinion, that no reporter has or can have any copyright in the written opinions delivered by this court; and that the judges thereof cannot confer on any reporter any such right."). *Wheaton* famously repudiated the plaintiff's claim that he had a perpetual common law right in his books. *Id.* at 657.

[74] *See* Callaghan v. Myers, 128 U.S. 617, 650 (1888) (citing cases).

[75] *Id.* at 659–60.

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The judicial opinions at issue in *Wheaton* were U.S. Supreme Court decisions.[76] The question of whether judicial opinions of a state court should be treated differently, particularly when a state legislature had passed a law authorizing the official compiler to take copyright in them, came before the U.S. Supreme Court in *Banks v. Manchester*.[77] The Court ruled that all judicial opinions were unprotectable by copyright law and offered this rationale in support of its conclusion:

> [T]here has always been a judicial *consensus* . . . that no copyright could under the statutes passed by Congress, be secured in the products of the labor done by judicial officers in the discharge of their judicial duties. The whole work done by the judges constitutes the authentic exposition and interpretation of the law, which, binding every citizen, is free for publication to all, whether it is a declaration of unwritten law, or an interpretation of a constitution or a statute.[78]

Other rulings made clear that laws, constitutions, regulations, and other official edicts of governments are not protectable by copyright law.[79] The Copyright Office continues to support these exclusions from copyright protection.[80]

C. Questioning Copyright in Useful Arts

Whether copyright could protect designs of useful articles was first addressed in *Drury v. Ewing*.[81] The court described Drury as the "authoress" and "inventress" of certain dress patterns that she claimed were copyrightable as "charts."[82] She sued Ewing because he was selling dress patterns that were substantially similar to hers.[83] In the first round of litigation, Ewing did not challenge the validity of her copyright,

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[76] *Wheaton*, 33 U.S. at 593.

[77] 128 U.S. 244, 250 (1888).

[78] *Id.* at 253–54 (citing Nash v. Lathrop, 142 Mass. 29, 35 (1886)).

[79] *See, e.g.*, Veeck v. S. Bldg. Code Cong. Int'l, Inc., 293 F.3d 791 (5th Cir. 2002) (holding a privately drafted building code un-protectable by copyright law once enacted as law in ordinances in Texas towns); Davidson v. Wheelock, 27 F. 61 (C.C.D. Minn. 1866) (rejecting claims of copyright in state constitution and laws). For a thorough discussion of copyright issues posed by legislative and judicial documents, *see, e.g.*, L. Ray Patterson & Craig Joyce, *Monopolizing the Law: The Scope of Copyright Protection for Law Reports and Statutory Compilations*, 36 UCLA L. REV. 719 (1989).

[80] COPYRIGHT COMPENDIUM, *supra* note 59, § 313.6(C)(2) (Government Edicts).

[81] Drury v. Ewing, 7 F. Cas. 1113 (C.C.S.D. Ohio 1862) (No. 4095).

[82] *Id.* at 1113.

[83] *Id.*

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and Drury prevailed with her claim of infringement.[84] Ewing then redesigned his patterns so they would look more different than hers.[85] Yet Drury took him back to court, alleging that he had violated the injunction forbidding him to make dress patterns that were substantially similar to hers.[86]

Faced with the prospect of being held in contempt, Ewing challenged the validity of her copyright, as well as claiming that his patterns were substantially different in appearance.[87] The court upheld the copyright and found Ewing's revised patterns to be infringing because dressmakers testified that Ewing's patterns produced the same result as Drury's.[88] The court also regarded Ewing as an infringer because he used "the same principle" as Drury and copied "essential parts of [her] system."[89] The 1879 Drone treatise on copyright law cited approvingly to *Drury*,[90] even though the decision evinced a confused understanding of copyright subject matter and scope.

A decade after *Drury*, Charles Selden's widow brought a lawsuit against W.C.M. Baker for infringing the copyright she claimed in her husband's bookkeeping system.[91] She relied on *Drury* in support of her claim.[92] There were no actionable similarities in the explanatory material in the Selden and Baker books.[93] Mrs. Selden claimed infringement because the forms in Baker's book were substantially similar to the forms in Selden's book.[94] She believed that Baker had

[84] *Id.*

[85] *Id.* at 1114.

[86] *Id.*

[87] *Id.*

[88] *Id.* at 1117.

[89] *Id.*

[90] EATON S. DRONE, A TREATISE ON THE LAW OF PROPERTY IN INTELLECTUAL PRODUCTION IN GREAT BRITAIN AND THE UNITED STATES 406 (1879).

[91] For a discussion of Selden's widow's claim of copyright in the bookkeeping system embodied in Selden's book, see Pamela Samuelson, *The Story of* Baker v. Selden*: Sharpening the Distinction Between Authorship and Invention*, *in* INTELLECTUAL PROPERTY STORIES 159, 163–68 (Rochelle C. Dreyfuss & Jane C. Ginsburg eds., 2005) [hereinafter *Baker Story*].

[92] *Id.* at 175.

[93] *Id.* at 176.

[94] *Id.* at 163.

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copied the Selden system and made only a few minor changes.[95] The "principle" was "the same" in both sets of bookkeeping forms, or so said one of Selden's witnesses.[96] Selden prevailed on her claim in the district court.[97]

Baker appealed to the Supreme Court making two basic arguments: first, that Selden's system was not copyrightable, and second, that his forms were different enough from Selden's so as not to infringe.[98] The first argument prevailed.[99] A turning point in the case seems to have been a reference in the preface to Selden's book to a patent he had sought for his novel bookkeeping system so he could stop others from making "indiscriminate use" of it.[100] Justice Bradley, the author of the Court's opinion in *Baker* and the Court's foremost expert on patent law issues, regarded this as quite significant.[101]

The key question in *Baker* was "whether the exclusive property in a system of bookkeeping can be claimed, under the law of copyright, by means of a book in which that system is explained."[102] The Court harbored no doubt that a book on the subject of bookkeeping could be copyrighted, and it recognized that such a work might be "a very valuable acquisition to the practical knowledge of the community."[103] But the Court perceived "a clear distinction between the book, as such, and the [useful] art which it is intended to illustrate."[104]

No one would doubt a claim of copyright in a treatise "on the composition and use of medicines, be they old or new; on the construction and use of ploughs or watches or churns; or on the mode of drawing lines to produce the effect of perspective," but neither would anyone seriously "contend that the copyright of the treatise would give the exclusive right to the art or manufacture described therein."[105]

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[95] *Id.* at 164.

[96] *Id.*

[97] *Id.* at 165–66.

[98] *Id.* at 173–74.

[99] *Id.* at 175–80.

[100] *Id.* at 161.

[101] *Id.* at 175.

[102] Baker v. Selden, 101 U.S. 99, 101 (1879).

[103] *Id.* at 102.

[104] *Id.*

[105] *Id.*

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The Court was clear that "[t]o give the author of a book an exclusive property in the art described therein would be a surprise and fraud upon the public. That is the province of letters patent, not of copyright."[106] Exclusive rights to inventions can only be obtained by subjecting one's claims to Patent Office examination and otherwise satisfying patent law's more rigorous requirements.[107]

While "no one has a right to print or publish [Selden's] book, or any material part thereof, as a book intended to convey instruction in the art, any person may practice and use the art itself which he has described and illustrated therein."[108] The Court opined that "[t]he copyright of a book on bookkeeping cannot secure the exclusive right to make, sell and use account books prepared upon the plan set forth in such a book."[109] Because Selden's system was not patented, it was "open and free to the use of the public,"[110] as were the ruled lines and headings that implemented the system.[111]

Baker has a reputation as a classic statement of the idea/expression distinction.[112] It is more accurate to conceive of *Baker* as a case about copyright subject matter because Mrs. Selden claimed copyright in her late husband's *system*, not just in his books. By repudiating this claim and the reasoning in *Drury*, *Baker v. Selden* fundamentally transformed the U.S. conception of copyrightable subject matter.[113] Under the influence of *Baker*, courts have rejected claims of copyright in useful arts (e.g., temperature recording charts).[114] They have also interpreted the scope of copyright in works depicting useful arts narrowly (e.g., copyrights in

[106] *Id.*

[107] *Id.*

[108] *Id.* at 104.

[109] *Id.*

[110] *Id.*

[111] *Id.* at 104–05.

[112] *See, e.g.*, Mazer v. Stein, 347 U.S. 201, 217 (1954) (citing *Baker* as an idea/expression case).

[113] *See* 17 U.S.C. § 102(b) (2012); *see also* Pamela Samuelson, *Why Copyright Law Excludes Systems and Processes From the Scope of Its Protection*, 85 TEX. L. REV. 1921, 1928–36 (2007) (analyzing *Baker* and its ruling with regard to § 102(b)).

[114] *See, e.g.*, Brown Instrument Co. v. Warner, 161 F.2d 910 (D.C. Cir. 1947) (upholding Copyright Office rejection of charts for recording data as uncopyrightable subject matter).

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drawings do not confer exclusive rights in functional designs depicted therein).[115] Both rules are now codified in the 1976 Act.[116]

Baker may even be considered a constitutional subject matter case because it relied upon a constitutionally informed distinction between the patent and copyright regimes.[117] The decision sharpened the distinction between authors of explanatory materials protected by copyrights and inventors of useful arts who must look to the patent system to get exclusive rights to control exploitations of their creations.

D. Originality Overcomes Some Subject Matter Challenges

Four years after *Baker*, the Supreme Court considered a constitutional challenge to Congress' power to extend copyright protection to a new subject matter in *Burrow-Giles Lithographic Co. v. Sarony*.[118] Sarony claimed copyright in a photograph of Oscar Wilde set in Sarony's studio.[119] Taking advantage of its popularity, Burrow-Giles made lithographic copies of the photograph and sold them in competition with Sarony.[120] Burrow-Giles sought to avoid liability by claiming that Congress lacked the power under the Constitution to extend copyright protection to photographs in 1865.[121] Photographs were, in its view, not "writings" of "authors" within the meaning of the Constitution.[122] They were merely mechanical depictions of a subject as that subject appeared in the world.[123]

The Court acknowledged that "[t]he constitutional question is not free from difficulty."[124] Yet it ultimately concluded that photographs could be "writings"

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[115] *See, e.g.*, Fulmer v. United States, 103 F. Supp. 1021 (Ct. Cl. 1952) (holding that parachute design not within scope of copyright in drawing).

[116] 17 U.S.C. § 101 (2012) (definitions of "pictorial, graphic, and sculptural works" and of "useful article"); 17 U.S.C. § 113(b) (2012). These limiting rules are explained in *Baker Story*, *supra* note 91, at 181–82.

[117] *Baker*, 101 U.S. at 102–03.

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

[119] *Id.* at 54.

[120] *Id.*

[121] *Id.* at 55.

[122] *Id.* at 56.

[123] The copyrightability of photographs was controversial not only in the United States, but also in the international arena in the late 19th century. *See, e.g.*, Justin Hughes, *The Photographer's Copyright: Photograph as Art, Photograph as Database*, 25 HARV. J. L. & TECH. 339, 341–42 (2012).

[124] *Burrow-Giles*, 111 U.S. at 56.

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within the meaning of the Constitution for two principal reasons. The Court first focused on similarities between photographs and engravings, etchings, and prints which had been added to the subject matter of copyright in 1802 "by the men who were contemporary with [the nation's] formation, many of whom were members of the convention which framed it."[125] The inclusion of subject matters so similar to photographs and so close to the nation's founding "is entitled to very great weight."[126] The Court noted that "the rights thus established have not been disputed during a period of nearly a century," which made the inference that Congress' power to add new subject matters akin to etchings "almost conclusive."[127]

A second point was that photographs, like engravings and etchings, were the means by which "the ideas in the mind of the author are given visible expression."[128] Copyright in an engraving or photograph is constitutionally acceptable as long as it "embod[ies] the intellectual conception of its author."[129] The Court recognized that some photographs might well be "the mere mechanical reproduction of the physical features or outlines of some object, animate or inanimate," and lack originality.[130] There was, however, ample originality in Sarony's selection and arrangement of "the costumes, draperies, and other various accessories in said photograph, arranging the subject so as to present graceful outlines, arranging and disposing the light and shade, [and] suggesting and evoking the desired expression."[131] And so Burrow-Giles' constitutional challenge to photographs as copyright subject matter failed.

Originality was also important in overcoming a subject matter challenge in *Bleistein v. Donaldson Lithographing Co*.[132] Donaldson designed a set of posters to advertise a circus.[133] Bleistein sold copies of the posters in competition with

[125] *Id.* at 57.

[126] *Id.*

[127] *Id.*

[128] *Id.* at 58.

[129] *Id.* at 58–59.

[130] *Id.* at 59.

[131] *Id.* at 60.

[132] Bleistein v. Donaldson Lithographing Co., 188 U.S. 239 (1903). *See also* Diane Lenheer Zimmerman, *The Story of* Bleistein v. Donaldson Lithographing Co.*: Originality as a Vehicle for Copyright Inclusivity, in* INTELLECTUAL PROPERTY STORIES, *supra* note 91.

[133] *Bleistein*, 188 U.S. at 242.

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Donaldson, who then sued for infringement.[134] The statute then in force allowed protection for "pictorial illustrations or works connected with the fine arts."[135] The Sixth Circuit regarded "connected with the fine arts" as qualifying the scope of "pictorial illustrations."[136] Since the circus poster was not "connected with the fine arts," the Sixth Circuit ruled that it was ineligible for copyright protection.[137]

Justice Holmes, for the Court, observed that Donaldson's ballet poster was "as legitimate a subject for illustration as any other."[138] Holmes went on to say that "[a] rule cannot be laid down that would excommunicate the paintings of Degas" and that "[i]t would be a dangerous undertaking for persons trained only in the law to constitute themselves final judges of the worth of pictorial illustrations, outside of the narrowest and most obvious limits."[139]

Like the Court in *Burrow-Giles*, the Court in *Bleistein* resolved the copyrightability challenge by pointing to the originality of the works at issue. Although the posters were not connected with fine arts, they were original in a copyright sense. "[T]hey command the interest of the public," said the Court, "they have a commercial value—it would be bold to say they have not an aesthetic and educational value—and the taste of the public is not to be treated with contempt."[140]

Fifty-one years after *Bleistein*, the Court once again considered a subject matter challenge in *Mazer v. Stein*.[141] Stein manufactured lamps, one of which featured a representation of a Balinese dancer in a sexy pose as its base.[142] Stein registered a statuette of the dancer with the Copyright Office, claiming it as "a work of art."[143] Stein sold a few stand-alone statuettes, but mainly commercialized the dancer design

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[134] *Id.* at 248.

[135] Bleistein v. Donaldson Lithographing Co., 98 F. 608, 608–09 (D. Ky. 1899), *aff'd sub nom*. Courier Lithographing Co. v. Donaldson Lithographing Co., 104 F. 993 (6th Cir. 1900), *rev'd sub nom*. Bleistein v. Donaldson Lithographing Co., 188 U.S. 239 (1903).

[136] *Courier*, 104 F. at 996.

[137] *Id.* at 996–97. As noted in *supra* note 69, the court also thought the poster was not proper copyright subject matter because it did not promote the progress of science.

[138] *Bleistein*, 188 U.S. at 251.

[139] *Id.*

[140] *Id.* at 252.

[141] 347 U.S. 201 (1954).

[142] *Id.* at 202.

[143] *Id.*

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through sales of lamps.[144] Mazer copied the dancer lamp base, and Stein sued for infringement.[145] Mazer claimed that the lamp base was ineligible for copyright protection because it was not "a work of art," as the statute required, and because Stein should have sought a design patent if he wanted to obtain intellectual property protection for this ornamental design for an article of manufacture.[146]

The Court in *Mazer*, as in *Bleistein*, rejected the defendant's attack on the plaintiff's copyright. Under the 1909 Act, there was no longer a "fine art" limitation on copyright subject matter, which meant that "[v]erbal distinctions between purely aesthetic articles and useful works of art ended insofar as statutory language is concerned."[147] The Court pointed to the Copyright Office policy of accepting registration for works of applied art, such as jewelry and ashtrays, which the Office distinguished from industrial designs, which remained ineligible for protection in keeping with *Baker*.[148] The potential availability of design patent protection for this lamp base did not disqualify Stein's statuette from copyright protection.[149] Because the lamp did not work any better as a lamp for having this statuette as its lamp base, the Court saw no problem with copyrighting it. The Court in *Mazer* considered the "work of art" category as sufficiently elastic to encompass ornamental designs for mass-produced lamp bases in keeping with the aesthetic non-discrimination principle announced in *Bleistein*.[150]

III. A LEGISLATIVE HISTORY OF COPYRIGHT SUBJECT MATTER PROVISIONS OF THE 1976 ACT

As the Copyright Office commenced a comprehensive revision of U.S. copyright law in the 1950s, reform of the 1909 Act's subject matter provisions was high on its agenda.[151] Six of the thirty-four studies the Office commissioned to

[144] *Id.* at 203.

[145] *Id.*

[146] *Id.* at 204–06.

[147] *Id.* at 211.

[148] *Id.* at 212–13.

[149] *Id.* at 215–17.

[150] *Id.* at 213–14.

[151] The Register also wanted to refine the statutory subject matter rules to make explicit that compilations and derivative works had to be "original" to be eligible for copyright protection, which had been unclear under the 1909 Act. *See* H. COMM. ON THE JUDICIARY, 87TH CONG., COPYRIGHT LAW REVISION: REPORT OF THE REGISTER OF COPYRIGHTS ON THE GENERAL REVISION OF THE U.S. COPYRIGHT LAW 9 (Comm.

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inform the revision effort were devoted to subject matter issues: sound recordings,[152] architecture,[153] choreography,[154] unpublished works,[155] government publications,[156] and the meaning of "writings" under the Constitution.[157] By 1976, sound recordings, choreography, and unpublished works had become copyright subject matter, although architecture and U.S. government works had not.[158]

Print 1961) [hereinafter REGISTER'S 1961 REPORT], *available at* http://copyright.gov/history/1961_registers_report.pdf; H. COMM. ON THE JUDICIARY, 89TH CONG., COPYRIGHT LAW REVISION PART 6: SUPPLEMENTARY REPORT OF THE REGISTER OF COPYRIGHTS ON THE GENERAL REVISION OF THE U.S. COPYRIGHT LAW: 1965 REVISION BILL 7 (Comm. Print 1965) [hereinafter REGISTER'S SUPPLEMENTARY REPORT].

[152] Barbara A. Ringer, Study No. 26, The Unauthorized Duplication of Sound Recordings, *in* Copyright Law Revision: Studies Prepared for the Subcomm. on Patents, Trademarks, and Copyrights of the Sen. Comm. on the Judiciary, pursuant to S. Res. 240, Studies 26–28, 86th Cong., 2d Sess. (Comm. Print 1961), [hereinafter Sound Recording Study], *available at* http://copyright.gov/history/studies/study26.pdf.

[153] William S. Strauss, Study No. 27, Copyright in Architectural Works, *in* Copyright Law Revision: Studies Prepared for the Subcomm. on Patents, Trademarks, and Copyrights of the Sen. Comm. on the Judiciary, pursuant to S. Res. 240, Studies 26-28, 86th Cong., 2d Sess. (Comm. Print 1961) *available at* http://copyright.gov/history/studies/study27.pdf.

[154] Borge Varmer, Study No. 28, Copyright in Choreographic Works, *in* Copyright Law Revision: Studies Prepared for the Subcomm. on Patents, Trademarks, and Copyrights of the Sen. Comm. on the Judiciary, pursuant to S. Res. 240, Studies 26-28, 86th Cong., 2d Sess. (Comm. Print 1961), *available at* http://copyright.gov/history/studies/study28.pdf.

[155] William S. Strauss, Study No. 29, Protection of Unpublished Works, *in* Copyright Law Revision: Studies Prepared for the Subcomm. on Patents, Trademarks, and Copyrights of the Sen. Comm. on the Judiciary, pursuant to S. Res. 240, Studies 29–31, 86th Cong., 2d Sess. (Comm. Print 1961) [hereinafter Unpublished Works Study], *available at* http://copyright.gov/history/studies/study29.pdf.

[156] Caruthers Berger, Study No. 33, Copyright in Government Publications, *in* Copyright Law Revision: Studies Prepared for the Subcomm. on Patents, Trademarks, and Copyrights of the Sen. Comm. on the Judiciary, pursuant to S. Res. 240, Studies 32–34, 86th Cong., 2d Sess. (Comm. Print 1961), *available at* http://copyright.gov/history/studies/study33.pdf.

[157] Staff, N.Y. Univ. Law Review Under the Guidance of Prof. Walter Derenberg, Study No. 3, The Meaning of "Writings" in the Copyright Clause of the Constitution, *in* Copyright Law Revision: Studies Prepared for the Subcomm. on Patents, Trademarks, and Copyrights of the Sen. Comm. on the Judiciary, pursuant to S. Res. 240, Studies 1–4, 86th Cong., 1st Sess. (Comm. Print 1960), [hereinafter Writings Study], *available at* http://www.copyright.gov/history/studies/study3.pdf.

[158] Architectural works eventually became copyright subject matter in 1990 to satisfy the minimum standards to comply with Berne Convention requirements. *See infra* note 238 and accompanying text. U.S. government works were initially excluded from copyright protection under the Printing Act of 1895, but not until the 1976 Act was this exclusion formalized in U.S. copyright law. Copyright Act of 1976, Pub. L. 94-553, § 105, 90 Stat. 2541, 2546 (codified at 17 U.S.C. § 105 (2012)). The exclusion of judicial opinions and government edicts is not codified in the 1976 Act, but is articulated in the COPYRIGHT COMPENDIUM, *supra* note 59, § 313.6(C) (Government Works).

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The Writings Study addressed constitutional questions that had arisen about whether Congress had the power to adopt a copyright-like sui generis (of its own kind) law to protect industrial designs or to extend copyright protection to sound recordings.[159]

A. Copyright-Like Protection for Industrial Designs?

In the aftermath of *Mazer*, the Register proposed that copyright law should protect original "pictorial, graphic, and sculptural" (PGS) works, even if embodied in useful articles.[160] No longer would courts have to struggle to decide whether a work was or was not "art," as the 1909 and 1870 Acts had seemed to require.[161]

The Register was sympathetic to the idea that original industrial designs should have some legal protection,[162] but both practical and competition policy considerations cautioned against using copyright for this purpose.[163] The Register favored instead the creation of a sui generis regime that would provide a short term of copyright-like protection to these designs,[164] as was commonly provided in European countries.[165]

Some doubted the desirability of industrial design protection,[166] and some questioned whether Congress had the power to extend copyright or copyright-like protection to industrial designs in which functionality was intermixed with aesthetic

[159] REGISTER'S 1961 REPORT, *supra* note 151, at 12–13, 17–18. This report recommended that sound recordings be protected against unauthorized duplication, but did not recommend copyright, saying there was a need for further study of the issue. *Id.* at 18.

[160] *Id.* at 12–13.

[161] This simplified copyright subject matter by collapsing into one category what had been six separate subject matter categories in the 1909 Act, Pub. L. No. 60-349, § 5(f)–(k), 35 Stat. 1075 (repealed 1976).

[162] For a detailed history of design protection, *see, e.g.*, J.H. Reichman, *Design Protection in Domestic and Foreign Copyright Law: From the Berne Revision of 1948 to the Copyright Act of 1976*, 1983 DUKE L.J. 1143 (1983).

[163] Practical considerations included the burden of having useful articles deposited with the Office in connection with registration. REGISTER'S 1961 REPORT, *supra* note 151, at 13. The Register also thought the copyright duration of protection would be too long. *Id.*

[164] *Id.* at 13–15.

[165] Reichman, *supra* note 162, at 1173.

[166] *Id.* at 1149–51.

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elements.[167] Two Justices in *Mazer* had, for example, questioned whether original designs of "book-ends, clocks, lamps, door knockers, candlesticks, inkstands, chandeliers, piggy banks, sundials, salt and pepper shakers, fish bowls, casseroles, and ash trays" were or could be "writings" of "authors" under the Constitution.[168]

The constitutional doubt arose because industrial designs were seemingly among the "useful arts" that Congress had made eligible for design and utility patent protection.[169] The Constitution distinguishes between "writings" of "authors" (which Congress can protect with copyrights) and "discoveries" of "inventors" (which Congress can protect with patents).[170] The Constitution seems to contemplate that writings and useful discoveries belong in separate legal domains, particularly given that it speaks of "*respective* writings and discoveries" of authors and inventors.[171]

Although the Supreme Court in *Mazer* observed that just because something was patentable did not mean it could not also be copyrightable,[172] this dicta has been met with mixed reactions.[173] Some overlap between copyright and design patent subject matters existed, as witnessed by *Mazer*, but that was because of the ornamentality requirement for design patent protection. However, copyright

[167] *Id.* at 1148 (discussing the Copyright Office policy of consigning ornamental designs of useful articles to the design patent regime prior to 1948).

[168] Mazer v. Stein, 347 U.S. 201, 221 (1954) (Douglas, J., separate opinion). Justices Douglas and Black would have set the *Mazer* case down for reargument so the Court could address this broader question. *Id.* at 221.

[169] 35 U.S.C. §§ 101, 171.

[170] U.S. CONST., art. I, § 8, cl. 8.

[171] The enabling clause of the Constitution has often been interpreted as empowering Congress to enact copyright laws to promote the progress of science (knowledge) by granting authors exclusive rights in their writings, and to enact patent laws to promote the progress of useful arts by granting inventors exclusive rights in their discoveries. It has been thought significant that this clause speaks of "their *respective* writings and discoveries" (emphasis added) *id.*, which seems to suggest that writings of authors and discoveries of inventors are separate domains. As the Court in *Baker* recognized, the modest originality standard of copyright law, providing a long term of protection, contrasts sharply with the higher creativity standards of patent law, which has a much shorter duration of protection. The temptation to claim copyright to avoid the rigors of the patent application process is quite strong. *See, e.g.*, Reichman, note 162, at 1167–68.

[172] *Mazer*, 347 U.S. at 217.

[173] *See, e.g.*, 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 2.19 (expressing approval for overlap); Pamela Samuelson, *Functionality and Expression in Computer Programs: Refining the Tests for Software Copyright Infringement*, 22 BERKELEY TECH. L.J., Part V (forthcoming 2016) (discussing categorical exclusivity of utility patent and copyright subject matters).

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protection for purely functional designs that fall within the scope of utility patent subject matter seems difficult to square with *Baker*.

While no one in the 1960s expected the United States to adopt the French "unity of art" conception that swept original industrial designs into copyright's domain, there was growing interest in creating a copyright-like shorter duration form of legal protection for industrial designs.[174] Because such an industrial design law would require "originality," instead of novelty and non-obviousness, and would protect only against copying, the law would need to be justified as a "writing" of an "author" under the Constitution. But did Congress have the power to do this? The Writings Study concluded that it did.[175]

B. Sound Recordings as Copyright Subject Matter?

As the Register geared up for a general revision of U.S. copyright law, it was inevitable that the sound recording industry would once again press for copyright protection, as it had done repeatedly since 1909.[176] Among the reasons that Congress had rebuffed this industry's pleas for copyright protection was because of some lingering questions about whether sound recordings could be "writings" of "authors" within the meaning of the Constitution.[177]

Sound recordings were not wholly without legal protection. State courts had extended protection to recordings under common law copyright, unfair competition and misappropriation doctrines.[178] California was one of several states that had criminalized record piracy.[179] However, the industry wanted broader and better protection than a patchwork of state law protections provided. There was a sense of

[174] Reichman, *supra* note 162, at 1238 n.501.

[175] *See infra* notes 193–98 and accompanying text.

[176] Sound Recording Study, *supra* note 152, at 21–37.

[177] *See, e.g.*, ARTHUR W. WEIL, AMERICAN COPYRIGHT LAW 60–65 (1917) (questioning the constitutionality of extending copyright protections to sound recordings). Sound Recording Study, *supra* note 152, at 47–48 (acknowledging the constitutional questions).

[178] A recent Copyright Office report provides extensive information about state law protections for sound recordings. *See* PRE-1972 RECORDINGS REPORT, *supra* note 62, at 20–49.

[179] U.S. Copyright Office, Survey of State Criminal Laws, *available at* http://www.copyright.gov/docs/sound/20111212_survey_state_criminal_laws_ARL_CO_v2.pdf#page=2.

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urgency about federal protection because by the early 1950s and certainly in the 1960s, the recording industry was facing a huge surge of counterfeiting.[180]

Doubts about sound recordings as "writings" of "authors" arose mainly because of the Supreme Court's decision in *White-Smith Music Pub. Co. v. Apollo Co*.[181] White-Smith, a music publisher, sued Apollo for copyright infringement because Apollo made and sold perforated rolls for player pianos that could render its musical compositions audible to listeners.[182] After losing at the trial and appellate court level, White-Smith appealed to the Supreme Court and lost there as well.[183]

The Court perceived several problems with White-Smith's infringement claim. The Court believed that "musical compositions" were protectable as writings:

> A musical composition is an intellectual creation which first exists in the mind of the composer; he may play it for the first time upon an instrument. It is not susceptible of being copied until it has been put in a form which others can see and read. The statute has not provided for the protection of the intellectual conception apart from the thing produced, however meritorious such conception may be, but has provided for the making and filing of a tangible thing, against the publication and duplication of which it is the purpose of the statute to protect the composer.[184]

Also problematic was the fact that it was impossible to "read" piano rolls the way one could read sheet music.[185] If the sheet music constituted the copyrighted work and its text could be read, then it seemed logical that a "copy" of the composition

[180] PRE-1972 RECORDINGS REPORT, *supra* note 62, at 10–13.

[181] 209 U.S. 1 (1907). The Supreme Court's *Burrow-Giles* decision spoke of copyright for photographs as constitutionally viable because the photograph gave "visible expression" to ideas in the mind of the photographer. *Burrow-Giles*, 111 U.S. 53, 58 (1884).

[182] *White-Smith*, 209 U.S. at 8–9.

[183] Justice Holmes concurred with the judgment but further opined that "[o]n principle anything that mechanically reproduces that collocation of sounds ought to be held a copy." *Id.* at 20 (Holmes, J., concurring specially).

[184] *Id.* at 17.

[185] *Id.*

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had to be readable as well.[186] The unreadability of piano rolls undercut the claim that they were infringing copies.[187]

A further problem arose from the fact that piano rolls were parts of machines:

> These perforated rolls are parts of a machine which, when duly applied and properly operated in connection with the mechanism to which they are adapted, produce musical tones in harmonious combination. But we cannot think that they are copies within the meaning of the copyright act.[188]

Finally, there was concern that a ruling that piano rolls infringed music copyrights would mean that music boxes and similar contrivances would infringe.[189] The Court did not believe that Congress had meant to give copyright owners such broad rights over machines and machine parts, especially given that the performances of piano roll music typically happened in the privacy of the piano player's home, and private performances were then (as now) beyond the reach of copyright owners.[190]

The specific issue posed in *White-Smith* was whether the piano rolls infringed music copyrights. However, the conception of copyright subject matter in *White-Smith* implied that copyright protection was and should be available only to subject matters that could be directly viewed by humans without the aid of a machine. One can read books and sheet music, and one can look at paintings, sculptures, etchings, and photographs. Copyrighted works, in this conception, were literary and artistic works that appealed to the eye. Public performances of musical compositions and dramatic plays might infringe exclusive rights granted by copyright law, but it was the writing embodying the music or the play's dialogue that copyright protected from such exploitations. *White-Smith* implied that sound recordings were among the

[186] *Id.*

[187] *Id.* at 17–18.

[188] *Id.* at 18.

[189] *Id.* at 17–18.

[190] *Id.* at 17.

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subject matters that could not be "writings" of "authors" because they were parts of machines whose contents could not be read or otherwise viewed by humans.[191]

There was a further question about who might be the "author" of sound recordings. The musician-performers might be artists, but recordings were fixed in tangible form by engineers whose contributions to the work were more technical than "original" in a copyright sense. The Register of Copyrights had previously expressed serious reservations about treating sound recordings as copyright subject matter because of misfits between recordings and conventional rules of the copyright regime.[192]

C. Conclusions of the Writings Study

Constitutional questions about industrial designs and sound recordings needed resolution before Congress could decide whether to add these creations to the subject matter of U.S. copyright law. Although computer programs were not in contemplation as copyright subject matter when the Writings Study was underway, the study would come to have significance for expanding copyright protection to them as well.

The Writings Study concluded that the drafters of the U.S. Constitution had not intended to limit congressional power to grant copyright protection to only certain types of intellectual creations.[193] Congress had the power under the Constitution to designate whatever it wanted as a "writing" of an "author" and to protect those intellectual products through this law.[194] The study found plausible that the constitutional clause "was intended to protect all intellectual property capable of extensive reproduction."[195] Also plausible was Congress' ability to designate an intellectual creation as a copyrightable "writing" as long as this would "promote the progress of Science and useful Arts."[196] The study further concluded that Article I, § 8, cl. 8 allowed Congress to protect "the commercial value of the productive effort

[191] By the mid-1950s, some courts opined that Congress could extend copyright protection to sound recordings, although relying on legislative history, they concluded that Congress had not yet done so. *See, e.g.*, Capitol Records, Inc. v. Mercury Records Corp., 221 F.2d 657, 660–61 (2d Cir. 1955).

[192] REGISTER'S SUPPLEMENTARY REPORT, *supra* note 151, at 50–51.

[193] Writings Study, *supra* note 157, at 72.

[194] *Id.* at 71–72.

[195] *Id.*

[196] *Id.*

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of the individual's mind."[197] In effect, the Writings Study perceived no constitutional impediment to a vast expansion of copyright subject matter to virtually any creation under the sun, if Congress so chose.[198]

Because of its broad conception of constitutional authority to expand copyright's scope, the Writings Study dismissed constitutional questions about copyright protection for sound recordings.[199] It noted that Congress had legislatively overturned the *White-Smith* ruling, which had given rise to those questions, by giving composers of music the rights to control (or at least be compensated for) mechanical reproductions of their works.[200] While the Copyright Office had steadfastly refused to register sound recordings, this had not been due to constitutional objections.[201] If Congress wanted to extend protection to sound recordings, it could do so.

The Writings Study did not directly address the industrial design protection issue. It mentioned *Baker v. Selden* for the proposition that ideas were unprotectable by copyright law, rather than as a potential limitation on using copyright law to protect innovations lying in the domain of patentable useful arts.[202] Yet the study indirectly endorsed copyright protection for industrial designs by criticizing judicial decisions that had denied protection to dress designs copied from copyrighted drawings, calling the decisions "indefensible today,"[203] even though they were logical applications of *Baker*'s holding.[204] Similarly criticized was a decision, relying on *Baker*, that found no infringement when a city built a bridge approach utilizing a design from a copyrighted drawing.[205] The study regarded the bridge approach as a "copying in the media of concrete" of the copyrighted drawing.[206]

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[197] *Id.* at 71.

[198] The Writings Study did not perceive the need for a fixation requirement either. *Id.* at 77.

[199] *Id.* at 101–03.

[200] *Id.*

[201] *Id.* at 75, 101.

[202] *Id.* at 103–04.

[203] *Id.* at 106.

[204] *Baker Story*, *supra* note 91, at 182–83.

[205] The case in question was *Muller v. Triborough Bridge Authority*, 43 F. Supp. 298 (S.D.N.Y. 1942). *Muller* remains a sound precedent under the 1976 Act owing to the codification of the *Baker*-inspired rule that copyrights in drawings does not extend to the useful designs depicted therein in 17 U.S.C. § 113(b).

[206] Writings Study, *supra* note 157, at 106.

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The study was overall much stronger in its assurances that Congress had the power to do whatever it wanted under Article I, § 8, cl. 8, than authoritative in its citations of sources to back up those assurances. The study did not attempt to establish criteria that Congress should use when making decisions about whether to extend copyright protection to new subject matters, although it did caution against a completely open-ended copyright subject matter provision.[207]

D. Copyright Subject Matter in the 1976 Act

The Register of Copyrights was sufficiently reassured by the Writings Study that his report recommended adding sound recordings to the copyright subject matter provision of the copyright revision bill.[208] No longer would works have to be "readable" or "viewable" with the naked eye to be copyrightable.[209] The work would need only to be "fixed" in a tangible medium "from which [the works] can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."[210] To ensure that the subject matter provision was forward-looking, the drafters emphasized that the tangible medium requirement encompassed not only those "now known," but also those that might be "later developed."[211]

Under the new subject matter provision, pictures and statuettes would no longer have to be "works of art" to qualify for copyright. Any PGS work, including works of applied art or artistic craftsmanship, would be eligible for protection, although not all designs of useful articles.[212] In late stages of the legislative process, the useful article limitation on protection of PGS works was sharpened so that any intermixture of functionality and aesthetics would exclude such works from copyright protection.[213]

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[207] *Id.* at 108 ("Congress should specifically enumerate the subjects it desires to cover and not project itself too far into the future.").

[208] REGISTER'S SUPPLEMENTARY REPORT, *supra* note 151, at 4–5. *See* H.R. 4347, S. 1006, 89th Cong. § 102 (1st Sess. 1965) [hereinafter 1965 Bill]. Under the 1976 Act, this provision is codified at 17 U.S.C. § 102(a) (2012).

[209] 1965 Bill, *supra* note 208, § 102.

[210] *Id.* Until the 1976 Act, fixation had not been an explicit requirement because the artifactual nature of copyright subject matters (e.g., books) meant this implicit requirement for copyrightability was already satisfied.

[211] *Id.*

[212] *Id. See also* REGISTER'S SUPPLEMENTARY REPORT, *supra* note 151, at 44–49.

[213] The statute now defines "useful article" as "an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information." 17 U.S.C. § 101 (2012). The

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The Copyright Office separately supported a short-term copyright-like design regime to protect original industrial designs.[214] The hope was that this new IP right would prevent industrial designers from trying to stretch the concept of applied art to get copyright protection.[215] Although design patents were available to protect designs for articles of manufacture, design patents were expensive to get and more vulnerable than copyrights to invalidation for insufficient creativity.[216] The overwhelming majority of litigated design patents in the 1960s and 1970s were struck down by the courts.[217] The Register's design bill was designated Title II of the consolidated copyright revision bills and passed the Senate five times.[218] It was struck from the copyright legislative package during the final conference to reconcile the House and Senate versions of the 1976 Act because of opposition from the U.S. Department of Justice and some major industry groups.[219]

Among the other notable things about the 1976 Act subject matter provision was its clarification that compilations and derivative works were protectable as long as the compiler or adapter had contributed originality to the compilation and derivative work.[220] This rectified the omission of originality as a requirement for these creations in the 1909 Act. To dispel confusion in older case law about the scope of protection available to compilations and derivative works, the revised bill

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definition of PGS works indicates that such works are protectable "only if, and only to the extent that, such design incorporates pictorial, graphic, or sculptural features that can be identified separately from, and are capable of existing independently of, the utilitarian aspects of the article." *Id.* The legislative history makes clear that these provisions, read together, are intended to exclude original designs for articles of manufacture, such as television sets, cars, and furniture. H.R. REP. NO. 94-1476, at 54–55 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5667–68. The evolution of these provisions is given extensive treatment in Reichman, *supra* note 162.

[214] Reichman, *supra* note 162, at 1188–89 (discussing features of S. 2075).

[215] *Id.* at 1173–76.

[216] *Id.* at 1189–90.

[217] *Id.* at 1223–24.

[218] *Id.* at 1239, 1262.

[219] *Id.* at 1251 n.577, 1262–63 n.644. The DOJ reportedly thought there was no need for industrial design protection. The industrial design bill later formed the basis of the Semiconductor Chip Protection Act of 1984, discussed *infra* notes 361–406 and accompanying text.

[220] 1965 Bill, *supra* note 208, § 101 (definitions of "derivative work" and "compilation"). Under the 1976 Act, these definitions are codified at 17 U.S.C. § 101 (2012). The evolution of the derivative work right is explored in detail in Pamela Samuelson, *The Quest for a Sound Conception of Copyright's Derivative Work Right*, 101 GEO. L.J. 1505, 1511–17 (2013).

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indicated that a copyright in these works would extend only to the original material added by that work's author and not to any expression or other elements in the pre-existing works from which compilers or derivative work authors might have drawn or been based.[221]

Second, choreographic works were newly recognized as protectable by copyright.[222] The main obstacle to copyrighting dances under previous U.S. copyright laws had been the lack of a standard system of notation in which to record dance movements so that they could count as "writings" of an author.[223] When dances had a dramatic character, they had occasionally been protected as dramatic compositions.[224] But not all dances had such a character, so sometimes they were deemed outside copyright law.[225] Because dances are one of the oldest forms of human expression and many other countries protected them,[226] it probably seemed fitting to the drafters of the U.S. copyright revision bills to extend protection to these works.

A third and much more significant development in the revision bill's conception of copyright subject matter was the extension of federal protection to unpublished works.[227] Until the 1976 Act, copyright protection was available upon publication of copies of a protected work as long as its author complied with formalities such as placing notice of copyright claims on copies of the work.[228] This implicitly meant that copyright had a disclosure function comparable to that of patent

[221] 1965 Bill, *supra* note 208, § 103. Under the 1976 Act, this provision is codified at 17 U.S.C. § 103 (2012).

[222] 1965 Bill, *supra* note 208, § 102. Pantomimes also became copyright subject matter, *id.*, but of course, only if they were fixed in a tangible medium. Pantomimes and choreographic works are codified at 17 U.S.C. § 102(a) (2012).

[223] Choreographic Works Study, *supra* note 154, at 93, 102–03.

[224] *Id.* at 94–95.

[225] *Id.*

[226] *Id.* at 93, 98–99.

[227] The 1976 Act provides that copyright subsists in original works of authorship fixed in a tangible medium. 17 U.S.C. § 102(a) (2012). *See* Unpublished Works Study, *supra* note 155 (discussing copyright and unpublished works).

[228] Copyright Act of 1909, Pub. L. 60-349, § 9, 35 Stat. 1075, 1077 (repealed 1976).

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law.[229] That is, it was not necessary for copyright law to require that authors disclose the intellectual content in their creations, as in patent law, because published works of authorship automatically disclosed their contents to the public. In this way, U.S. copyright law promoted the progress of science by limiting its protection to those authors who shared the knowledge embedded in their works with the public.

Under the 1976 Act, federal protection now attached upon fixation in a tangible medium. In effect, the law shifted away from implicitly requiring or at least assuming disclosure of intellectual contents as a condition of federal copyright law to allowing copyright protection for merely producing works, whether or not their contents were ever shared with the public. As a consequence, it became possible under the 1976 Act to claim both federal copyright and state trade secret protection in the same work, which under previous statutes had been impossible.[230] This may have seemed inconsequential in 1976, as most commercially significant copyrighted works continued to disclose their contents. But with the advent of copyright protection for computer program object code, it became possible to commercially disseminate millions of copies of protected works, the text of which was unreadable by humans.[231]

Fourth, under the influence of European conceptions of copyright subject matter,[232] the copyright revision bills shifted away from artifact-specific subject matters (e.g., books) to more abstract conceptions of them (e.g., literary works, a

[229] I discussed this disclosure function at length in Pamela Samuelson, *CONTU Revisited: The Case Against Copyright Protection for Machine-Executable Forms of Computer Programs*, 1984 DUKE L.J. 663 (1984) [hereinafter Samuelson, *CONTU Revisited*].

[230] Protecting unpublished works under federal copyright law had two principal advantages. First, it avoided litigation about whether a work that had been disclosed for limited purposes was regulated by state common law copyright or federal law. Second, it brought the United States into closer conformity with the copyright norms of other countries and the Berne Convention for the Protection of Literary and Artistic Works, which some U.S. copyright industry groups in the 1970s foresaw the United States would eventually want to join. *See, e.g.*, Jessica Litman, *Copyright Legislation and Technological Change*, 68 OR. L. REV. 275, 279 (1989) (describing industry efforts leading to U.S. adherence to the Berne Convention).

[231] This became significant when software developers were sued for infringement for making copies of other firm's programs to reverse engineer the code to get access to trade secret information necessary to develop an interoperable program. *See, e.g.*, Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510, 1514 (9th Cir. 1992) (describing circumstances of case and ruling that copying for this purpose was fair use).

[232] The 1976 Act moved in the direction of conforming U.S. law more closely to the European model (e.g., providing automatic protection from the moment of creation which would last the life of the author plus 50 (now 70) years) in anticipation of its eventual accession to the Berne Convention in 1989.

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term defined broadly enough to encompass far more than just works of literature).[233] This cut copyright subject matters loose from the specific media to which they had been tethered in the past. Although "books on tape" describes audio tapes of book contents, the common understanding of the term "books" connotes printed artifacts. The "literary works" concept took a more medium-agnostic conception of this type of work.

Fifth, by creating the meta-category of "works of authorship" as the subject matter of the 1976 Act, Congress adopted a unifying principle for U.S. copyright subject matter.[234] Despite the cryptic reference to "writings of authors" in the 1909 Act, U.S. copyright law in actuality only protected the specific artifacts listed in the statute.[235] There was no overarching theme that tied those categories together; with the 1976 Act, now there was. The "works of authorship" concept may also have contributed to unifying the conception of "original expression" as the focal point of copyright protection in eligible works.

Sixth, the "works of authorship" concept of the 1976 Act enabled some flexibility to be built into copyright subject matter. It became possible to argue that if a specific creation did not fall within an enumerated category, it might nonetheless qualify for copyright protection as long as the person claiming to be its author could persuade a decision-maker—whether the Copyright Office or the courts—that it was a work of authorship within the meaning of the statute.

There is some indication in the legislative history of the 1976 Act that Congress wanted its subject matter provision to be somewhat flexible to accommodate new types of works that might arise in the future without the need for statutory amendments.[236] However, there are also indications that Congress did not intend for

[233] 17 U.S.C. § 101 (2012) (definition of "literary work").

[234] *See, e.g.*, Sherman, *supra* note 41, at 101–02 (discussing the unifying character of the term "work" to describe copyright subject matter).

[235] Writings Study, *supra* note 157, at 75.

[236] H.R. REP. NO. 94-1476, at 51, *reprinted in* 1976 U.S.C.C.A.N. 5659, 5667–68 ("Authors are continually finding new ways of expressing themselves, but it is impossible to foresee the forms that these new expressive methods will take. The bill does not intend either to freeze the scope of copyrightable technology or to allow unlimited expansion into areas completely outside the present congressional intent. Section 102 implies neither that that subject matter is unlimited nor that new forms of expression within that general area of subject matter would necessarily be unprotected.").

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"works of authorship" to be an expansive open door to copyright protection for unenumerated subject matters.[237]

E. Copyright Subject Matter Since 1976

In the nearly forty years since Congress passed the 1976 Act, the only types of creations that became recognized as copyright subject matter were those added by Congress: computer programs in 1980 and architectural works in 1990.[238] Despite the ingenious arguments of numerous commentators,[239] the "works of authorship" meta-category has not come to be understood as having more than a potential for significance beyond the enumerated categories.

The "works of authorship" meta-category has not evolved to encompass new subject matters in part because the Copyright Office has served as a subject matter gatekeeper. The Office sometimes declines to register copyright claims on subject matter grounds.[240] Its compendium of registration practices lists numerous categories of ineligible subject matters.[241] The Office sometimes also issues registration certificates under its so-called "rule of doubt"—that is, the Office has reasonable doubts whether the work qualifies for protection, but will leave it to the courts to make a final decision about copyrightability.[242] When claimants have contested the Office's refusal to register, the Office has defended its decision in court.[243] The

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[237] *See generally* Registration of Claims to Copyright, 77 Fed. Reg. 37605, 37606–07 (June 22, 2012) (to be codified at 37 C.F.R. pt. 201) [hereinafter Copyright Policy Statement].

[238] Act of Dec. 12, 1980, Pub. L. No. 96-517, § 117, 94 Stat. 3015, 3028; Act of Dec. 1, 1990, Pub. L. No. 101-650, §§ 701–704, 104 Stat. 5089, 5133. Although Title 17 of the U.S. Code now provides sui generis laws for several types of subject matter, these provisions are not part of the U.S. copyright law.

[239] *See supra* notes 19–29 and accompanying text.

[240] COPYRIGHT COMPENDIUM, *supra* note 59, § 1702 (Registration Refused After Examination). *See also supra* note 15 and accompanying text (discussing the Office's refusal to register genetically engineered fish). The Office will also not register a claim to a work unless it was created by a human author. COPYRIGHT COMPENDIUM, *supra* note 59, § 608 (Refusal to Register). The Office recently refused to register a "selfie" photograph taken by a monkey. Bill Chappell, *Who Owns a Monkey's Selfie? No One Can, U.S. Says*, NPR (Aug. 22, 2014), http://www.npr.org/sections/thetwo-way/2014/08/22/342419651/who-owns-a-monkey-sselfie-no-one-can-u-s-says. It also refused to register Cindy Garcia's claim of copyright in her performance in a controversial video whose maker had misrepresented how she would be depicted. Garcia v. Google, 786 F.3d 733, 740 (9th Cir. 2015).

[241] COPYRIGHT COMPENDIUM, *supra* note 59, § 313 (Uncopyrightable Material).

[242] *Id.* § 108.07.

[243] *See, e.g.*, Eltra Corp. v. Ringer, 579 F.2d 294 (4th Cir. 1978); Brown Instrument Co. v. Warner, 161 F.2d 910 (D.C. Cir. 1947).

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Office has occasionally filed amicus curiae briefs in cases in which overbroad subject matter claims are being made.[244] In a recent policy statement, the Office has taken the position that neither it nor the courts have authority to import new subject matters into the copyright regime;[245] that is a task for Congress.

A second reason why unenumerated subject matters have not entered copyright's domain as "works of authorship" is that the 1976 Act defines enumerated subject matter categories broadly enough so that many unforeseeable creations made possible by advances in technology have generally fit quite comfortably within the 1976 Act categories. Videogames and virtual reality creations, for instance, were not in contemplation in the mid-1960s when the subject matter categories now in the 1976 Act were fixed. However, videogames fit well in the categories of literary works, when conceived as computer programs, and audiovisual works, when conceived as "a series of related images which are intrinsically intended to be shown by the use of machines . . . together with accompanying sounds."[246] Virtual reality creations can be similarly subsumed in the audiovisual work or pictorial work categories.

Professor Reese has recently articulated several sound reasons why copyright subject matter should be confined to enumerated creations. Extending copyright protection to new subject matters, he observes, "implicates policy questions best resolved by Congress."[247] When presiding over litigation about unlicensed copying of a commercially valuable creation, courts may be tempted to extend protection on a reap-whereof-not-sown rationale, even though recognition of the right to control copying through a court ruling will have ramifications far beyond the contest between two disputants.[248] Congress is better situated to consider the impact that extending copyright protection to new subject matters will have.

In the halls of Congress, Reese argues, the focus should primarily be "on whether copyright protection is needed in order to encourage greater production of dissemination of such subject matter—or rather, whether any need for copyright

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[244] *See, e.g.*, Brief Amicus Curiae of the U.S. in Support of Defendant-Appellee IntercontinentalExchange, Inc., N.Y. Mercantile Exch., Inc. v. IntercontinentalExchange, Inc., 497 F.3d 109 (2d Cir. 2007) (No. 05-5585-cv), 2006 WL 5516201.

[245] Copyright Policy Statement, *supra* note 237, at 37,607.

[246] 17 U.S.C. § 101 (2012) (definition of "audiovisual work").

[247] Reese, *supra* note 31, at 1502.

[248] *Id.*

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protection outweighs any costs that such protection would impose."[249] Those likely to be affected by an extension of protection should have an opportunity to inform members of Congress about impacts that the proposed extension would have on them and the industry sectors they represent. To respond to those concerns, Congress can tailor copyright rules applicable to that subject matter.[250]

Reese also raised notice and retroactivity concerns.[251] If a court decides that a certain copied creation, say, perfume, is a "work of authorship" under the 1976 Act, this would come as a surprise to many makers of perfumes. As a result, some perfumers would start worrying that they too might be sued, while others would unexpectedly acquire a new weapon to challenge cheap knockoffs of their scents. The various commercial establishments that sell perfumes would also be surprised, as they would suddenly be strictly liable for infringement if a court found the perfume they were selling to infringe another's copyrighted perfume. Congress, unlike the courts, could give fair notice about a proposed extension of protection and set a date after which copying would be prohibited, avoiding disruptions in the marketplace and retroactivity problems.[252]

Limiting copyright subject matter to enumerated categories is sound because special tailoring is often needed to adapt copyright law in an appropriate manner to new subject matters.[253] It is telling that Congress enacted special exceptions for computer programs and architectural works to authorize legitimate uses that would otherwise have been vulnerable to infringement claims. For computer programs, Congress created a special exception providing that it was lawful not only to make copies essential to the utilization of the software, but also to adapt programs to enable usability (e.g., fixing bugs or making changes to integrate with other software) and to make backup copies.[254] For architectural works, Congress created an exception to allow members of the public to depict or photograph publicly visible architectural

[249] *Id.*

[250] After hearings about the proposal to extend copyright protection to architectural works, the definition of this term was refined so that it would not include the design of "'interstate highway bridges, cloverleafs, canals, dams, and pedestrian walkways.'" *Id.* at 1503–04 (quoting from legislative history).

[251] *Id.* at 1504–08.

[252] *Id.* at 1507.

[253] *Id.* at 1504–11.

[254] 17 U.S.C. § 117(a) (2012).

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works as well as to enable owners of buildings embodying architectural works to renovate them.[255]

IV. WHEN SHOULD NEW SUBJECT MATTERS BE ADMITTED TO THE COPYRIGHT DOMAIN?

Congress seems to have broad, even if not perhaps unlimited, authority under Article I, § 8, cl. 8 of the U.S. Constitution to extend copyright protection to a wide variety of unenumerated creations.[256] The Supreme Court has taken an expansive view of congressional authority by upholding two significant incursions on the public domain in *Eldred v. Ashcroft* and *Golan v. Holder*.[257] This Part suggests some criteria that Congress should use in determining whether to extend copyright subject matter to new categories of creations.

Copyright is such a powerful tool that Congress should be wary of extending it to serve as a general misappropriation regime under which any second comer who copies anyone else's products can challenge that copying, distributing of copies, and the making of derivative products.[258] By providing a powerful set of exclusive rights to qualifying creators automatically by operation of law that will typically last nearly (and sometimes more than) 100 years, copyright cuts off competition and opportunities for innovating freely on top of existing works. This limitation on competition and innovation may be justifiable for some types of intellectual creations, but it may impose significant deadweight losses when applied to other types of intellectual creations, such as original designs for articles of manufacture that compete in the general products marketplace. When consumers are attracted to products less because of their aesthetic or literary character and more because of

[255] *Id.* § 120.

[256] The Court has recognized the existence of some constitutional limits on Congress' power to enact copyright laws. In *Feist Publications, Inc. v. Rural Telephone Service Co.*, the Court emphasized that the creativity-based originality standard for copyrightability is a constitutional requirement. 499 U.S. 340, 346 (1991). In *Golan v. Holder*, 132 S. Ct. 873, 890–91 (2012), and *Eldred v. Ashcroft*, 537 U.S. 186, 219–20 (2003), the Court indicated that the idea/expression distinction and the fair use limits on copyright are necessary to ensure copyright is consistent with the First Amendment.

[257] *See, e.g.*, *Golan*, 132 S. Ct. at 878 (upholding constitutionality of the restoration of foreign copyrights); *Eldred*, 537 U.S. at 187 (2003) (upholding the constitutionality of copyright term extensions, deferring to Congress about copyright).

[258] *See, e.g.*, NAT'L COMM'N ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT 26–27 (1978) [hereinafter CONTU REPORT] (Nimmer concurrence expressing concern about copyright becoming a general misappropriation statute).

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other characteristics, such as the products' functionality, extension of copyright protection may prove harmful to social welfare, rather than beneficial.

There may, moreover, be other mechanisms besides copyright through which innovators can recoup their investments in these creations. Some of these mechanisms may be other forms of intellectual property protection, such as patents, trademarks, and trade secrets. Creators can often recoup investments because of their unique skills or talents that others cannot easily imitate, such as first mover advantages, complementary products and services, customization to customer needs, and other sources of funding.[259]

Section A identifies five criteria that Congress should consider when faced with deciding whether unenumerated intellectual creations should be eligible for treatment as "original works of authorship." Section B revisits Congress' extension of copyright protection to sound recordings and computer programs instead of a sui generis regime, which might have been more appropriate. Section C discusses some sui generis regimes that Congress has adopted to protect certain industrial designs matters rather than incorporating them into copyright. Section D considers other mechanisms through which creators can either protect their works (e.g., trade secrets, trademark, or patent protection) or recoup investments outside the formal intellectual property regime (e.g., through norms, services, or customization).

A. Criteria for Assessing the Suitability of Copyright for Unenumerated Works

The Writings Study provided no guidance on what criteria should be used to assess whether copyright protection should be available to particular types of intellectual creations. It suggested that Congress could under the Constitution protect whatever it wanted as "writings" of "authors" including all intellectual creations capable of extensive reproduction.[260] Even if the Writings Study was correct in its analysis of the constitutional powers of Congress, it obviously would not behoove Congress to act to the fullest extent of its powers.[261] Some intellectual creations are in greater need of protection than others, and some are better fits for the copyright

[259] *See, e.g.*, Pamela Samuelson, *The Uneasy Case for Software Copyrights Revisited*, 79 GEO. WASH. L. REV. 1746, 1780–81 (2011) [hereinafter Samuelson, *Uneasy Case*] (discussing modes other than copyright through which software entrepreneurs perceive they can attain a competitive advantage).

[260] Writings Study, *supra* note 157, at 71–72. *See supra* notes 193–98 (discussing the conclusions of the Writings Study).

[261] Reese, *supra* note 31, at 1521–25.

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regime than others. This section sets forth five criteria that Congress should use in making determinations about whether to extend copyright to as yet unenumerated subject matters.

1. Economic Criterion

Empirical evidence should exist that copyright or copyright-like protection is needed to induce investment in works of that kind.[262] U.S. copyright law has long been understood to be grounded on a utilitarian rationale: without a grant of exclusive rights, creators may under-produce literary and artistic works from which the public would benefit.[263] Typically these works are far more expensive to produce than they are to copy, and a grant of exclusive rights may be necessary to induce creators to invest in the creation of protected works and enjoy whatever success the product achieves in the marketplace. Also typical of copyright economics is a recoupment strategy by which the costs of initial creation are recovered through sales of multiple copies of identical products to consumers or through public performances that appeal to a broad public.[264] Conventional copyright economics also takes into account how difficult it typically is to predict in advance which works will appeal to the public and become "hits." Often, those who commercialize copyright products will suffer losses from some investments that they hope can be recouped when one or more products become hits.

2. Legal Fit Criterion

A second criterion is how well the legal regime that copyright provides matches up with the needs of those who create the proposed subject matter. This includes the appropriateness of copyright's exclusive rights, the duration of rights, infringement standards, and copyright remedies, as well as copyright doctrines, such as the idea/expression distinction, the *scènes à faire* and merger doctrines, fair use and first sale, and other exceptions and limitations. Often proponents of an expansion in copyright subject matter focus on a subset of the features of copyright's legal regime, while ignoring respects in which a mismatch exists.[265] While special rules can

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[262] Former Congressman Robert Kastenmeier and one of his former staffers have articulated a set of principled criteria for determining whether to adopt sui generis protection for new subject matters. *See* Robert W. Kastenmeier & Michael J. Remington, *The Semiconductor Chip Protection Act of 1984: A Swamp or Firm Ground?*, 70 MINN. L. REV. 417, 440–42 (1985).

[263] *See, e.g.*, WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 11 (2009).

[264] *Id.* at 37–41 (explaining the basic economic model for the creation and distribution of expressive works).

[265] *See, e.g.*, JESSICA LITMAN, DIGITAL COPYRIGHT 89–96 (2006) (discussing attempts by copyright owners to expand rights over digital works).

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sometimes be developed to adjust the fit in copyright law, the legal regime fit should be an important criterion in judging whether subject matter expansion is a sound idea.

3. New or Changed Circumstances Criterion

A third criterion would consider whether the proposed subject matter is a newly developed type of creation or an existing type of creation that now needs copyright owing to changed circumstances. For new types of creations, it is possible that the Copyright Office in the future might interpret "works of authorship" broadly enough to incorporate them into the statute without statutory reform, or the Office might conduct a study and recommend that Congress amend the copyright law to include them.

As for subject matters long in existence, these might not necessarily be precluded from being added to the enumerated categories of works of authorship. It would, however, require empirical evidence of changed circumstances that make the case for copyright protection stronger.[266] Given the modest standard of originality in copyright law, it should matter also how easy it will be to draw boundary lines that would differentiate between subsets that arguably need copyright protection and those that do not.[267]

4. Authorship Criterion

A fourth criterion focuses on how similar or different the creators of the unenumerated subject matters are, the creative processes used to bring works into existence, and the nature of the creative artifacts produced by those processes as compared with conventional authors and authorship processes and artifacts. The more similar these creators are to authors of conventional literary and artistic works, the more similar are the creative processes and artifacts produced thereby. Thus, the more likely it is that an extension of copyright protection to an unconventional subject matter will prove to be socially beneficial. Conversely, the greater the mismatch in these respects, the more likely it is that an extension of copyright to new subject matters will cause distortions or result in misapplications that will undermine the integrity of the copyright regime.

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[266] *See, e.g.*, Caroline Reebs, *Sweet or Sour: Extending Copyright Protection to Food Art*, 22 DEPAUL J. ART, TECH., & INTELL. PROP. L. 41, 49 (2011).

[267] Thomas Keller may be a food artist, see Buccafusco, *supra* note 19, but if the law extends protection to food art, McDonalds may gain copyright protection for Chicken McNuggets and that would not necessarily be a good thing.

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5. Human Communication Criterion

A fifth criterion that should be considered in judging whether an intellectual creation should become a copyright-eligible work of authorship is whether it communicates intellectual content (that is, original expression) to a human audience as conventional categories of copyrighted works do.[268] Writings convey meaning—whether thoughts, ideas, facts, images, or appearances—to human audiences, which is how and why they promote the progress of science (that is, knowledge, broadly construed, and culture). While this Article lists this criterion last, it may well be the most important factor to consider in making judgments about whether unenumerated intellectual creations should become "works of authorship" under the 1976 Act.

B. Copyright or Sui Generis Protection?

Many countries have adopted sui generis forms of IP protection for intellectual products that did not readily fit within the Berne meta-category of literary and artistic works or the enumerated categories under U.S. copyright law. In two instances, the United States has chosen to extend copyright protection to unconventional subject matters—sound recordings and computer programs—when a sui generis option might have been more suitable. Applying the criteria set forth in Section A might not have predicted the copyright outcome. The U.S conception of copyright subject matter has evolved as this law has taken in new types of creations. A review of the reasons for these inclusions into copyright may offer lessons for future policymaking on copyright subject matter.

1. Sound Recordings

In the first half of the 20th century, it was far from obvious that U.S. copyright law would ever extend copyright protection to sound recordings. For one thing, this industry had been pleading with Congress for copyright protection for decades, and Congress had never been persuaded to grant it.[269] Second, in the early 1960s, the Register expressed reservations about copyright for sound recordings.[270] Third, some copyright industry groups—most notably composers, music publishers, and the

[268] For a discussion of the importance of human communication, *see, e.g.*, Abraham Drassinower, *Authorship as Public Address: On The Specificity of Copyright vis-à-vis Patent and Trade-Mark*, 2008 MICH. ST. L. REV. 199, and Russ VerSteeg, *Defining "Author" for Purposes of Copyright*, 45 AM. U. L. REV. 1323, 1335, 1365 (1996).

[269] PRE-1972 RECORDINGS REPORT, *supra* note 62, at 8–9.

[270] REGISTER'S 1961 REPORT, *supra* note 151, at 18.

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broadcast industry—were actively opposed to sound recording copyrights.[271] Fourth, most other countries were choosing to enact sui generis forms of protection for sound recordings (typically known as "neighboring rights" or "related rights").[272]

The economic criterion for granting some type of intellectual property protection to sound recordings, even if not copyright, was quite strong. Recordings were, back then, fairly expensive to produce and distribute, but cheap to copy and sell to members of the public.[273] The costs of producing and distributing sound recordings could be recouped if the music was "a hit" through the sales of multiple copies, as is common for copyright industries. Counterfeiting of exact copies of sound recordings plagued the industry and diminished sales of legitimate copies.[274]

European policymakers decided that sound recordings were not "works of authorship" for which copyright protection was or should be available.[275] Sound recordings were, in the European conception, neither "literary" nor "artistic" works. They were products of "entrepreneurial skills in an aesthetic field," not of authorial acts.[276] The makers of sound recordings were, moreover, typically corporations, not individual creators. Sound recordings were perceived as products created in component parts by authors, arrangers, artists, producers, and sound engineers.[277] Thus, for Europeans, the authorship criterion for copyright was not satisfied.

European policymakers, however, did not object to granting the recording industry some intellectual property protection to induce investment in the making and distribution of records, but they perceived that shorter terms of protection than copyright provided were appropriate to enable recoupment of these investments.[278]

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[271] Sound Recording Study, *supra* note 152, at 25–27, 29.

[272] *Id.* at 30; PRE-1972 RECORDINGS REPORT, *supra* note 62, at 18.

[273] *See, e.g.*, Johnson Okpaluba, *The Phonogram: A Tale of Vested Interests and Seized Opportunities*, *in* COPYRIGHT AND THE CHALLENGE OF THE NEW, *supra* note 60, at 77.

[274] PRE-1972 RECORDINGS REPORT, *supra* note 62, at 10–11.

[275] *See* Herman Cohen Jehoram, *The Nature of Neighboring Rights of Performing Artists, Phonogram Producers and Broadcasting Organizations*, 15 COLUM.-VLA J.L. & ARTS 75, 75–76 (1990).

[276] *Id.* at 87.

[277] GILLIAN DAVIES & HANS HUGO VON RAUSCHER AUF WEEG, CHALLENGES TO COPYRIGHT AND RELATED RIGHTS IN THE EUROPEAN COMMUNITY 19 (1983).

[278] Europeans also grant IP protection to performers in their performances and used related rights laws to protect broadcasts from signal piracy. *See, e.g.*, Tyler Ochoa, *Limits on Duration of Copyright: Theories and Practice* 166, *in* TIME: LIMITS AND CONSTRAINTS (Jo Alyson Parker et al., eds. 2010). The United

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The legal fit criterion for Europeans was thus another factor cutting against copyright.

The use of related rights laws to protect European sound recordings was understandable given the European commitment to the "natural right of authors" conception of copyright. Because U.S. law is more utilitarian in its conception of copyright, this factor was not significant in the sound recording debate about copyrights in the United States.

The U.S.-based skepticism toward sound recording copyrights initially focused more on the unreadability of sound recordings, emphasized in *White-Smith*, which bears on the human communication criterion for copyright subject matter.[279] Long-playing records were no more readable by ordinary humans than perforated piano rolls had been. How could sound recordings promote the progress of science if these works could neither be read nor viewed? Copyright had never protected as "writings" works whose expression was not readable.[280]

This difficulty was overcome in the 1976 Act through statutory language that allowed for protection for original works of authorship fixed in a tangible medium from which the works could be rendered either directly or with the aid of a machine.[281] The copyrightable expression in these works lay not in the ridges and grooves of the LPs, but in the musical rendition or performance users could experience when the records were played on a machine. This meant that the human communication of expression criterion could be satisfied.

A European-like related rights approach to IP protection for sound recordings was never seriously considered in the United States. However, the idea of sui generis protection was a new idea for the United States in the 1960s, when its recording industry's pleas for protection were at a fever pitch. The Constitution was understood to give Congress power to grant exclusive rights to authors for their writings and to grant inventors exclusive rights in their technological innovations, but not power to enact other kinds of IP rules. Although Congress had enacted special IP laws to grant rights to creators of ornamental designs for articles of manufacture and certain

States uses copyright to protect broadcast programming, but does not recognize rights in performances as such. *See* 17 U.S.C. §§ 111, 119, 122 (2012).

[279] PRE-1972 RECORDINGS REPORT, *supra* note 62, at 8.

[280] *See* Christopher Buccafusco, *Making Sense of Intellectual Property Law*, 97 CORNELL L. REV. 501, 512–13 (2012).

[281] 17 U.S.C. § 102 (2012).

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asexually reproducing plants, both laws required invention for these useful art creations to qualify for protection.[282] Europeans, by contrast, were quite comfortable with sui generis IP laws.[283] So for the sound recording industry, the choice appeared stark: they either attained federal copyright protection or the industry would be stuck with a patchwork of state legal protections.

The legal regime fit of sound recordings and copyright was acceptable in some respects, but not so much in others. The exclusive reproduction and distribution rights would protect sound recordings from counterfeits. The remedy provisions—which included injunctive relief and awards of infringers' profits—also seemed a good fit for this increasingly profitable industry sector. The scope of copyright, however, was worrisome in some respects. There was consensus, for example, that imitations of sound recordings should not be made illegal. Otherwise, high school bands that imitated the Rolling Stones or the Beatles and sound-alike recordings might be infringements. This concern was eventually accommodated by limiting the scope of the reproduction right so that only exact copies could infringe.[284]

Some members of Congress were concerned about whether home taping of recorded music would become illegal if sound recordings were copyrighted, as their children sometimes did this sort of thing.[285] The Register of Copyrights offered assurances that this would not be illegal, and so this concern subsided (although it re-emerged later and continues to be a contentious issue for the recording industry).[286]

The strongest opponents of sound recording copyrights were broadcasters and owners of music copyrights.[287] Broadcasters thought the sound recording industry should not have exclusive rights to control public performances of recorded music because broadcasts functioned as free advertising for records, making consumers familiar with new performers and new music, thereby driving the market for

[282] 35 U.S.C. § 171, 161 (2012).

[283] *See, e.g.*, J.H. Reichman, *Legal Hybrids Between the Patent and Copyright Paradigms*, 94 COLUM. L. REV. 2432, 2453–500 (1994) (discussing numerous sui generis IP regimes largely originating in the EU).

[284] 17 U.S.C. § 114(b).

[285] Sony Corp. of Am. v. Universal City Studios, 464 U.S. 417, 471 n.22 (1984) (Blackmun, J., dissenting).

[286] *Id.* at 471 n.23; *see also* OFFICE OF TECHNOLOGY ASSESSMENT, COPYRIGHT AND HOME TAPING: TECHNOLOGY CHALLENGES THE LAW (1989).

[287] REGISTER'S SUPPLEMENTARY REPORT, *supra* note 151, at 51.

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purchased albums.[288] Some broadcasters seemed to think that they should be paid to play records on the radio, and as the payola scandals of the day revealed, sound recording companies sometimes supplied funds to induce broadcasters to play their recordings on the air.[289] Owners of music copyrights were worried that revenue streams from broadcasts of their music would shrink if the recording industry attained public performance rights. This seemed especially unfair given the very low royalty rate the recording industry paid to music copyright owners under the compulsory license first instituted in 1909.[290]

The sound recording industry was sufficiently desperate for copyright's mantle that they accepted numerous limitations on their rights as a compromise. The changed circumstances argument for copyright was the huge surge in counterfeiting of sound recordings in the 1960s.[291] The industry was very anxious for federal protection as soon as possible and did not want to wait until Congress finally enacted a comprehensive revision of U.S. copyright law. The industry got its wish in 1971 and the sound recording-related provisions were carried over into what became the 1976 Act.[292] U.S. copyright law today might be very different (and possibly somewhat less messed up) if Congress had chosen a sui generis regime for sound recordings similar to European related rights laws.

Although owners of IP rights in sound recordings have been granted public performance rights under the laws of other nations,[293] sound recordings have not enjoyed a general public performance right in the United States, and proposals to

[288] The public performance right for sound recording issue remains contentious, even today, although the Copyright Office strongly supports it. Maria A. Pallante, *The Next Great Copyright Act*, 36 COLUM. J.L. & ARTS 315, 324 (2013).

[289] 47 U.S.C. § 314 (illegal for broadcaster to play music for which it was paid unless it informs listeners of the payment). *See, e.g.*, Ronald H. Coase, *Payola in Radio and Television Broadcasting*, 22 J. LAW & ECON. 269 (1979).

[290] REGISTER'S SUPPLEMENTARY REPORT, *supra* note 151, at 51.

[291] SECOND SUPPLEMENTARY REPORT OF THE REGISTER OF COPYRIGHTS ON THE GENERAL REVISION OF THE U.S. COPYRIGHT LAW: 1975 REVISION BILL, Oct.-Dec. 1975, 51 [hereinafter REGISTER'S SECOND SUPPLEMENTARY REPORT].

[292] Act of Oct. 15, 1971, Pub. L. No. 92-140, 85 Stat. 391 (1971). Unfortunately, Congress chose not to deal with pre-1972 recordings, which were relegated to the vagaries of inconsistent state laws. *See, e.g.*, PRE-1972 SOUND RECORDING REPORT, *supra* note 62.

[293] REGISTER'S SECOND SUPPLEMENTARY REPORT, *supra* note 291, at 216, 234.

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grant such rights to sound recordings have been controversial for decades.[294] This suggests that the legal fit between copyright and sound recordings remains somewhat uneasy.

2. Computer Programs

Also far from obvious in the 1960s and 1970s was whether copyright would become an accepted form of IP protection for computer programs.[295] The U.S. Copyright Office first assessed whether it should accept applications to register computer programs as copyrightable writings of authors in 1964. It did not question that copyright could protect source code forms of programs—that is, texts written in computer programming languages—as literary works.[296] However, the Office did doubt that machine-executable programs (often referred to as object code) were copyrightable for two principal reasons.[297]

One reason was because machine-executable programs are functional processes (that is, machines constructed in text).[298] Under *Baker v. Selden* and its progeny, copyright protection had long been unavailable to functional processes, machines, and machine parts.[299] Second, machine-executable programs are unintelligible to humans. Under the *White-Smith* conception of copyright subject matter, object code was uncopyrightable because it could not be read and machine-executable programs were not "copies" of source code.[300]

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[294] *See, e.g.*, Brian Day, *The Super Brawl: The History and Future of the Sound Recording Performance Right*, 16 MICH. TELECOMM. TECH. L. REV. 179 (2009), *available at* http://www.mttlr.org/volsixteen/day.pdf.

[295] Parts of this section are adapted from Pamela Samuelson, *A Square Peg in a Round Hole? Copyright Protection for Computer Programs*, *in* COPYRIGHT AND THE CHALLENGE OF THE NEW, *supra* note 60, at 251.

[296] COPYRIGHT OFFICE CIRCULAR 31D (January 1965), *reprinted in* Duncan M. Davidson, *Protecting Computer Software: A Comprehensive Analysis*, 1983 ARIZ. ST. L.J. 611, 652 n.72 (1983).

[297] *Id.*

[298] The functionality objection to copyrighting programs was explored in Samuelson, *CONTU Revisited*, *supra* note 229, at 727−53. *See also* Pamela Samuelson, Randall Davis, Mitchell Kapor & J.H. Reichman, *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308, 2320−24 (1994) [hereinafter Samuelson et al., *Manifesto*].

[299] Baker v. Selden, 101 U.S. 99 (1879) (copyright protection extends to an author's explanation of a useful art, such as a bookkeeping method, but not to the useful art depicted therein). For an extended discussion of *Baker* and its progeny, *see* Samuelson, *supra* note 113, at 1928−44.

[300] White-Smith Music Pub. Co. v. Apollo Co., 209 U.S. 1, 18 (1908) (ruling that piano rolls were not "copies" of copyrighted musical compositions in part because the rolls could not be read by humans). *See*

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A related concern may have been that the unreadability of publicly disseminated object code meant that it could not serve the long-standing disclosure function, which has been important to achieving copyright's constitutional purpose of promoting the progress of knowledge.[301] The human communication criterion seemed to be a serious obstacle to copyrighting programs. The 1976 Act had made a profound, if rarely noticed, shift away from the goal of inducing publication to a goal of inducing production of copyrighted works. The human communication function was, it seemed, no longer as central to copyright as it had been for the first nearly two hundred years of this U.S. law.

Although the utility and unintelligibility of object code gave rise to serious doubts within the Office about programs as copyright subject matter,[302] the Office ultimately decided to accept registration applications for programs anyway under its so-called rule of doubt. That is, the Office would issue registration certificates to authors of programs, but the certificates expressly reflected the Office's doubts about whether programs in machine-readable form were copyright-protectable.[303] Registrants would bear the burden of defending the copyrightability of program code, should this later become necessary in litigation. The Office also made registration contingent upon the programmer's deposit of the full text of the program source code, thus ensuring that the disclosure function of copyright would be respected.[304]

The Office's concerns about program copyrights were echoed during the legislative debate over the copyright revision bills of the mid-1960s. Among the strongest critics was Professor Arthur Miller, who recommended against copyright for computer programs because programs were "functional item[s]" that were plainly distinguishable from "books or plays or motion pictures or poetry—the forms of

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also Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281, 340 n.233 (1970) [hereinafter Breyer, *The Uneasy Case*] (noting doubts existed about whether computer programs were "original works of authorship" in a constitutional sense given that they were not literary or artistic in content, and did not convey information to readers).

[301] *See* Samuelson, *CONTU Revisited*, *supra* note 229, at 705–27. Federal copyright law, unlike patent law, had historically not needed to require disclosure of the contents of protected works, for the act of publication was the point at which copyright attached (assuming formalities were complied with), so disclosure happened through the act of publication. *Id.* at 711–12.

[302] COPYRIGHT OFFICE CIRCULAR 31D, *supra* note 296.

[303] *Id.*

[304] *Id.*

ISSN 0041-9915 (print) 1942-8405 (online) ● DOI 10.5195/lawreview.2016.427
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expression that traditionally have been covered by our copyright legislation."[305] To extend copyright protection to programs would, he thought, effectively grant patent-like rights without "the safeguards and limitations that surround a patent grant."[306] This could "very seriously stultify the programming art" in large part because computer programming "is, by and large, a derivative art based on fairly well established and commonly used mathematical and logical principles."[307] Miller doubted that the software industry would have arisen "had there been copyright protection for programs in the past."[308] Miller's testimony thus raised questions about whether the legal fit criterion for copyrightability could be satisfied.

Even the economic criterion for extending copyright protection to programs seemed unconvincing at the time. In 1970 Professor (now Justice) Stephen Breyer wrote that the economic case for extending copyright protection to computer programs was at best "uneasy" and actually quite unpersuasive.[309] The software industry was at that time "burgeoning," as Breyer put it, without reliance on copyright protection.[310] The independent software sector of the industry (that is, developers of computer programs who were not also manufacturers of computer hardware) had grown in the previous six years from a $12 million to a $320 million industry.[311] Breyer also noted that development of systems software, the costs of which reportedly would account for twenty-five percent of all software development costs,[312] could be recouped through the sales of computers in which this software was embedded.[313]

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[305] *Copyright Law Revision: Hearing on S. 597 Before the Subcomm. on Patents, Trademarks, and Copyrights of the S. Comm. on the Judiciary*, 90th Cong. 196–97 (1967) [hereinafter *Copyright Revision Hearing*] (statement of Arthur Miller).

[306] *Id.* at 197, 199.

[307] *Id.* at 197.

[308] *Id.* at 199.

[309] *See* Breyer, *The Uneasy Case*, *supra* note 300, at 340–50.

[310] *Id.* at 344. The indifference of software developers to copyright seemed evident from the fact that only 200 programs had been registered with the U.S. Copyright Office in the five years after the Office had begun accepting programs as registerable subject matter. *Id.*

[311] *Id.* at 344 n.246.

[312] *Id.* at 345 n.249.

[313] *Id.* at 344 n.248.

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Most application programs, Breyer noted, were either developed by hardware companies who also bundled this software with their computers or custom developed, in which case developers could recoup their costs by charging for customization services.[314] Educators, government employees, and owners of computers were also developing software applications, but Breyer regarded copyright as unnecessary to induce these creators to produce programs.[315] Developers of more general purpose application programs tended, moreover, to sell their products to customers as complete solutions that included installation, training, and maintenance services through which software development costs could be recouped.[316] Based on these observations and concerns about some costs that copyright might impose on the software industry,[317] Breyer concluded that copyright protection was unnecessary.[318] He also worried that copyright for programs might either be too weak (because of how easy it would be to reimplement a program design in non-infringing code) or too strong (because courts might base infringement determinations on similarities in algorithms or other software abstractions).[319] Furthermore, he questioned the appropriateness of copyright's duration for programs.[320]

Breyer was not alone in recognizing the unsuitability of copyright protection for software. A senior IBM attorney proposed a sui generis form of legal protection for computer programs to protect the applied know-how embodied in programs.[321] The sui generis approach was also viewed positively on the international level, as

[314] *Id.* at 345.

[315] *Id.*

[316] *Id.*

[317] *Id.* at 347.

[318] *Id.* at 350. While Breyer was right that the case for copyrighting software was weak in 1970, it became stronger over time as the mass market for software for personal computers took off in the 1980s and 1990s. *See* Samuelson, *Uneasy Case*, *supra* note 259, at 1752–75.

[319] Breyer, *The Uneasy Case*, *supra* note 300, at 347–48.

[320] *Id.* at 348.

[321] *See, e.g.*, Elmer Galbi, *Proposal for New Legislation to Protect Computer Programming*, 17 BULL. COPYRIGHT SOC'Y 280, 283–92 (1970). Numerous scholars have endorsed a sui generis approach to the legal protection of computer programs. *See, e.g.*, sources cited in Samuelson et al., *Manifesto*, *supra* note 298, at 2312 n.6.

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witnessed by the model sui generis law to protect computer programs developed by the World Intellectual Property Organization ("WIPO") in the late 1970s.[322]

Given the Copyright Office's doubts about programs as copyright subject matter, questions raised in the legislative history of the 1976 Act, and WIPO's endorsement of a sui generis proposal, one might have expected that sui generis legislation would have become the legal mechanism for protecting computer programs instead of copyright. Something obviously changed the momentum in favor of sui generis legislation to one in favor of copyright.

The turning point was a report issued by the National Commission on New Technological Uses of Copyrighted Works ("CONTU").[323] CONTU was created to address a number of vexing new technology issues that were so controversial that they were holding up enactment of the copyright revision bills.[324] Although the copyrightability of computer programs was, strictly speaking, not within its statutory charter, CONTU took a position in favor of copyright protection for computer programs as literary works.[325] Ironically, Arthur Miller, who in 1967 had spoken so eloquently against copyrighting computer programs, was now the chair of the CONTU subcommittee that favored copyright for programs.[326]

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[322] *See* WIPO, INT'L BUREAU, MODEL PROVISIONS ON THE PROTECTION OF COMPUTER SOFTWARE (1978).

[323] CONTU REPORT, *supra* note 258. CONTU was established by Pub. L. No. 93-573, 88 Stat. 1873 (1974).

[324] CONTU's legislative charter was to make recommendations for legislation or other measures in respect of these uses of copyrighted works:

> (1) the reproduction and use of copyrighted works of authorship–
>
> (A) in conjunction with automatic systems capable of storing, processing, retrieving and transferring information, and
>
> (B) by various forms of machine reproduction, not including reproduction by or at the request of instructors for use in face-to-face teaching activities; and
>
> (2) the creation of new works by the application or intervention of such automatic systems of machine reproduction.

Act of Dec. 31, 1974, Pub. L. No. 93-573, § 201, 88 Stat. 1873 (1974).

[325] CONTU REPORT, *supra* note 258, at 10–26.

[326] Miller had a different position about whether the pending copyright revision bill would encompass software when he was testifying before Congress in 1967. *See supra* notes 305–08 and accompanying text.

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CONTU was not unanimous, but a majority asserted that programs were already copyrightable as literary works under the 1976 Act.[327] That Act's definition of "literary work" indicated that it included works expressed in "numerical symbols or indicia."[328] The report asserted that programs could be "read and understood by humans,"[329] although this was only true as to source code forms of programs. In making the case in favor of copyright for programs, the report relied heavily on an analogy between programs and sound recordings.[330] "Both recorded music and computer programs are sets of information in a form which when passed over a magnetized head, cause minute currents to flow in such a way that desired physical work is accomplished."[331] The CONTU majority made an economic argument in favor of copyright protection for programs because they, like sound recordings, were expensive to make and cheap to copy and would be as vulnerable to counterfeiting by "organized pirates" as were sound recordings.[332]

The CONTU report played down both the utilitarian character of programs and their unintelligibility. It stated that "[p]rograms should no more be considered machine parts than videotapes should be considered parts of projectors or phonorecords parts of sound reproduction equipment."[333] All three types of creations "were *capable* of communicating with humans."[334] It denied that copyright

[327] There were two dissents from the majority view and one worried concurrence. CONTU REPORT, *supra* note 258, at 26–36. The main dissent was written by John Hersey, a well-known author of novels. *Id.* at 27–36. In correspondence in the 1980s, Hersey informed me that up until the last meeting before the vote, he had a majority ready to recommend against copyright for programs in executable form. At that meeting, Miller cross-questioned him and Hersey lost his temper. When he lost his temper, Hersey said he lost his majority. Had CONTU come out against copyright for object code, the United States might have eventually adopted a sui generis approach to program protection.

[328] 17 U.S.C. § 101 (definition of "literary works").

[329] CONTU REPORT, *supra* note 258, at 10.

[330] *Id.*

[331] *Id.*

[332] *Id.* at 10–11. CONTU did not cite to studies about the state of the computer software industry or provide any empirical evidence that copyright protection was actually needed to induce the development and distribution of programs. It made no reference to the Breyer article, *supra* note 300, questioning the need for copyright for programs, although Miller could not have been unaware of it given that they were both colleagues at Harvard Law School.

[333] *Id.* at 21.

[334] *Id.* (emphasis in original).

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protection had ever been refused to works "simply because of their utilitarian aspects"—a statement which was untrue.[335]

The CONTU report argued that copyright was superior to patent, trade secrets, and unfair competition law in the legal protection of programs, without considering the sui generis option then being finalized at WIPO.[336] It expressed confidence that courts would be able to distinguish between the protectable expression and the unprotectable ideas and methods embodied in programs.[337] In short, it saw no difficulties whatsoever in using copyright to protect programs.

Novelist John Hersey dissented, characterizing computer programs as "profoundly different" from conventional copyrighted works which were designed "to be read, heard, or seen."[338] Sound recordings rendered audible the expressions of authors. A program in executable form, by contrast, was a "machine control element, a mechanical device, which on constitutional grounds and for reasons of public policy, ought not to be copyrighted."[339] Hersey noted that very few programs had been registered with the Copyright Office and CONTU had been shown no evidence of any program "ripoff[s]."[340] Hersey also expressed concern about the distortionary effects on copyright that would come about by "shoehorn[ing]" programs into the copyright regime.[341]

Copyright scholar and treatise author Melville Nimmer shared Hersey's concerns, as well as articulating a more general concern about the recommendation of copyright protection for programs:

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[335] *Id.* Copyright was denied because of utilitarian character in Taylor Instrument Co. v. Fawley-Brost Co., 139 F.2d 98 (7th Cir. 1943) (rejecting claims of copyright in temperature recording charts). *See also supra* note 167 and accompanying text (discussing the uncopyrightability of industrial designs).

[336] CONTU REPORT, *supra* note 258, at 16–18.

[337] *Id.* at 18–19.

[338] *Id.* at 27.

[339] *Id.*

[340] Only 1205 programs were registered with the Copyright Office between 1964 and 1977, more than 80% of which had been filed by two computer companies, IBM and Burroughs. *Id.* at 34. This was striking given that more than a million programs were being developed annually. *Id.* Hersey was, however, willing to support some form of legal protection for programs to protect investments in their creation. *Id.* at 27.

[341] *Id.* at 31–34.

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> What is most troubling about the Commission's recommendation of open-ended copyright protection for all computer software is its failure to articulate any rationale that would not equally justify copyright protection of any and all original ideas . . . . If *literary works* are to be so broadly construed the Copyright Act becomes a general misappropriation law applicable as well in what has traditionally been regarded as the patent arena, and indeed also other areas to which neither patent nor copyright has previously extended. This poses a serious constitutional issue in that it is arguable that such an approach stretches the meaning of *authors* and *writings* as used in the Copyright Clause of the Constitution beyond the breaking point.[342]

Nimmer recognized that copyright for programs raised policy issues, "the full implications of which remain murky at best," and suggested that over time, Congress might want to limit program copyrights to those that produce copyrightable works (e.g., videogame audiovisuals).[343]

Thirty-five years after the CONTU report, it is clear that CONTU underestimated the legal regime fit problems that would arise when courts were faced with deciding software copyright cases challenging anything other than exact copying of program code.[344] It is fair to say that courts have had to develop a sui generis form of copyright protection for programs through case-by-case adjudications. It has proven difficult to apply traditional copyright doctrines derived from cases involving novels, dramatic plays, and fabric designs to protect non-literal aspects of computer programs, which has caused courts to develop special tests for software copyright infringement.[345] Courts have generally recognized that the scope of copyright in programs is "thin" and have looked to *Baker* as the starting point for analysis of program copyright issues.[346] Yet, distinguishing between copyright-

[342] *Id.* at 26.

[343] *Id.* at 26–27.

[344] *See, e.g.*, Samuelson, *Uneasy Case*, *supra* note 259, at 1759–74 (discussing the case law developments).

[345] *See, e.g.*, Computer Assocs. Int'l Inc. v. Altai, Inc., 982 F.2d 693, 706–12 (2d Cir. 1992) (announcing the "abstraction, filtration, comparison" test for judging non-literal copying in software cases).

[346] *See id*. at 704–05, 712.

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protectable program structure and unprotectable methods of operation remains a contentious and unresolved issue.[347]

As an economic matter, the extension of copyright to computer programs has been beneficial not only in the United States, but also in the international arena. The global market for computer software products and services has been estimated at $330 billion in 2014.[348] Copyright has, moreover, become an international standard form of intellectual property protection for programs,[349] though programs continue to be protected as well by trade secrets, trademark, licensing, and sometimes also by patents. Computer software is the first form of mass-marketed copyrighted work to be eligible for such a broad array of IP rights.

The human communication function of copyright can sometimes be met through open source publication of source code, and videogames are among the programs whose behaviors are expressive in a conventional copyrighted sense. Making copies of programs in the course of reverse engineering them to get access to information necessary to create an interoperable program has been deemed fair use.[350] Yet despite the occasional characterization of programs as "silicon epics" written by "binary bards,"[351] the development of programs remains more the product of engineering design than of literary or artistic expression.[352] As long as the scope of copyright does not become overly broad, the extension of copyright to programs must be seen overall as a success, notwithstanding the mismatches with some of the criteria proposed here for judging when copyright should be used to protect particular types of intellectual creations.

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[347] *See, e.g.*, Oracle Am., Inc. v. Google, Inc., 750 F.3d 1339, 1357–58 (Fed. Cir. 2014), *cert. denied*, 135 S. Ct. 2887 (2015) (overturning a trial court ruling that Java APIs were unprotectable methods of operation).

[348] *See, e.g.*, Samuelson, *Uneasy Case*, *supra* note 259, at 1776 (citing industry reports).

[349] *See* Agreement on Trade-Related Aspects of Intellectual Property Rights, *effective* Jan. 1, 1995, *available at* https://www.wto.org/english/docs_e/legal_e/27-trips.pdf; The WIPO Copyright Treaty, *opened for signature* Dec. 20, 1996, *available at* http://www.wipo.int/export/sites/www/copyright/en/activities/pdf/wct_wppt.pdf.

[350] Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510, 1521 (9th Cir. 1992).

[351] *See, e.g.*, Anthony L. Clapes et al., *Silicon Epics and Binary Bards: Determining the Proper Scope of Copyright Protection for Computer Programs*, 34 UCLA. REV. 1493 (1987).

[352] For example, a search for books on "software engineering" in the Software Development category on Amazon.com yields many thousands of results. One such classic is BARRY W. BOEHM, SOFTWARE ENGINEERING ECONOMICS (1981).

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C. *Sui Generis Regimes*

Sui generis IP laws often protect discrete types of subject matters that do not conform to the economic premises of the dominant copyright and patent paradigms.[353] Some, such as database and industrial design laws, are more copyright-like, while others, such as utility model and plant variety protection laws, are more patent-like.[354] The copyright-like laws may grant rights even in the absence of originality, as in the case of the European sui generis database right, or separability of artistic and functional aspects of a design, such as industrial design laws.[355] The patent-like sui generis laws may grant exclusive rights to technological designs even if they are neither novel nor inventive.[356] Legislatures have sometimes decided that some legal protection against copying is necessary to incent investment in these specialized subject matters.[357]

The United States has been a relatively late adopter of sui generis legislation. However, since 1970, Congress has adopted several sui generis laws, five of which are now housed in the same title of the U.S. Code as copyright law.[358] Two of these, the Semiconductor Chip Protection Act ("SCPA") and the Vessel Hull Design Protection Act ("VHDPA"), are modeled on the industrial design legislation that Congress very nearly adopted in 1976.[359] The other three sui generis IP laws in Title 17 of the U.S. Code are related to copyright.[360] Because Congress gave serious

[353] For the most thorough treatment of sui generis IP regimes, *see generally* Reichman, *supra* note 283.

[354] *See generally id.* at 2455–72 (discussing case studies of utility models and plant varieties).

[355] *See id.* at 2488–92.

[356] *See id.* at 2461–62.

[357] *See id.* at 2442–43.

[358] 17 U.S.C. §§ 901–1332. The Plant Variety Protection Act of 1970, 17 U.S.C. §§ 2321–2583, was the first sui generis IP law enacted in the United States. It grants plant breeders up to twenty years of exclusive rights to control exploitation of new, distinct, uniform and stable plant varieties. *Id.* Unlike the Plant Patent Act, 35 U.S.C. § 161, PVPA does not require invention. *Id.*

[359] Semiconductor Chip Protection Act (SCPA) of 1984, 17 U.S.C. §§ 901–914 (2012); Vessel Hull Design Protection Act of 1997, 17 U.S.C. §§ 1301–1332 (2012). *See supra* notes 214–19 and accompanying text.

[360] The Audio Home Recording Act of 1992, which regulates digital audio tape technologies, is now codified at 17 U.S.C. §§ 1001–1010 (2012). Provisions of the Uruguay Round Agreements Act outlaw the unauthorized fixation of a musical performance in a sound recording or video and are codified at 17 U.S.C. § 1101. Provisions of the Digital Millennium Copyright Act outlaw the circumvention of access controls that copyright owners use to protect their works as well as the making or offering to the public of circumvention tools to bypass technical protection measures copyright owners use to protect their

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consideration to extending copyright protection to semiconductor designs, it is worth revisiting the reasons Congress chose a sui generis approach instead of copyright.

1. Semiconductor Chip Designs

In the 1970s, the manufacture of semiconductor chips—both memory and processor chips—became a major global industry.[361] U.S. firms dominated this market and introduced a series of major innovations that spurred the immense growth of the computer industry.[362] However, by the waning years of that decade, foreign competitors were challenging U.S. dominance, often by making exact copies of the most commercially successful chips and selling them in competition with the innovator (usually Intel Corp.) that had first created them.[363]

The initial cost of designing and manufacturing innovative chips was at the time very expensive.[364] Once chips embodying a new design entered the market, it was relatively inexpensive for a competitor to copy the design and sell exact copies of the chips in competition with the innovator.[365] This made it difficult for innovators to recoup their investments and justify further R&D investments that would keep the engine of innovation going.[366]

Although patents could be issued for inventive advances in chip designs, the complex layout of circuits on a chip typically were not protected by patent law.[367] Competitors could purchase an innovator's chip, reverse engineer it (by peeling back the layers of the chip, photographing the layout of the circuits on each layer, and

works; also illegal is removing or falsifying copyright management information. 17 U.S.C. §§ 1201–1204. *See infra* notes 418–37 and accompanying text.

[361] *See generally* T.R. REID, THE CHIP: HOW TWO AMERICANS INVENTED THE MICROCHIP AND LAUNCHED A REVOLUTION 171 (1984) (providing a history of the invention of the microchip).

[362] *Id.* at 171−76.

[363] *Id.*

[364] Costs of developing a new chip could reach $100 million. H.R. REP. NO. 98-781, at 2 (1984).

[365] A competitor could copy an innovative chip for about $50,000. *Id.*

[366] Kastenmeier & Remington, *supra* note 262, at 437–38.

[367] *See* H.R. REP. NO. 98-781, at 3 (1984).

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studying the results), and then produce a chip with an identical layout.[368] Patents alone did not protect against this kind of "chip piracy."[369]

Intel Corp. was the most prominent of the U.S. firms that invested heavily in innovative chip designs whose business was suffering from a flood of cheap copies offered by competitors.[370] Its initial strategy for combating these cheap copies was to seek protection under copyright law by suing the copyists, claiming they had infringed Intel copyrights.[371] While copyrights in drawings of the circuitry layouts for chips had been permitted,[372] copyright, in Intel's view, provided protection not only to the drawings but also to the masks Intel created from the drawings for use in the manufacturing process and to the chips themselves as derivative works of the drawings.[373] Under this theory, chips with the same layout of circuits infringed. Intel brought a suit to compel registration when the Copyright Office refused to issue a registration certificate to masks or chips as derivative works of the drawings.[374]

Because the chip circuitry layouts had an intrinsic utilitarian function that was not merely to convey information or display an appearance, Intel's theory of copyright infringement could not succeed.[375] Under the 1976 Act, the drawings could be protected as drawings, but the masks and chips were disqualified from copyright protection as useful articles lacking separable expressive elements.[376]

When litigation proved unavailing, Intel, along with other U.S. chip manufacturers, took their pleas for intellectual property protection to Congress. The first bill to address "chip piracy" in the House would have amended the definition of

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[368] *See id.* at 2.

[369] *See id.* at 3–4.

[370] *See* Copyright Protection for Imprinted Design Patterns on Semiconductor Chips: Hearing on H.R. 1007 Before the Subcomm. on Courts, Civil Liberties and the Admin. of Justice of the H. Comm. on the Judiciary, 96th Cong. 31–33 (1979) [hereinafter 1979 Semiconductor Chip Hearing] (statement of Andrew Grove, President, Intel Corp.).

[371] *See* Steven P. Kasch, *The Semiconductor Chip Protection Act: Past, Present and Future*, 7 HIGH TECH. L.J. 71, 79–80 (1992).

[372] *Id.*

[373] *Id.* (describing Intel's attempts to register the chips as embodiments of design).

[374] The case, Intel Corp. v. Ringer, Civ. No. C77-2848 (N.D. Cal. Oct. 10, 1978) (voluntarily dismissed), is cited and discussed in H.R. REP. NO. 98-781, at 6, 8 (1984). *See also* Kasch, *supra* note 371, at 80.

[375] *See* H.R. REP NO. 98-781, at 8 (1984).

[376] 17 U.S.C. § 101 (definitions of "pictorial, graphic and sculptural works" and "useful article"); § 102(a).

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"pictorial, graphic, and sculptural works" so that it would "include photographic masks used to imprint patterns on integrated circuit chips and the imprinted patterns themselves, even though they are used in connection with the manufacture of, or incorporated in a useful article."[377] A later Senate bill adopted the copyright approach as well, although now proposing "mask works" as a new copyright subject matter category along with some amendments to deal with chip industry-specific issues.[378]

A Senate Report gave six reasons for endorsing the copyright approach.[379] First, copyright subject matter had expanded over the centuries to accommodate many new types of creations. The Senate Report pointed to the Supreme Court's *Mazer* decision, which said that the industrial use of an article was no bar to its copyrightability,[380] and *Goldstein v. California*, which had construed the constitutional term "writings" as encompassing "any physical rendering of the fruits of intellectual or aesthetic labor."[381] Chip designs would certainly satisfy that criterion. Second, chip designs were similar in form and function to maps and technical drawings which had a long history as copyright subject matter.[382] Third, copyright would "encourage certainty and stability" in the semiconductor industry.[383] Fourth, an international treaty framework existed through which extensions of copyright subject matter could be accommodated.[384] Fifth, the "simplicity and economy" of a copyright approach commended it.[385] Sixth, there was

[377] The bill was H.R. 1007, 96th Cong., 1st Sess. (1979). *See* 1979 Semiconductor Chip Hearing, *supra* note 370, at 3–4.

[378] *See* S. REP. NO. 98-425, at 1 (1984) (discussing the Semiconductor Chip Protection Act of 1984, S. 1201). This bill would have shortened the term of protection for mask works to ten years, granted some different exclusive rights, and allowed reverse engineering. *Id.* at 11.

[379] *Id.* at 12–14.

[380] Mazer v. Stein, 347 U.S. 201, 218 (1954).

[381] 412 U.S. 546, 561 (1973), *superseded by statute as stated in* Crow v. Wainwright, 720 F.2d 1224 (11th Cir. 1997), cited in S. REP. NO. 98-425, at 13 (1984). During the legislative debate, serious questions also emerged about whether it would be constitutional for Congress to create a sui generis law to protect original chip designs that were lacking in invention. Kastenmeier & Remington, *supra* note 262, at 420–21. Members of Congress who concerned themselves with these questions assured themselves that the legislature did have power to enact a sui generis form of protection under the Commerce Clause, even if not under art. I, § 8, cl. 8. *Id.*

[382] S. REP. NO. 98-425, at 13 (1984).

[383] *Id.*

[384] *Id.*

[385] *Id.* at 14.

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little risk that extending copyright protection to chip layouts would distort the law or erode the rights of other copyright owners.[386]

Professor Arthur Miller, who had chaired the CONTU Subcommittee that recommended copyright protection for software, testified in a Senate hearing that extending copyright protection to chip layouts was a logical extension of Congress' decision to extend copyright protection to computer programs.[387] He likened the design of chip circuitry to the geometric paintings of Mondrian.[388] In response to concerns about the utilitarian nature of chip designs, Miller responded that "[a] nation that awards a seventy-five year copyright monopoly to an E.T. piggy bank . . . and then gets itself bollixed up in a conceptual debate as to whether a mask work is too utilitarian, has got its priorities fouled up."[389] Miller reassured the Senate that the utility objection to copyrighting chips was "an old chestnut" that CONTU had easily overcome.[390] As long as there were a variety of ways to design chip circuits, copyright would not confer an undue monopoly.

During the legislative debate over the copyright versus sui generis approach, the U.S. Copyright Office came out against the extension of copyright protection to chip designs.[391] The Office regarded copyright as inappropriate because of the highly functional nature of chip circuitry designs.[392] While the economic argument for copyright protection was plausible because of the cost of initial development was so high and the cost of copying was so low, and while markets would likely form around the exclusive rights that copyright would provide, the legal regime fit was

[386] *Id.*

[387] *The Semiconductor Chip Protection Act of 1983: Hearing on S. 1201 Before the Subcomm. on Patents, Copyrights, and Trademarks of the S. Comm. on the Judiciary*, 98th Cong., 1st Sess. 97 (1983) [hereinafter Senate Semiconductor Chip Hearing] (statement of Arthur Miller).

[388] *Id.* Miller's testimony is discussed at greater length in Pamela Samuelson, *Creating a New Kind of Intellectual Property: Applying the Lessons of the Chip Law to Computer Programs*, 70 MINN. L. REV. 471, 504–07 (1985) [hereinafter Samuelson, *Lessons of the Chip Law*].

[389] Senate Semiconductor Chip Hearing, *supra* note 387, at 89 (statement of Arthur Miller).

[390] *Id.*

[391] *See* Copyright Protection for Semiconductor Chips: Hearings on H.R. 1028 Before the Subcomm. on Courts, Civil Liberties, and the Administration of Justice of the House Comm. on the Judiciary, 98th Cong., 1st Sess. 82 (1983) [hereinafter House Semiconductor Chip Hearings] (statement of Dorothy Schrader, Associate Register of Copyrights for Legal Affairs, Copyright Office).

[392] *Id.* at 84–86.

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imperfect.[393] Given how rapid was the pace of change in this industry, the duration of copyright—then seventy-five years from first publication for corporate-authored works—seemed unduly long. Other features of the copyright regime seemed mismatched to semiconductors. What, for instance, was the Library of Congress to do with a mandated deposit of semiconductor chips? Some chip manufacturers had reservations about the copyright approach because of uncertainty about whether reverse engineering would be permissible under the fair use doctrine.[394]

Notwithstanding the analogy to Mondrian paintings, it was evident that designing the layout of chip circuitry was very different from the conventional design processes for literary and artistic works.[395] It was quintessentially an industrial design process, and the chips that emerged from this process were indubitably "useful articles."[396] Granting copyright protection to this type of industrial design might well promote progress in the useful arts, but unlike conventional copyright subject matters, the chips themselves were not designed to be "read," either directly or indirectly with the aid of a machine.[397] Nor were chips intended to engage in an ongoing dialogue in the way conventional copyrighted works are.[398] In short, the mismatch with copyright was profound. It was unlikely that the mismatch could be handled through a few legislative tweaks, as had happened with sound recordings.[399]

The House proposed instead a sui generis form of intellectual property protection for original designs for "mask works," which was eventually adopted.[400] Design elements dictated by the function to be performed and those that were

[393] *Id.*

[394] *See* Samuelson, *Lessons of the Chip Law*, *supra* note 388, at 495–97 (discussing uncertainty about reverse engineering as fair use).

[395] *See, e.g.*, S. REP. NO. 98-425, at 12 (1984) (recognizing the difference between mask works and traditional types of copyright subject matter); H.R. REP. NO. 98-781, at 6, 10 (1984) (same).

[396] *See, e.g.*, H.R. REP. NO. 98-781, at 8 (1984).

[397] *See, e.g.*, Samuelson, *CONTU Revisited*, *supra* note 229, at 711 n.194 ("The set of instructions that constitute a program cannot meaningfully be said to be communicated when the face of a silicon chip is viewed.").

[398] *See id.* at 727.

[399] *See* Samuelson, *Lessons of the Chip Law*, *supra* note 388, at 497–501 (explaining how the sui generis SCPA differed from copyright).

[400] SCPA was enacted as Title III of the Federal District Court Organization Act of 1984, Pub. L. No. 98-620, 98 Stat. 3335 (1984), codified at 17 U.S.C. §§ 901–914 (2012).

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common or staple features were not protectable under SCPA.[401] Developers of mask works were granted exclusive rights to control reproduction of mask works, and distribution and importation of chips in which mask works were embodied for up to ten years,[402] although registration would be required after two years to get the full term of protection.[403] A special exemption allowed reverse-engineering of protected designs, as the industry regarded this as necessary to spur ongoing innovation and fair competition.[404] This sui generis law was adapted from the design protection bill that almost passed in Congress in 1976.[405]

SCPA has been much criticized,[406] in part because advances in technology made "mask works" an unsuitable characterization of the subject matter of protection and in part because of its reciprocity-based regime for recognizing chip designs from other countries to induce them to enact comparable legislation. Yet, perhaps SCPA deserves some credit for providing a bulwark against market-destructive forms of copying of chip designs, as this practice ceased.

Whatever the merits or demerits of SCPA, there is reason to believe that Congress made a good decision by not extending copyright protection to chip circuitry designs. Only one of the five criteria proffered above for extending copyright protection to an unconventional subject matter (i.e., the economic concern about the need to recoup large investments because copies were so cheap and easy to make) applied to this type of creation. The U.S. semiconductor industry has managed to thrive without copyrights on chip designs.

2. Vessel Hull Design Protection Act

The design of boat hulls, like the layout of circuits of semiconductor chips, is quintessentially an industrial design process. With the advent of plug-molding technology, it became very cheap and easy to make exact copies of vessel hulls. A firm could purchase a boat and then use it as a "plug" with which to create a "mold"

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[401] *Id.* § 902(b).

[402] *Id.* §§ 904–905.

[403] *Id.* § 908(a).

[404] *Id.* § 906.

[405] *See, e.g.*, Kastenmeier & Remington, *supra* note 262, at 418–38 (reviewing the evolution of this law).

[406] *See generally* Kasch, *supra* note 371; Leon Radomsky, *Sixteen Years After the Passage of the U.S. Semiconductor Chip Protection Act: Is International Protection Working?*, 15 BERKELEY TECH. L.J. 1049 (2000). Very little litigation has involved claims of infringement of SCPA rights. A rare exception is *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555 (Fed. Cir. 1992).

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from which exact copies of the purchased hull could be made.[407] Several states enacted anti-plug-molding laws to address this as misappropriation.[408]

In 1989, the U.S. Supreme Court struck down a Florida anti-plug-mold law in *Bonito Boats, Inc. v. Thunder Craft Boats, Inc*.[409] The Court regarded the Florida law as in conflict with federal patent policy because it granted exclusive rights for an unlimited duration to a technology that was categorically eligible for patent protection, but was unpatented.[410] As a matter of federal patent policy, unpatented technologies are considered to be in the public domain and freely available for unfettered copying.[411]

Although the Court ruled that Florida could not grant exclusive rights to designs of boat hulls,[412] that did not mean Congress could not do so. Nearly a decade after *Bonito Boats*, Congress enacted the Vessel Hull Design Protection Act ("VHDPA") which, like SCPA, provides ten years of exclusive rights to original designs of eligible subject matters, as long as the design was registered with the U.S. Copyright Office within two years of it being publicly available.[413]

Although vessel hulls, decks, and vessel hull-deck combinations are the only specific subject matters eligible for protection under this law, the VHDPA was enacted as a general industrial design law, resurrecting the model law that was almost adopted in 1976.[414] VHDPA provides that "[t]he designer or owner of an original design of a useful article which makes the article attractive or distinctive in appearance . . . may secure protection" for it,[415] but then qualifies the scope of the law by identifying only vessel hulls, decks, and combinations as protected subject

[407] *See, e.g.*, David W. Carstens, *Preemption of Direct Molding Statutes*: Bonito Boats v. Thunder Craft Boats, 3 HARV. J.L. & TECH. 167, 167 (1990).

[408] *See id.* at 175 n.43 (reporting that 11 states had adopted anti-plugmold laws).

[409] 489 U.S. 141 (1989).

[410] *Id.* at 158–59.

[411] *Id.* at 150.

[412] *Id.* at 167–68.

[413] VHDPA was enacted as Title V of the Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2860 (1998), codified at 17 U.S.C. §§ 1301–1332 (2012).

[414] 17 U.S.C. § 1301(a) (2012).

[415] *Id.* § 1301(a)(1) (2012).

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matters.[416] It would thus take only a minor amendment to the VHDPA to convert it to a general industrial design law that would grant exclusive rights to control the manufacture, importation, sale, or commercial distribution of original designs of useful articles.[417]

Perhaps because Congress had already decided in passing SCPA that it had power to enact an industrial design law under the Commerce Clause, even if perhaps not under the Copyright Clause of the Constitution, the question of the constitutionality of granting copyright-like protection to vessel hulls did not come up.

3. Other Sui Generis Laws Related to Copyright

One of the three other sui generis laws added to Title 17 in the 1990s protects live performances of music that, if recorded with proper permissions, would be eligible for copyright protection.[418] To comply with U.S. treaty obligations, Congress outlawed the unauthorized recording of such performances and trafficking in such recordings.[419] In the eyes of some commentators, this provision ran afoul of the Copyright Clause for two reasons: the live performance was not fixed in a tangible medium, and hence seemed not to be a "writing" of an "author," and the duration of protection the law provided was seemingly perpetual. Constitutional challenges to the anti-bootlegging provision proved unsuccessful,[420] although some commentators have argued that the challenges should have been taken more seriously than they were.[421]

No constitutional challenge has been levied against another sui generis law enacted in the 1990s—the Audio Home Recording Act ("AHRA")[422]—although as

[416] *Id.* § 1301(a)(2).

[417] *See generally id.* § 1308.

[418] Title V of the Uruguay Round Agreements Act, Pub. L. 103-465, § 512, 108 Stat. 4809, 4974 (1994), codified at 17 U.S.C. § 1101 (2012) (allowing remedies for unauthorized fixing and trafficking in sound recordings and music videos).

[419] 17 U.S.C. § 1101 (2012). This provision was required by Article 14 of the Agreement on Trade-Related Intellectual Property Rights, to which the United States was a signatory.

[420] *See* United States v. Martignon, 492 F.3d 140 (2d Cir. 2007).

[421] *See e.g.*, Aaron Perzanowski, *The Penumbral Public Domain: Constitutional Limits on Quasi-Copyright Legislation*, 10 U. PA. J. CONST. L. 1081, 1134–38 (2008).

[422] Audio Home Recording Act of 1992, Pub. L. No. 102-563, 106 Stat. 4237 (1992), codified at 17 U.S.C. §§ 1001–1010 (2012).

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with the anti-bootlegging law, its subject matter is not a "writing" of an "author" and it, too, lacks a durational limit. This law regulates the manufacture and distribution of digital audio recording devices and media on which music may be recorded for rendering on those devices.[423] This law requires manufacturers of these devices and media to install serial copy management system ("SCMS") chips so that consumers could make only one digital copy of music to play on these devices.[424] It created a compulsory license, funded through a levy on the regulated devices and media, to compensate copyright owners for copies that Congress anticipated consumers would make of recorded music with the aid of these digital devices.[425]

The AHRA was an innovative sui generis regime in its day, but it is now more of historical than of practical interest. Makers of computers lobbied heavily for restrictive language in the AHRA so that their technologies would not fall within its bounds. When some firms started selling portable devices to play MP3 files of music that did not contain SCMS chips, the Recording Industry Association of America ("RIAA") sued for violation of the requirements. After RIAA's challenge to Diamond Multimedia's MP3 player failed,[426] the market for AHRA-compliant digital audio recording devices collapsed. Technology bypassed the constraints that AHRA had tried to impose on the evolution of digital devices through which music could be played and transferred to other devices.[427] Today, it is self-evident that nearly everyone who owns a computing device listens to digital copies of music.

The AHRA contained a novel provision making it illegal to make or distribute technologies primarily designed or produced to bypass SCMS.[428] Although Hollywood firms had tried for years to persuade members of Congress to enact a more general law to outlaw technologies designed to bypass technological protection

[423] Because digital audio tape (DAT) recorders likely had or were capable of substantial non-infringing uses, the recording industry could not rely on contributory or vicarious copyright infringement claims to stop the manufacture and sale of DAT machines in the United States. The Supreme Court in *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984) had rejected claims that Sony was secondarily liable for infringement of Universal copyrights by selling Betamax machines that could be used to make copies of movies off broadcast television because consumers might want to buy the machines for their substantial non-infringing uses, including time-shift viewing of television programs.

[424] 17 U.S.C. § 1002(a) (2012).

[425] *Id.* §§ 1003–1007.

[426] *See* Recording Indus. Ass'n of Am. v. Diamond Multimedia Sys., Inc., 180 F.3d 1072 (9th Cir. 1999).

[427] *See, e.g.*, David Nimmer, *Copyright and the Fall Line*, 31 CARDOZO ARTS & ENT. L.J. 803, 818–19 (2013).

[428] 17 U.S.C. § 1002(c) (2012).

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measures,[429] it was not until 1998 that Congress acceded to this plea. In that year, it enacted sui generis provisions concerning technical protection measures ("TPMs") that copyright owners were using to protect their works from digital infringements.[430] One provision outlaws bypassing of TPMs used by rights holders to control access to their works.[431] A second provision outlaws the manufacture, distribution, and offering to the public of technologies primarily designed or produced to bypass or circumvent TPMs used by rights holders to protect rights in their works.[432] A third provision makes it illegal to remove or falsify rights management information (e.g., a digital fingerprint) that copyright owners have encoded into copies of their works if done to facilitate or conceal infringement.[433] The anti-circumvention rules have been much criticized,[434] but survived two constitutional challenges.[435]

During the same legislative session that yielded the anti-circumvention regulations and the VHDPA, and indeed as part of the same legislative package that would eventually become the DMCA, the House passed a sui generis bill that would have created a new form of legal protection for the data in databases.[436] The sui generis database right was the subject of considerable debate: first, as to whether it was needed to induce investments in the creation of databases, and second, as to its constitutionality, for this law would arguably have granted exclusive rights in compilations of data without regard to whether there was any creativity in the

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[429] *See generally* Nicholas E. Sciorra, Note, *Self-Help and Contributory Infringement: The Law and Legal Thought Behind a Little "Black-Box,"* 11 CARDOZO ARTS & ENT. L.J. 905 (1993).

[430] Title 1, Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2860, 2861–67 (1998), codified at 17 U.S.C. §§ 1201–1205 (2012).

[431] 17 U.S.C. § 1201 (2012). The bypass access control rule is found at *id.* § 1201(a)(1)(A).

[432] *Id.* §§ 1201(a)(2), 1201(b)(1).

[433] *Id.* § 1202.

[434] *See generally*, *e.g.*, Julie E. Cohen, Lochner *in Cyberspace: The New Economic Orthodoxy of "Rights Management,"* 97 MICH. L. REV. 462 (1998); Pamela Samuelson, *Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need To Be Revised*, 14 BERKELEY TECH. L.J. 519 (1999).

[435] *See* Universal City Studios, Inc. v. Reimerdes, 111 F. Supp. 2d 294 (S.D.N.Y. 2000), *aff'd sub nom*. Universal City Studios, Inc. v. Corley, 273 F.3d 429 (2d Cir. 2001) (rejecting a First Amendment challenge to the anti-circumvention rules); United States v. Elcom Ltd., 203 F. Supp. 2d 1111 (N.D. Cal. 2002) (rejecting due process, First Amendment and Copyright Clause challenges to the anti-circumvention regulations).

[436] *See* Collection of Information Antipiracy Act, H.R. 354, 106th Cong. (1999).

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selection and arrangement of the data, which seemed inconsistent with the Supreme Court's ruling in *Feist Publications, Inc. v. Rural Telephone Service Co*.[437]

D. Copyright, Sui Generis, Other IP, or Public Domain?

Considering the deference courts have thus far given to congressional judgments on the grant of IP rights, it would seem that the Constitution may impose very few constraints on Congress' power to grant copyright or other types of IP rights in whatever subject matters it might choose. Two questions remain, however. One is whether existing law should be construed as extending beyond the enumerated categories that Congress has identified as eligible works of authorship. The other is whether Congress should amend the statute to grant copyright or other IP protection to unenumerated subject matters, such as synthetic biology, yoga sequences, gardens, or other unconventional IP subject matters. This section will consider these questions in light of the criteria set forth in Section A.

1. Synthetic Biology

The principal argument for extending copyright protection to synthetic biology has thus far rested on an analogy between synthetic biology products and computer programs.[438] Both are composed of alphanumeric symbols that, when processed, yield a certain result.[439] Both can be "original" in the sense of owing their origins to the person who created them and exhibiting a modicum of creativity.[440] They would also seem to meet fixation requirements and are perceptible with the aid of a device or machine.[441] We know that Congress has expressly decided that programs are copyrightable subject matter, but are human-designed DNA sequences of biological parts "works of authorship" within the meaning of the statute?

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[437] 499 U.S. 340 (1991). *See generally, e.g.*, Yochai Benkler, *Constitutional Bounds of Database Protection: The Role of Judicial Review in the Creation and Definition of Private Rights in Information*, 15 BERKELEY TECH. L.J. 535 (2000); J.H. Reichman & Pamela Samuelson, *Intellectual Property Rights in Data?*, 50 VAND. L. REV. 51 (1997).

[438] *See, e.g.*, Holman, *supra* note 13, at 711–15; Torrance, *supra* note 11, at 13, 30–34.

[439] *See, e.g.*, Torrance, *supra* note 11, at 30.

[440] *See id.* at 29–30.

[441] *See, e.g.*, *id.* at 28–29. It is, however, unclear that the Copyright Office or the courts would regard DNA as a "medium of expression" within the meaning of U.S. copyright law. Holman states that although the Copyright Office does not have an official position on the copyrightability of DNA sequences, it has informally taken the position against it. Holman, *supra* note 13, at 704–05.

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One factor that arguably supports claims of copyright for synthetic biology is that it is a new type of intellectual creation that Congress did not anticipate as copyright subject matter in 1976. The technology was yet to be developed, so it could not be enumerated as protectable subject matter. Insofar as the term "works of authorship" was meant to be elastic enough to encompass new types of creations beyond the eight enumerated categories, synthetic biology products would seem for that reason plausible as copyright subject matter. Thus, the new circumstance criterion would seem to support copyrightability of DNA sequences.

However, contemplation of the other criteria suggests that synthetic biology should not be considered a protectable work of authorship. The economic rationale for extending copyright protection to synthetic biology is weak. For example, proponents of the copyright approach do not argue that there is underinvestment in the development of DNA sequences that a grant of copyright would cure.[442] Granting copyright protection to DNA sequences seems unlikely to aid the formation of markets for the reproduction and distribution of copies, the making of copyrightable derivative works, or public performances or displays of DNA sequences.[443]

The legal regime fit is even more questionable, particularly in light of the availability of patents for DNA sequences.[444] The Supreme Court's recent decision in *Association of Molecular Pathology v. Myriad Genetics, Inc.*, upheld the patentability of genetically engineered DNA sequences, striking down only naturally-occurring gene sequence patents.[445] Whatever uncertainty there may have been about the patentability of DNA sequences has now been resolved, and synthetic biology products, because of the human involvement in their design and construction,[446] would seem more appropriately patentable than copyrightable subject matter. There is thus an existing form of legal protection for synthetic biology

[442] *See, e.g.*, Holman, *supra* note 13, at 717–20 (describing the dramatic progress of the synthetic biology field).

[443] To support DNA copyrights, Holman asserts that synthetic biology is expensive to develop and cheap to copy, Holman, *supra* note 13, at 710 n.56, 715, 737. However, that alone does not support the expansion of copyright subject matter. *See* Breyer, *The Uneasy Case*, *supra* note 300, at 344.

[444] *See, e.g.*, Torrance, *supra* note 11, at 15–16.

[445] *See* 133 S. Ct. 2107 (2013).

[446] *Myriad*, 133 S. Ct. at 2119.

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products insofar as exclusive rights are needed to induce investment in their creation and dissemination.[447]

Although some commentators have urged that copyright be available for DNA sequences, either because of the uncertainty of patent protection or because patents are expensive to get and enforce,[448] these arguments raise concerns similar to those the Supreme Court considered more than a century ago in *Baker v. Selden*.[449] Because a greater quantum of creativity is required to get a patent and because one must apply for a patent and satisfy rigorous standards, there is a risk of subverting the patent system if one allows developers to get copyright protection, which attaches automatically by operation of law, for a technological art such as DNA sequences without seeking patents.

Proponents of DNA copyrights have largely focused on the utility of copyrights as a means to enable Creative Commons licenses to make synthetic biology parts freely exchangeable and modifiable among researchers.[450] However, even if Creative Commons licenses might be beneficial in maintaining free access and use to these artifacts, it would be up to each synthetic biologist to opt in to Creative Commons and opt out of full-dress copyright protection. An anti-commons problem seems likely to occur if copyright did extend this far because some, and perhaps many, creators of synthetic biology products would not opt in the direction that proponents would prefer.[451] A better option to achieve the open source biology goal may well be

[447] *See supra* text accompanying note 262.

[448] *See, e.g.*, Holman, *supra* note 13, at 737; Torrance, *supra* note 11, at 22.

[449] *See* Baker v. Selden, 101 U.S. 99, 102 (1879) ("To give to the author of the book an exclusive property in the art described therein, when no examination of its novelty has ever been officially made, would be a surprise and a fraud upon the public.").

[450] *See, e.g.*, Holman, *supra* note 13, at 737; Torrance, *supra* note 11, at 39. Yet, Holman also thinks copyright is a good fit for DNA sequences because of the criminal penalties that could be imposed on infringers. Holman, *supra* note 13, at 737. Patent infringement, by contrast, cannot give rise to criminal liability.

[451] *See, e.g.*, Sapna Kumar & Arti Rai, *Synthetic Biology: The Intellectual Property Puzzle*, 85 TEX. L. REV. 1745 (2007) (discussing difficulties with using copyright to protect synthetic biology). *See also* Dan L. Burk, *Copyrightability of Recombinant DNA Sequences*, 29 JURIMETRICS J. 469 (1989) (raising policy concerns that cut against copyrights for DNA sequences).

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a sui generis regime for synthetic DNA products that would subject them to Creative Commons licenses.[452]

DNA sequences are distinguishable from computer programs in terms of authorship and human communication in that programs in source code form are typically written in computer languages that humans can read, whereas DNA sequences are not human-readable in a comparable way. It is true that biologists often say that gene sequences "express" something, but what they mean is that DNA produces a chemical reaction. Open source versions of programs at least directly communicate their intellectual contents to human readers to foster the ongoing progress of knowledge in the way that other copyrightable works do. Although one commentator offers an example of a human-created DNA sequence that spelled out a short phrase,[453] this is atypical of DNA sequences, which, generally speaking, are sequences of "stable chemical nucleotides."[454] Another commentator gives, as an example of a commercially significant DNA sequence, one that protects corn against the toxins in a commonly used pesticide.[455] This may be a valuable contribution to the useful arts, but this product of engineering, like the intellectual creations that generally are the product of engineering design processes, seems more suitable for patent than copyright protection.

2. Yoga Sequences

A sequence of yoga poses may be original in a copyright sense, and it may be fixed by videotaping the sequence or publishing a book illustrating it. But is such a sequence a work of authorship? Bikram Choudhury thought his sequence of twenty-six yoga positions was copyrightable under existing law. Indeed, he claimed that the U.S. Copyright Office issued a registration certificate for his sequence as a protectable compilation.[456] Compilations are, of course, separately listed as copyright subject matter.[457] A copyright in a compilation can, moreover, exist even

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[452] Proponents of DNA copyrights have not discussed the possibility of a sui generis regime for these types of creations. For example, Torrance, *supra* note 11, and Holman, *supra* note 13, consider only copyright and patent protection for synthetic biology.

[453] Torrance, *supra* note 11, at 2–3.

[454] *Id.* at 28.

[455] Holman, *supra* note 13, at 718.

[456] *See* Katherine Machan, *Bending Over Backwards for Copyright Protection: Bikram Yoga and the Quest for Federal Copyright Protection of an Asana Sequence*, 12 UCLA ENT. L. REV. 29, 34 (2004).

[457] 17 U.S.C. §§ 101 (2012) (definition of "compilation"); § 103(a).

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though the material being selected and arranged is not itself protected by copyright law.[458] Choudhury claimed that unlicensed practitioners of his poses and their studios were infringers.[459] Open Source Yoga Unity ("OSYU") disagreed and brought a declaratory judgment action to challenge Choudhury's claim. A district court denied OSYU's motion for summary judgment that the sequence was unprotectable by copyright law.[460] After losing that motion, OSYU settled with Choudhury on undisclosed terms.[461]

Choudhury subsequently sued other yoga centers for copying this sequence of yoga poses.[462] Lawyers for one of the challenged centers sought clarification from the Copyright Office about whether it considered the sequence to be a protectable compilation under U.S. copyright law.[463] In June 2012, the Office issued a policy statement explaining that the selection and arrangement of exercises, including yoga positions, is not a work of authorship for which U.S. copyright protection is available,[464] and any registration certificates that it might have issued for such compilations "were issued in error."[465]

In the Office's view,

> a selection, coordination, or arrangement of exercise movements, such as yoga poses, may be precluded from registration as a functional system or process in

[458] H.R. REP. No. 94–1476, at 57 (1976).

[459] Choudhury sent cease and desist letters to at least twenty-five studios; all but one of them agreed to his demands to avoid litigation. Machan, *supra* note 456, at 33.

[460] Open Source Unity Yoga v. Choudhury, 74 U.S.P.Q.2d (BNA) 1434, at 1438 (N.D. Cal. 2005). The court concluded "OSYU has provided no persuasive authority that a compilation of yoga asanas cannot be protected under the copyright laws in the same manner as other compilations." *Id.* at 1437.

[461] Marius Meland, *Yoga Guru Settles Copyright Case*, LAW360 (May 16, 2005, 12:00 AM), http://www.law360.com/articles/3453/yoga-guru-settles-copyright-case.

[462] *E.g.*, Bikram's Yoga Coll. of India v. Evolation Yoga LLC, 105 U.S.P.Q.2d (BNA) 1162 (C.D. Cal. 2012), *aff'd*, 803 F.3d 1032 (9th Cir. 2015).

[463] *See, e.g.*, Ellen Rosen, *Yoga Pose Copyright Bid Too Much of a Stretch, Regulator Says*, BLOOMBERG (Dec. 10, 2011, 1:39 AM), http://www.bloomberg.com/news/articles/2011-12-10/yoga-poses-can-t-be-registered-for-copyrights-u-s-says-1-.

[464] Copyright Policy Statement, *supra* note 237, at 37,605. The protectability under copyright law of functional compilations is considered in detail in Pamela Samuelson, *Functional Compilations*, HOUS. L. REV. (forthcoming 2016).

[465] *Id.* at 37,607–08.

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> cases where the particular movements and the order in which they are to be performed are said to result in improvements in one's health or physical or mental condition.[466]

Thus, dissimilarities between authorship in original choreography and the design of yoga sequences cut against yoga sequences being within copyright's domain.[467]

The Office pointed to legislative history indicating that under the 1976 Act, Congress "does not intend . . . to allow unlimited expansion into areas completely outside the present congressional intent. Section 102 implies neither that that subject matter is unlimited nor that new forms of expression *within that general area of subject matter* would necessarily be unprotected."[468] The House Report on the 1976 Act observed that "there are unquestionably other areas of existing subject matter that this bill does not propose to protect but that future Congresses may want to."[469] From this passage, the Office concluded that "Congress intended the statute to be flexible as to the scope of established categories, but also that Congress intended to retain control of the designation of entirely new categories of authorship."[470]

While Congress intended to extend protection to compilations that were original in selection and arrangement of elements, the Office asserts that "unless a compilation of materials results in a work of authorship that falls within one or more of the eight categories of authorship listed in section 102(a) of title 17, [it] will refuse registration in such a claim."[471] A selection and arrangement of musical works or photographs would, for example, be a protectable compilation, but a selection and arrangement of rocks or hand-tools would not.[472]

Soon after the Office issued this policy statement, a federal district court granted summary judgment to the unlicensed users of Choudhury's yoga sequence,

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[466] *Id.* at 37,607.

[467] *Id.*

[468] *Id.* at 37,606 (quoting H.R. REP. NO. 94-1476, at 51 (1976)) (emphasis added).

[469] *Id.* at 37,606–07 (the Office's policy statement italicized this quotation).

[470] *Id.* at 37,607.

[471] *Id.*

[472] *Id.*

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ruling that they had not infringed copyright.[473] The court relied on the Office's analysis in holding that this sequence was an unprotectable procedure or system of exercises.[474] Choudhury's appeal to the Ninth Circuit Court of Appeals proved unsuccessful because "medical and functional considerations at the heart of the Sequence compel the very selection and arrangement of poses and breathing exercises for which he claims copyright protection."[475] The Sequence was an unprotectable system or method of operation that lies outside the scope of copyright protection.[476]

Perhaps Congress could constitutionally extend copyright protection to yoga sequences, but it should not do so, even if Choudhury were to seek protection in that forum. None of the criteria for extending copyright to this type of subject matter would support a claim of copyright. Sequences of yoga poses have been in existence for millennia and copyright has generally not protected them, so the new subject matter criterion would not be satisfied, nor are there changed circumstances that would cut in favor of treating them as works of authorship. Insofar as designing a sequence of yoga poses is intended to foster spiritual and physical health, such a sequence is not expressive in the way that conventional works of authorship are. The human communication and authorship criteria cut against protectability.

The economic argument for treating yoga sequences as works of authorship also seems weak. Choudhury has been able to recoup his investment in the creation of this sequence through the sales of books and videotapes, and also through the studios he has run and others he has licensed to practice his sequence. Trademark and unfair competition law would protect his interest in the value of his name and affiliation from being used in a false or deceptive manner. The lengthy monopoly that copyright would provide to a yoga sequence would impede competition and innovation, such as the creation of variants, which a yoga sequence creator might well consider to infringe his derivative work right.[477] If yoga sequences were to

[473] Bikram's Yoga Coll. of India v. Evolation Yoga LLC, 105 U.S.P.Q.2d (BNA) 1162, 1166 (C.D. Cal. 2012), *aff'd*, 803 F.3d 1032 (9th Cir. 2015).

[474] *Id.* at 1165–66. The case and the Ninth Circuit's ruling is discussed in more detail in Christopher Buccafusco, *Authorship and the Boundaries of Copyright: Ideas, Expressions, and Functions in Yoga, Choreography, and Other Works*, 39 COLUM. J.L. & ARTS 421 (2016).

[475] *Evolation*, 803 F.3d at 1042.

[476] *Id.* at 1037–40.

[477] Machan, *supra* note 456, at 34 (Choudhury claimed modifications of his sequence infringed the derivative work right).

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become copyrightable, this might well open the door to personal trainers claiming copyright in sequences of exercises, which, like yoga sequences, may foster physical and spiritual well-being. This seems far afield from the expressive works that copyright law is intended to induce.

3. Gardens

The copyrightability of garden designs was considered by the Seventh Circuit Court of Appeals in *Kelley v. Chicago Park District*.[478] The court concluded that Kelley's garden, Wildflower Works, was not a work of authorship that was eligible for either copyright or VARA protection.[479] The court offered virtually no explanation of its reasoning, asserting only that "gardens are planted and cultivated, not authored."[480]

The design of a garden is certainly more of an artistic expression than the design of sequences of yoga poses or of synthetic DNA.[481] Garden designs may, moreover, be the work of conceptual artists such as Chapman Kelley.[482] As implemented in public spaces such as parks, they may even be widely accepted as visual art.[483] But the Seventh Circuit was probably right to rule that they are not works of authorship within the meaning of that term in the 1976 Act.[484] The Copyright Office policy

[478] *See supra* notes 5–9 and accompanying text.

[479] Kelley v. Chi. Park Dist., 635 F.3d 290, 304 (7th Cir. 2011). The court pointed out that the words "painting" and "sculpture" in the definition of "works of visual art" that qualify for VARA protection were words of limitation. *Id.* at 301. That is, while paintings and sculptures may comfortably fit within the definition of "pictorial, graphic and sculptural works," only those PGS works that actually *are* paintings and sculptures qualify for VARA protection. *Id.* at 300.

[480] *Id.* at 304 ("We fully accept that the artistic community might classify Kelley's garden as a work of postmodern conceptual art. We acknowledge as well that copyright's prerequisites of authorship and fixation are broadly defined. But the law must have some limits; not all conceptual art may be copyrighted. In the ordinary copyright case, authorship and fixation are not contested; most works presented for copyright are unambiguously authored and unambiguously fixed. But this is not an ordinary case. A living garden like Wildflower Works is neither 'authored' nor 'fixed' in the senses required for copyright.").

[481] It is worth noting that some nations have extended copyright protection to garden designs. *See, e.g.*, Jane C. Ginsburg, *The Concept of Authorship in Comparative Copyright Law*, 52 DEPAUL L. REV. 1063, 1084 (2003).

[482] Kelley was a well-known conceptual artist, and an art expert testified in support of his claim that the garden design was a "work of art." *Kelley*, 635 F.3d at 291–92, 300.

[483] The Seventh Circuit noted that Kelley's garden had been widely acclaimed as a work of "living art." *Id.* at 291.

[484] The district court concluded that there was insufficient originality in Kelley's garden design to support copyright because Kelley was not the first person to design an elliptical garden and to use varieties of

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statement on copyright subject matter has resonance for gardens as well. Congress did not designate garden designs as copyright subject matter in the 1976 Act, and gardens have not been considered pictorial, graphic, or sculptural works in the past, although garden design is a very old field. The flexibility in § 102(a)'s conception of works of authorship should be reserved for new types of creative works that come into existence or changed circumstances that would justify an extension of copyright protection to works already known to exist.

Kelley did not take the matter to Congress, but what if he had? While the authorial and human communication criteria may be satisfied, consideration of other criteria casts doubt on the proposition that Kelley's garden is or should be a copyright-protectable work of authorship.

The only new circumstance that might arguably support extending copyright to Kelley's garden is the rise of conceptual art and of gardens as a medium through which conceptual artists such as Kelley might express themselves.[485] However, gardens have had aesthetic characters for centuries, and landscape designers have not asserted copyright protection for them, at least in the United States. Maybe that is a sign that copyright protection is not needed to induce the creation of gardens.

The economic argument for extending copyright protection to garden designs also seems quite weak. Consider, for instance, that Kelley's complaint was not that other people were making unauthorized reproductions, derivative works, or public displays of his work, or that he was unable to recoup his investment in the garden design. His lawsuit was instead aimed at stopping the City from changing the configuration of the garden, even though he and his supporters had failed to keep the garden in good condition after the passage of ten years.[486] Owners of real property such as Grant Park should to be able to make decisions about how to deploy this precious resource without interference from gardeners whose designs they use for a time. There is no market failure that copyright protection would cure.

Granting copyright protection to gardens such as Kelley's would have major implications for gardening more generally. It is far from clear that copyright doctrines and their remedial structure are a good fit for garden designs. Because of

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plants in it. Kelley v. Chi. Park Dist., No. 04 C 07715, 2008 WL 4449886, at *6 (N.D. Ill. Sept. 29, 2008), *aff'd in part, rev'd in part*, 635 F.3d 290 (7th Cir. 2011). The Seventh Circuit criticized the district court for conflating novelty and originality. Because there was a modicum of creativity in the design, the originality criterion was satisfied. *Kelley*, 635 F.3d at 302–03. The Seventh Circuit had more difficulty concluding that copyright's fixation requirement was satisfied with the planting of this garden. *Id.* at 304–05.

[485] *See, e.g.*, Cronin, *supra* note 30, at 248–53 (discussing conceptual art and VARA).

[486] *Kelley*, 635 F.3d at 292–95.

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the relatively low originality standard of U.S. copyright law, virtually all gardens would become eligible for copyright protection under Kelley's interpretation, even if perhaps not for the extra level of protection that VARA provides. Perhaps no one but Kelley would seek copyright protection for their designs, but if they did, copyright rules might inhibit common practices of drawing upon existing garden designs in making new ones. Some garden designs, moreover, may have functional rather than expressive purposes that should not be subject to copyright restrictions.

Courts should not treat gardens as copyrightable subject matter in view of the mismatch in economic and legal regime criteria. If Congress had meant for gardens to be copyright subject matter, it would have identified them as one of the enumerated categories.

V. CONCLUSION

This article has charted the somewhat ragged path that U.S. copyright law has taken in enlarging not only the types of subject matters eligible for copyright protection, but also in expanding the very conception of what is and what can be copyright subject matter. Congress may have intended to provide a modest amount of room for common law expansion of copyright subject matter by its general statement that original works of authorship fixed in a tangible medium of expression are eligible for copyright protection, but there are good reasons to doubt that Congress intended to enable all manners of unenumerated subject matters, such as synthetic biology, yoga sequences, and garden designs, to be incorporated into the copyright regime. It is notable that neither the courts nor the Copyright Office have been persuaded to interpret "works of authorship" as expansively as some commentators have proposed.

This article has offered five criteria to consider when assessing whether as-yet unenumerated subject matters should be added to the U.S. copyright regime, focusing on economic, changed circumstances, legal fit, authorial processes and products, and human communication factors. Congress will almost certainly be asked to extend copyright (or copyright-like) protection to new subject matters in the future.[487] Fashion designers may, for example, renew their efforts to obtain copyright

[487] Perfume enjoys some copyright protection in Europe. *See, e.g.*, Tribunal de commerce [T. Com.] [Commerce Ct.] Paris, 15e ch., Sept. 24, 1999, Gaz. Pal. 2001, 17-18.01, 5 (holding that the process of making perfume was more like aesthetic research and therefore copyrightable); L'Oreal v. Bellure, [2006] EWHC 2355, [13] (Ch) (holding that perfumes are copyrightable where their constituent chemicals were combined "in such proportions that their smells reveal the creative contribution of the author); HR 16 juni 2006, NJ 2006, 585 m.nt. J.H. Spoor (Kecofa/Lancôme) (Neth.) (holding that fragrances which were perceptible and fixed in a liquid could be eligible for copyright protection). *But see* Cour de cassation

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or copyright-like protection for their creations.[488] So far, Congress has not adopted

[Cass.] [Ultimate Ct. App.] Paris, 1e civ., June 13, 2006, Gaz. Pal. 2006, Somm. 1741, J. Daleau (ruling that perfume was just a product of technical knowledge and not copyrightable). Perfume is not, however, protected by copyright law in the United States. *See, e.g.*, David A. Einhorn & Lesley Portnoy, *The Copyrightability of Perfumes: I Smell a Symphony*, INTELL. PROP. TODAY, Apr. 2010, at 9. Perfume makers have not sought copyright protection in the United States, but Congress should be wary of any proposal to add it to U.S. copyright subject matter. Perfume products are already protected by other intellectual property regimes such as trade dress, trademark, trade secrets, and patent law. Perfume would probably also fail the authorship and human communication criteria. Due to the crude nature of our sense of smell, we may be unable to perceive whatever expression was made in the development of the perfume. Cronin, *supra* note 30, at 446, 460–61. Like fashion, the perfume industry has thrived with limited protection, and has been around for thousands of years, so it would also fail the economic and changed circumstances criteria. Perfume is a twenty billion dollar worldwide industry. Einhorn & Portnoy, *supra*, at 8.

[488] Fashion designers are like graphic artists, and their creative process is artistic, similar to those that yield copyrighted works. Fashion is attractive to consumers sometimes because of its beauty and sometimes because it conveys other kinds of messages (e.g., "I'm hip") that the designer thinks will attract a certain type of purchaser. *See, e.g.*, C. Scott Hemphill & Jeannie Suk, *The Law, Culture, and Economics of Fashion*, 61 STAN. L. REV. 1147, 1149–52 (2009). Fashion enables communication not only between the designer and his or her customers, but also between the designer and the public at large (e.g., this is a Chanel jacket) and between the purchaser and the community in which the purchaser wears the design. Thus, it is understandable that fashion designers have wanted copyright or copyright-like protection from "knockoffs." *See Stop Fashion Piracy*, ARTS OF FASHION FOUND, http://www.arts-of-fashion.org/stopdesignpiracy.html (last visited Apr. 4, 2016). Advances in technology have, of course, made it much easier and faster for second comers to copy fashion designs and get the knockoffs to market. *Id.* (reason #3). But it has long been quite easy to copy fashion designs, as *Drury v. Ewing* showed 150-plus years ago. *See supra* notes 81–90 and accompanying text. Because the changed circumstances criterion also considers how long the unenumerated subject matter has been in existence and whether copyright has been considered for it, there is virtually no chance that courts would consider fashion to be copyrightable as an unenumerated work of authorship. Not only are there decisions in the post-*Baker v. Selden* era that have excluded fashion from copyright protection, *see, e.g.*, Jack Adelman, Inc. v. Sonner's & Gordon, Inc., 112 F. Supp. 187 (S.D.N.Y. 1934) (copyright in drawing did not extend to design of dress), but the 1976 Act precludes protection for pictorial, graphic, or sculptural works insofar as their aesthetic and utilitarian aspects are inseparable, as is true with most fashion. *See supra* notes 160–71, 212–19 and accompanying text. Professors Raustiala and Sprigman have offered an economic argument against fashion copyrights, emphasizing that the dynamics of the fashion industry provide adequate incentives to create and disseminate fashion products. *See, e.g.*, Kal Raustiala & Christopher Sprigman, *The Piracy Paradox: Innovation and Intellectual Property in Fashion Design*, 92 VA. L. REV. 1687 (2006). Typically high-end designers offer high price, high quality products to fashion-conscious consumers who purchase them at haute couture stores. The people most likely to buy knockoffs of these designs are people who haven't the means to buy the high end products, so makers of knockoff products are not supplanting demand for the original; they are serving a different market. Fashion designers have incentives to offer new designs every season, rather than reselling the same design year after year, to attract high-end customers to buy new products on a continual cycle. The fashion industry in the United States is a multi-billion dollar enterprise, so it would seem that the industry is doing well without copyright protection. *See* Hemphill & Suk, *supra*, at 1148 (fashion is a $200 billion global industry). *But see* Susan Scafidi, *F.I.T.: Fashion as Information Technology*, 59 SYRACUSE L. REV. 69 (2008); Samson Vermont, *The Dubious Legal Rationale for Denying Copyright to Fashion*, 21 TEX. INTELL. PROP. L.J. 89 (2013). David Nimmer

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legislation in response to their pleas.[489] Fashion may be the product of aesthetic design and communication to human audiences, but other factors weigh against the grant of exclusive rights in fashion. Because copyright provides a very long period of protection to works exhibiting only a modest level of creativity—cutting off opportunities for competition and unauthorized innovation building on past creations—it is wise to keep the bounds of copyright subject matter confined to those subject matters that Congress has specifically chosen to use copyright to protect.

used the recent fashion bills as a launching point to contemplate copyright law subject matter and what should fall under its protection. *See generally* David Nimmer, *Copyright and the Fall Line*, 31 CARDOZO ARTS & ENT. L.J. 803 (2013).

[489] The most recent bill introduced in Congress to protect fashion would have provided a three year term of protection for fashion designs that are "unique, distinguishable, nontrivial, and non-utilitarian variation over prior designs." S. 3523, 112th Cong. § 2 (2012). Merely original designs for clothing, purses, and eyeglasses would not qualify for protection under this law. It would have joined boat hull designs in Chapter 13 of Title 17 of the U.S. Code. *Id.* Designers would be required to give notice of their claim of design protection. *Id.* Infringement liability would only be imposed if subsequent designs were substantially identical to protected designs. *Id.* The legislation also would exempt home sewing from infringement liability. *Id.* That this legislation has been so carefully tailored to be shorter, more formalistic, and narrower in scope of protection is a strong indication that copyright and the perceived needs of the fashion industry are not well-matched. But Congress has not been convinced of the need for even this more tailored sui generis protection for fashion.

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http://lawreview.law.pitt.edu