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What Section 102(b) Excludes From Copyright Protection and Why

by

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Introduction

Section 102(b) is one of the relatively few concise and elegant provisions of the Copyright Act of 1976. "In no case," it says, "does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work."[1] This provision nicely complements its statutory cousin, section 102(a), which sets forth criteria for determining whether works are eligible for copyright protection.[2] Once a particular work qualifies for protection, section 102(b) informs its author, as well as the rest of the world, about certain aspects of the protected work that are not within copyright's scope of protection.

Remarkably few cases and very little commentary have probed the meaning of section 102(b), and in particular, of the eight words of exclusion it contains. Most often, courts and commentators have characterized section 102(b) as a codification of the so-called "idea/expression dichotomy," that is, the longstanding copyright principle that this law protects authors against appropriations of the expression in their works, but not the

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[1] 17 U.S.C. sec. 102(b). There was no counterpart in earlier copyright statutes to this provision. The origins of this provision are discussed infra Part II.

[2] "Copyright subsists…in original works of authorship fixed in any tangible medium of expression…." 17 U.S.C. sec. 102(a).

ideas the works contain.[3] (This article will call this principle the "idea/expression distinction."[4]) Others have described section 102(b) as a codification of the Supreme Court's decision in Baker v. Selden,[5] which held that methods and systems of bookkeeping were unprotectable by copyright law.

Treatise author Paul Goldstein has pointed out that both key terms, "idea" and "expression," should be understood as metaphorical concepts for those aspects of protected works that either are or are not within the scope of copyright protection.[6] That is, "idea" is a metaphor that which is unprotectable by copyright law, including many more things than abstract ideas, and "expression" should be understood as extending to more than the exact words of a text or exact lines of a drawing.[7] Some judges and commentators have, however, construed "idea" for purposes of this distinction too literally,[8] as though that term was synonymous only with abstract ideas and as though the other seven words in the statute were superfluous. This article argues that all eight words of exclusion are in the statute and were put in the statute for good reason, and hence those who read them out of the statute are mistaken. To signal more clearly the broader nature

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[3] See, e.g., 1 PAUL GOLDSTEIN, GOLDSTEIN ON COPYRIGHT sec. 2.3 (2002).

[4] The word "dichotomy" denotes the division of phenomena into two distinct and mutually exclusive groups or the splitting of things into two groups, while the term "distinction" denotes the quality or state of distinguishing differences. See Websters International Dictionary. Lawyers and judges work to distinguish between ideas and expressions, rather than conceiving of an inherent property of ideas and expressions as belonging to distinct groups.

[5] 101 U.S. 99 (1880). *Baker* is discussed infra notes xx and accompanying text. See, e.g., *Brief Amicus Curiae of Copyright Law Professors in* Lotus Development Corp. v. Borland Int'l, Inc. (brief to U.S. Supreme Court), 3 J. Intell. Prop. L. 103, 116 (1995) (section 102(b) said to be a codification of *Baker*, endorsed by 34 intellectual property professors) (hereafter "Borland Amicus Brief."

[6] Goldstein, supra note xx, at 2.3.1.

[7] In the inimitable words of Judge Learned Hand: "It is of course essential to any protection of literary property…that the right cannot be limited literally to the text, else a plagiarist would escape by immaterial variation." Nichols v. Universal Pictures Corp., 45 F.3d 119, xx (2d Cir. 1930). The term "idea" is best understood as a metaphor for the unprotectable elements of copyrighted works, including but not limited to the words of exclusion in section 102(b).

[8] See infra notes xx and accompanying texts.

of the metaphor of "idea" as a designation for unprotectable elements of copyrighted works, courts might be well-advised to call it the "idea et al./expression distinction."

Part I discusses the origins of section 102(b) as it emerged in the course of the legislative history of the '76 Act. Part II explores the pre-76 Act caselaw that excluded processes, systems, and methods, as well as ideas, concepts, and principles, from the scope of copyright protection and some rationales that courts have given for limiting the scope of copyright in this way. Pre-76 caselaw also suggests that the eight words of exclusion in section 102(b) should be understood to be illustrative, rather than exhaustive, of the unprotectable elements in copyrighted works. Part III discusses the curious history of section 102(b) in the copyright caselaw involving computer programs. Although Congress expressly added section 102(b) to the statute to ensure that the scope of copyright protection in programs would be appropriately delimited, section 102(b) has had less of a role in resolving software copyright disputes than it should have. To aid courts and commentators in assessing whether particular aspects of copyrighted works should be deemed unprotectable under section 102(b), Part IV discusses several policy rationales that courts have identified for limiting the scope of copyright protection, which may help courts resolve some controversies as they struggle to decide which side of the idea et al/expression spectrum a particular defendant's taking should fall.

I. Origins of Section 102(b)

It took more than twenty years for Congress to pass legislation in 1976 that substantially revised the Copyright Act of 1909.[9] During the first six years (i.e., from 1955-1961), the Copyright Office commissioned studies on various revision-related

[9] Copyright Act of 1976, Pub. L. No. 94-553, 90 Stat. 2541 (1976), codified at 17 U.S.C. sec. 101 et seq., superseding the Copyright Act of 1909 that had been codified at 17 U.S.C. sec. 1 et seq.

issues.[10] Professor Walter Derenberg of New York University Law School submitted one such study to the Office in 1956 on which "writings" of "authors" Congress could constitutionally protect through copyright law.[11] It addressed a question raised in Justice William O. Douglas' opinion in Mazer v. Stein about whether Congress had the constitutional power to extend copyright protection to original designs for articles of manufacture, such as candlesticks, teapots, and lampbases.[12] Derenberg's study construed Congress' power very broadly,[13] thereby laying the conceptual groundwork for an extension of copyright protection to original designs for articles of manufacture and sound recordings.[14] Although the copyrightability of computer programs was not yet in

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[10] Congress authorized the Copyright Office to expend funds to commission copyright revision studies in 1955. The Copyright Office published these studies in 1960. See Copyright Law Revision Studies, 86th Cong., 2d Sess. (1960)(Senate Judiciary Comm. Print). The studies have been reproduced in 5 George S. Grossman, Omnibus Copyright Revision Legislative History: Copyright Law Revision Studies 1960 (2001) (hereafter "Grossman").

[11] See Staff Members of the New York University Law Review Under the Guidance of Walter J. Derenberg, Copyright Law Revision Study No. 3: The Meaning of "Writings" in the Copyright Clause of the Constitution (Nov. 1956) (hereafter "Writings"). This study was republished as Stephen Lichtenstein, et al., The Meaning of "Writings" in the Copyright Clause of the Constitution, 31 N.Y.U. L. Rev. 1263 (1956).

[12] Mazer v. Stein, 347 U.S. 201, 219-21 (1953) (Douglas, J., joined by Black, J.).

[13] See Writings, supra note xx, at 108: "From a review of the actions of the colonial legislatures, the Constitutional Convention and the courts, it seems clear that the words 'writings' and 'authors' will no longer limit the subject matter which can be copyrighted, at least insofar as the 'form' of the object is concerned."

[14] The early bills defined "pictorial, sculptural and graphic works" in a way that would arguably extend copyright to original designs for articles of manufacture. See S. 3008, 88th Cong., 1st Sess. (1964), sec. 1 (defining this class of works as including "two-dimensional and three-dimensional works of fine, graphic, and applied art, photographs, prints, and reproductions, maps, globes, charts, plans, diagrams, models, and works used in advertising or in labels for merchandise."). See The Kaminstein Legislative History Project: A Compendium and Analytical Index of Materials Leading to the Copyright Act of 1976 (Alan Latman & James F. Lightstone, eds. 1981), vol. I (hereinafter "Kaminstein History") at 27. This provision did not yet have the "useful article" limitation on the scope of PGS works that it acquired before final passage. See 17 U.S.C. sec. 101 (defining "useful article"). Kaminstein's original draft copyright revision bill would, however, have limited protection for PGS works to those that were non-utilitarian in themselves. See Kaminstein History, supra, at 9. For a history of proposals to protect industrial designs in U.S. copyright law, see 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 Law J. 1143.

contemplation, Derenberg's interpretation of Congressional power would allow extending copyright protection to programs as well.[15]

After reflecting on the commissioned studies and discussing them with interested parties, the Register of Copyrights, Abraham Kaminstein, issued a report in 1961 about his proposal for revisions to U.S. copyright law.[16] He then convened a series of meetings with interested parties to discuss the report and how to codify the revisions.[17] These deliberations informed the draft revision bill that the Copyright Office submitted to Congress in 1964 for legislative consideration.[18]

One novel feature of the 1964 copyright revision bill was its concise statement of the subject matter of copyright protection: "Copyright subsists," it said, "in original works of authorship fixed in a tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."[19] Protectable works of authorship, it continued,

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[15] Although computer programs were not then in contemplation, the broad conception of constitutional authority in Derenberg's study laid the foundation for protecting programs as well. The principal objection to the copyrightability of computer programs is based on the functionality of programs. See, e.g., National Commission on New Technological Works Final Report (1979) (hereafter "CONTU Report") at 27-37 (Hersey dissent). To the extent that Prof. Derenberg persuaded the Copyright Office that Congress had the constitutional power to protect works in which functionality and expression are intermixed, he was indirectly establishing the conceptual foundations for copyright protection for computer programs. Whether Congress should enact legislation to protect original industrial designs or programs is a separate question from whether they have the constitutional power to do so. In an earlier work, I questioned the constitutional underpinnings of copyright protection for computer programs in executable form owing, first, to the functionality of the executable code which copyright had never before protected, and second, to the lack of disclosure of the contents of published programs which seemed necessary for program copyrights to promote the progress of science. See Pamela Samuelson, *CONTU Revisited: The Case Against Copyright Protection for Machine-Executable Forms of Computer Programs*, 1984 Duke L.J. 663 (hereafter "CONTU Revisited").

[16] See Report of the Register of Copyrights on the General Revision of U.S. Copyright Law (1961).

[17] See Kaminstein History, supra note xx, at xxxi-xxxii.

[18] See H.R. 11947, 88th Cong., 2d Sess, (1964); S. 3008, 88th Cong., 2d Sess. (1964).

[19] See, e.g., id., sec. 1. See Kaminstein History, supra note xx, at 27. This provision is now codified as 17 U.S.C. sec. 102(a).

included but were not limited to a list of seven categories of works.[20] Its drafters considered this to be a more elegant as well as a more flexible statement of the subject matter of copyright protection,[21] for it cured two disadvantages of prior statutory subject matter provisions. Prior laws had listed specific types of protected works along with the exclusive rights associated with them.[22] As the statutory list of protected works got longer, the subject matter and exclusive rights provisions had become ever more cumbersome. Moreover, advances in technology often enabled the creation of types of works (e.g., photography and motion pictures), which often required courts to decide if such works fit within existing subject matter categories,[23] and if not, Congress to pass legislation to extend protection to them.[24]

A. Questions About Computer Programs and Computer Uses

At the request of Register Kaminstein, H.R. Mayers, the General Patent Counsel of General Electric Co., testified at a December 1964 hearing on the first bill.[25] Among other things,[26] Mayers opined that the bill's newly expansive subject matter provision

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[20] The seven categories listed in the original bill are substantially identical to the bill as enacted in 1976, except for the addition of "or other audiovisual works" to the motion picture category and some minor rewording. See Kaminstein History, supra note xx, at 27.

[21] See, e.g., Report to Accompany H.R. 2512, 90th Cong., 1st Sess. (1967) at 13-14 (explaining the rationale for the general subject matter provision). The new subject matter provision was also significant because it provided federal protection for works of authorship from the moment of first fixation, thereby displacing state common law copyrights for unpublished works, and lessened formalities for qualifying for protection. See, e.g., Robert A. Gorman, *An Overview of the Copyright Act of 1976*, 126 U. Penn. L. Rev. 856 (1978).

[22] See 17 U.S.C. secs. 1, 5 (now superseded) (sec. 1 listing exclusive rights and categories of works to which they pertained; sec. 5 listing 14 categories of copyrighted works)

[23] Wood v. Abbott, 30 F. Cas. 424 (C.C. S.D.N.Y. 1866)(finding infringement of copyright in photograph by construing photographs as within the statutory category of "prints or engravings")

[24] See, e.g., CONTU Report, supra note xx, at 11-14.

[25] See Testimony of H.R. Mayers, General Patent Counsel, General Electric Co., Hearings Before the House Comm. On the Judiciary, 89th Cong., 1st Sess., Copyright Law Revision, Part 5: 1964 Revision Bill with Discussions and Comments, H.R. Doc. No. 51-374 (1965) (hereafter "'65 Hearing" and "Mayers"), reproduced in 5 Grossman, supra note xx, at 269-78.

[26] Mayers' most immediate concern was about adaptations of scientific and technical articles for private use (e.g., making abstracts, digests or summaries of them) which he thought should be exempt from infringement. See id. at 271-72, 276-78. It is interesting that all of the testimonies that discussed computer-related issues included expressions of concern both about computer programs and about such

would extend copyright protection to computer programs.[27] Although Mayers supported such protection, he expressed concern that the "analytical concepts embodied in [programs]" and the "logic and mathematics" on which programs relied should not be within the scope of program copyrights.[28] Copyright protection for programs should, he believed, be "specifically delimited in light of the special characteristics and problems of this art."[29] Mayers also expressed his opinion about computer uses of copyrighted works, such as storage of a work in a computer or its manipulation; he did not think storage of works in computers should be infringing.[30] Insofar as computer processes "duplicat[e] or enhanc[e] human thought processes, such as reading, analyzing, searching, etc.," Mayers thought they should be non-infringing as they would be if performed by humans.[31]

Register Kaminstein was far more skeptical than Mayers about copyright protection for computer programs and also quite unsure how the revised law should apply to computer uses of copyrighted works. In January 1965, the Office published Circular 31D, announcing its willingness to accept registration of source code forms of original computer programs; yet, it did so under its so-called "rule of doubt" (that is, the Office

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computer use issues as the inputting of works into computers. In the first decade after enactment of the '76 Act, the caselaw and commentary on computer-related copyright issues was exclusively concerned with copyright in computer programs, see e.g., infra Part III, while the past decade has been dominated by concerns over the other computer use issues discussed in the copyright revision process, see infra notes xx.

[27] Mayers, supra note xx, at 272, 276.

[28] Id. at 272, 276.

[29] Id. at 272.

[30] "Storage of any copyright work in a computer or manipulation of such works within such computer should not constitute copyright infringement of such work. Copyright infringement should be determined by the form and the use of such work at the output of the computer." Id.

[31] Id. Thirty years later, the Clinton Administration took the position that all temporary copies of copyrighted works in the random access of computers implicated the exclusive reproduction right. See Intellectual Property and the National Information Infrastructure: Report of the Working Group on Intellectual Property Rights (Sept. 1995) at 64-67. Professor Jessica Litman, among others, criticized this interpretation as tantamount to saying that no one could read a copyrighted work without permission. See Jessica Litman, *The Exclusive Right to Read*, 13 Cardozo Arts & Ent. L. J. 29 (1994). For a history of efforts to get international agreement on such an expansive interpretation of the reproduction right, see Pamela Samuelson, *The U.S. Digital Agenda at WIPO*, Va. J. Int'l L. (1997). For a more extensive discussion of digital copyright issues, see Jessica Litman, Digital Copyright (2001).

doubted that computer programs really qualified for copyright protection, but was willing to issue a certificate of registration to program authors who wanted one and were willing to argue in court that the registered program was copyrightable).[32]

Soon thereafter, in a May 1965 supplementary report,[33] Kaminstein expressed doubt that "mere use of a work by a computer as a reference source in solving problems or compiling data" would infringe, but unlike Mayers, he seemed to think that unauthorized storage of copyrighted works in computers probably would be.[34] Yet, Kaminstein did not try to resolve this or other ambiguities about computer uses, saying that "it would be a mistake, in trying to deal with such a new and evolving field as that of computer technology to include an explicit provision that could later turn out to be too broad or too narrow."[35]

Kaminstein's uncertainty about computer-related issues is also evident from his colloquy with copyright lawyer Morton David Goldberg during a legislative hearing on the 1965 bill. After opining that computer programs qualified as "literary works" under the bill and that storing a work in a computer might infringe, Goldberg asked Kaminstein "whether the performance of a copyrighted computer program in a public showroom of I.B.M… constitutes a public performance."[36] Kaminstein responded:

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[32] Copyright Office Circular 31D (Jan. 1965), reprinted in Duncan M. Davidson, Protecting Computer Software: A Comprehensive Anlsysis, 1983 Ariz. St. L.J. 611, 652 n. 72: "The registrability of computer programs involves two basic questions: (1) whether the program is…a 'writing of an author' and thus copyrightable, and (2) whether a reproduction of the program in a form actually used to operate or to be 'read' by a machine is a 'copy' and can be accepted for copyright registration." Id. Both were "doubtful questions" but the Register was willing to accept programs for registration as the program had been published with proper copyright notices and the full source code was deposited with the office. Id.

[33] See Register of Copyrights, 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 (1965), reprinted in 5 Grossman, supra note xx, at 19.

[34] Id. at 18.

[35] Id.

[36] Testimony of Morton David Goldberg, 65 Hearings, supra note xx, at 62-63.

> I don't think there are any more difficult or important problems than the ones you've raised. As you undoubtedly noted, we deliberately avoided any specific references to "computers" or "information and retrieval units" in this [bill]. We think that there are many developments that are going to come in the immediate future, and we think it is safer to draft general language which can be interpreted by the courts to apply to particular usages.[37]

Kaminstein seemed content to leave all the difficult computer use questions to be resolved in the courts.[38]

The electronics industry was, however, displeased at the prospect of having to litigate over every copyright issue that computers might raise. In a May 1965 letter addressed to the House Judiciary Committee, Graham McGowan, head of the Electronics Industry Association (EIA), disputed the notion that inputting or storing a copyrighted work in a computer would infringe.[39] He also raised a new computer program-related issue: whether it should be lawful to reverse-engineer machine-readable forms of computer programs to discern the underlying ideas and mathematical formulae embedded therein.[40] McGowan thought the answer should be yes. To ensure public access to those ideas and formulae, he proposed that Congress pass a statutory exception to allow reverse engineering of lawfully acquired programs.[41]

The concerns expressed by Mayers and McGowan about the scope of copyright in computer programs seem to have resonated with Robert Kastenmeier, leader of the

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[37] Id. at 63.

[38] Commendable though it was that Kaminstein did not leap to the conclusion that all computer uses of copyrighted works were copyright-significant acts, it is surprising that the Copyright Office had so little to offer by way of guidance on these confusing issues.

[39] Letter of Graham W. McGowan, reprinted in Hearings before Subcomm. No. 3 of the House Comm. on the Judiciary on H.R. 4347, 89th Cong., 2d Sess. 1898-99 (1966).

[40] Id. at 1898.

[41] Id. McGowan did not use the term "reverse engineering," but rather spoke of the objectives of copyright not being achievable unless one who lawfully obtains a program can reduce it to intelligible form. Id. I adopted the modern expression for this concept to facilitate reader comprehension. The eventual reaction of the courts to reverse engineering is discussed infra notes xx and accompanying text.

copyright revision efforts in the House of Representatives. In October 1966 and then again in March 1967, Kastenmeier issued a report to accompany updated copyright revision bills, footnote 1 of which gave several examples of things that Congress did not intend to protect under the revised copyright bill.[42] The list included typography, blank forms, unfixed performances, interior decoration, and "ideas, plans, methods, systems, mathematical principles," along with "formats and synopses of television series and the like; color schemes; news and factual information, considered apart from its compilation or expression."[43] The footnote concluded that Congress would have to take future action to allow copyright for these works.[44]

Summoned to testify before the Senate on the 1967 copyright revision bill, EIA Director McGowan criticized the Kastenmeier report for not distinguishing between those things that Congress did not presently intend to protect through copyright law, such as typography and unfixed performances, and those that it should never protect, such as ideas and methods.[45] McGowan believed that "the public has the right to use the technical ideas contained in the copyrighted work."[46] He urged the Senators to make clear that such things as "ideas, methods, systems, and mathematical principles" were among the aspects of protected works for which copyright protection would never be

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[42] See ROBERT KASTENMEIER, REPORT TO ACCOMPANY H.R. 4347, REPORT NO. 2237, 89TH CONG., 2d Sess. at 44 n.1 (October 12, 1966), *reprinted in* 11 Grossman, supra note xx; ROBERT KASTENMEIER, REPORT TO ACCOMPANY H.R. 4347, REPORT NO. 2237 90th Cong., 1st Sess., at 15 n.1 (March 8, 1967), reprinted in 11 Grossman, supra note xx. Footnote 1 was identical in both reports.
[43] Id.
[44] Id.
[45] Statement of Graham W. McGowan, at Hearing on S. 597 before the Subcomm. on Patents, Trademarks, and Copyrights of the S. Comm. On the Judiciary, 90th Cong., 1st Sess. 969 (1967) ("McGowan Statement" and "67 Senate Hearing")
[46] McGowan Statement, supra note xx, at 969.

available.[47] McGowan, like Mayers before him, thought that inputting copyrighted works into computers should not infringe copyrights.[48]

Professor Arthur Miller, who testified before the same Senate subcommittee a few weeks earlier on behalf of a coalition of educational institutions, was far more critical than McGowan about copyright protection for computer programs, saying that programs were "functional item[s]" that were quite distinct in character from "books or plays or motion pictures or poetry—the forms of expression that have traditionally been covered by our copyright laws."[49] Miller worried that copyright for programs might "extend to or embody the process, scheme, or plan that the program uses to achieve a functional goal" and would confer "patent-like protection under the guise of copyright."[50] He regarded computer programming as "by and large, a derivative art based on fairly well established and commonly used mathematical and logical principles"[51] and questioned whether copyright incentives were really needed for programs.[52]

Yet, Miller recognized that Congress might decide to protect programs through copyright law, and advised that if so, it should make clear that protection would extend

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[47] Id.

[48] Id. Like Mayers, McGowan also wanted assurance that abstracting scientific works would be exempt from infringement. Id. at 970-71.

[49] Testimony of Arthur R. Miller, 67 Senate Hearing, supra note xx, at 196-97. This is the first of four positions that Miller has taken on copyright and computer program issues. By the time he served as chair of the CONTU subcommittee responsible for recommending what Congress should do about copyright for computer programs, he took a second position in favor of copyrighting programs. Several years after Congress acted upon CONTU's recommendations, Miller filed a declaration against copyright protection for the structure and organization of programs. See infra notes xx and accompanying text. Several years later, while working as counsel for IBM Corp. in litigation between Lotus Development Corp. and Borland Int'l, he wrote a law review article endorsing copyright protection for program structure. See Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 Harv. L. Rev. 1977 (1993). Miller's article did not disclose his prior inconsistent positions about computer program copyright issues or that he was acting as counsel to IBM at the time the article was written and published.

[50] Miller Statement, supra note xx, at 197, 199. Copyright would protect program innovations for far longer than if a patent had issued, and would do so without meeting patent procedural or substantive standards. Id.

[51] Id. at 197, 199.

[52] Id. at 198-99.

"solely to the duplication and replication of the program" and not to "the art, process, or scheme that is fixed in the program."[53] Only patent law could protect "systems, schemes, and processes."[54] In response to a request to craft specific language to implement his recommendation, Miller and a colleague offered the following proviso for the exclusive rights provision (now codified as section 106): "Provided, however, [t]hat nothing in this title shall be construed to give the owner of copyright the exclusive right to any idea, process, plan or scheme embodied or described in the copyrighted work…."[55]

Testifying for a second time a few weeks later on behalf of EDUCOM, Miller proposed a blanket exemption to permit inputting of copyrighted works into computers.[56] Because there was so much uncertainty about the copyright implications of computer uses of copyrighted works, Miller proposed establishment of a federal commission or council to "watch and study the growth of the technology, the uses of copyrighted materials actually made on the systems… and the economic effects on publishers and related groups."[57] This study would enable the commission or council to "establish some rational lines as to where the point of infringement should be put, what uses should be compensable, and what groups should be given some relief from copyright consequences."[58]

B. The Addition of Section 102(b) to Copyright Revision Bills

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[53] Id. at 197.
[54] Id. Miller then believed that "patent protection appears to be the appropriate vehicle" for protecting programs. Id. at 199.
[55] 67 Senate Hearing, supra note xx, at 1059. Miller worked on this proviso with Prof. Benjamin Kaplan and EDUCOM official, W. Morton Brown after EDUCOM had been criticized for not offering a concrete proposal in an earlier appearance. Id. at 1058-62.
[56] 67 Senate Hearing, supra note xx, at 558-59.
[57] Id. The Kastenmeier Report had also mentioned the possibility of a commission to study computer uses. See Report to Accompany H.R. 2512, supra note xx, at 24-25.
[58] 67 Senate Hearing, supra note xx, at 561.

Miller's recommendation for a statutory limitation on the scope of copyright bore fruit in 1969 when Senator McClellan introduced a new copyright revision bill, S. 543.[59] It redesignated the subject matter provision of the copyright revision bill as section 102(a) and added a new section 102(b): "In no case does copyright protection for original works of authorship extend to any idea, plan, procedure, process, system, method of operation, concept, principle or discovery, regardless of how it is…embodied in such work."[60] Subsequent House and Senate bills incorporated this language without only one minor change,[61] and section 102(b) was codified seven years later in the '76 Act.

At least six of section 102(b)'s excludables had direct roots in testimonies discussing computer programs and in footnote 1 of the Kastenmeier reports.[62] Mayers worried that copyright would extend to "analytical concepts," "logic and mathematics" and "human thought processes" embodied in or emulated by programs.[63] McGowan wanted assurance that "ideas" and "mathematical formulae" embodied in programs would be beyond copyright's scope,[64] while Miller wanted a statutory exclusion of any "idea, process, plan or scheme" contained in programs and spoke of "mathematical and logical principles" as elements of programs that copyright should not protect.[65] The

[59] S. 543, 91st Cong., 1st Sess. (Committee Print) (1969).
[60] See Kaminstein, supra note xx, at 42.
[61] The word "plan" was omitted from the final version of the bill. See id. at 54.
[62] Neither these witnesses nor the Kastenmeier report mentioned "procedure" or "discovery." The witnesses also spoke of logic, schemes, plans, and mathematics (or mathematical formulae) as unprotectable elements of programs. Miller too had mentioned "plans" in his exclusionary proviso, which is why it too may have been in the revision bill till 1976. See supra notes xx, yy, zz and accompanying texts. Although none of these words was included in section 102(b), they, like the statutory words of exclusion, have roots in the caselaw as unprotectable elements of protected works. See infra Part II.
[63] See supra notes xx and accompanying text.
[64] See supra note xx and accompanying text.
[65] See supra notes xx and accompanying text.

Kastenmeier report listed "ideas, plans, methods, systems, [and] mathematical principles" as among the elements of protected works that Congress did not intend to protect.[66]

The legislative history does not reveal why these eight words of exclusion were chosen for section 102(b), but it is readily apparent, upon parsing them, that one cluster pertains to higher level abstractions, i.e., ideas, concepts, and principles,[67] while a second cluster represents more complex and detailed information innovations that may be described or embodied in copyrighted works, i.e., processes, procedures, systems, and methods of operation.[68]

The House and Senate Reports explained the rationale for including section 102(b) in the statute:

> Some concern has been expressed lest copyright in computer programs should extend protection to the methodology or processes adopted by the programmer, rather then merely to the "writing" expressing his ideas. Section 102(b) is intended, among other things, to make clear that the expression adopted by the programmer is the copyrightable element in a computer program, and that the actual processes or methods embodied in the program are not within the scope of the copyright law.[69]

These reports also indicate that Congress intended neither to enlarge nor to contract the scope of copyright protection through codifying section 102(b), but rather "to restate, in

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[66] See supra notes xx and accompanying text.
[67] See OED and American Heritage definitions.
[68] See OED and American Heritage definitions. Although "procedure" was not mentioned in the legislative history, its meaning substantially overlaps with "methods" and "processes" that were mentioned so mentioned. See OED; American Heritage. It is, however, something of a mystery why section 102(b) excludes "discover[ies]" from the scope of copyright protection, as discoveries would seem to be disqualified from protection as unoriginal elements of protected works. As Part II-A will show, infra, Baker v. Selden mentions discoveries as among the things that copyright law does not protect. The U.S. Constitution, moreover, uses the words "discoveries" as a term to designate the constitutional subject matter for inventions in the useful arts. Insofar as the exclusion of discoveries from the scope of 102(b) derives from this meaning of the term, it would be a synonym for processes, procedures, systems and methods of operation.
[69] See, e.g., H. Rep. 94-1476, 94th Cong., 2d Sess. 57, reprinted at 1976 U.S. Code Cong. & Admin. News, 5659, 5670.

the context of the new single Federal system of copyright, that the basic dichotomy between expression and idea remains unchanged."[70]

C. Creation of CONTU to Deal with New Technology Issues

Prof. Miller's proposal for a federal commission to address unresolved computer use issues also bore fruit. In July 1967, the Senate convened a meeting of 150 interested parties, including authors, publisher, librarians, educators, computer users, and representatives of government agencies, to discuss whether to establish a national commission to study the copyright implications of computer uses of copyrighted works.[71] At the meeting, it became evident that computer uses were far from the only new technology use issue about which sharp disagreements existed. Publishers thought that photocopying of articles, especially photocopying services by libraries, infringed copyrights in the articles, and libraries, educational institutions, and others thought that such photocopying, especially for research purposes, was fair use.[72]

Shortly after this meeting, Senator McClellan introduced S. 2216 to establish a National Commission on New Technological Uses of Copyrighted Works (CONTU).[73] Its charter included consideration of the copyrightability of machine-executable computer programs, which remained unresolved, the addition of section 102(b) to the statute notwithstanding. Although the Senate passed S. 2216 in October 1967, the House took no action on it that year.[74] Unfortunately, dissension over new technology issues continued to flare up in the legislative debate and delayed enactment of the copyright

[70] Id.
[71] See 113 Cong. Rec. 20909 (statement of Sen. McClellan).
[72] S. Rep. No. 640, 90th Cong., 1st Sess. at 2 (1967).
[73] S. 2216, 90th Cong., 1st Sess. (1967).
[74] The legislative history of CONTU is described in App. A to the CONTU Report, supra note xx.

revision bill.[75] Hoping to break this legislative logjam, Congress passed legislation in 1974 to establish CONTU and put a placeholder provision in the copyright revision bill that, in essence, left unchanged the state of the law—whatever that was—on computer use issues under the 1909 Act.[76]

This avoided the need to take a position about the application of the 1909 Act to the controversial new technology issues, while at the same time giving CONTU an opportunity to provide thoughtful guidance to Congress about how copyright law should be applied to these controversial new technology issues.[77] After spinning off the controversial new technology issues to CONTU, Congress was finally able to pass the Copyright Act of 1976.[78] Another technology-related feature of the '76 Act was its exclusion of "useful articles" from the scope of copyright protection,[79] an exclusion that, like many other familiar copyright doctrines,[80] can be traced to the Supreme Court's decision in Baker v. Selden,[81] to which we now turn.

II. Caselaw Foundations of Section 102(b)

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[75] Id.

[76] See, e.g., S. Rep. No. 983, 93d Cong., 2d Sess. 112, 154(1974)(explaining interim sec. 117).

[77] In addition to addressing computer-inputting and photocopying issues, CONTU also considered whether computer programs should be eligible for copyright protection. Among the reasons that CONTU gave for its comfort with copyrighting programs was because section 102(b) would ensure that copyright protection for programs would not be too broad. CONTU Report, supra note xx, at xx.

[78] Pub. L. No. 94-553, 90 Stat. 2541 (1976).

[79] 17 U.S.C. sec. 101 (defining "useful article" as "an article having an intrinsic utilitarian function that is not merely to portray an appearance of the article or to convey information"). See also 17 U.S.C. sec. 113 (copyright in drawing does not extend to useful article depicted therein).

[80] See Pamela Samuelson, Baker v. Selden: *Sharpening the Distinction Between Authorship and Invention* in INTELLECTUAL PROPERTY STORIES (Jane C. Ginsburg and Rochelle Cooper Dreyfuss, eds. 2006) (cited hereafter as "Baker Story") at 181-92(showing that eight major doctrines of copyright law flow from *Baker*).

[81] 101 U.S. 99 (1879). Baker endorses copyright protection in works that convey information (e.g., by explaining, describing or otherwise depicting it) and those that display an appearance (e.g., sculptures that are objects of contemplation), but not for works or for elements of protected works that have intrinsic utilitarian function beyond this. Thus, the '76 Act's test for copyrightability depends on standards that emerged from Baker. See infra notes xx and accompanying text for a discussion of *Baker*.

The House and Senate Reports characterized section 102(b) as a statutory restatement of existing principles of copyright law.[82] Part II will show that this assertion is correct by discussing the caselaw that laid the foundations for section 102(b). Subpart A will show that ideas and concepts were unprotectable by copyright law prior to the Supreme Court's decision in Baker v. Selden,[83] and why *Baker* should not be regarded as the source of the distinction between ideas and expressions. Subpart B explains why *Baker* is better understood as a key precedent for the "system," "process," and "method" exclusions now codified in section 102(b). Subparts C and D will discuss caselaw that followed *Baker*, extended its analysis, and added to the list of elements of copyrighted works excluded from the scope of its protection.

A. The Unprotectability of Ideas and Concepts

Baker is widely cited for the principle that copyright law protects expression, not ideas, and sometimes identified as the origin of this distinction.[84] An historian might question this conception of *Baker* for at least four reasons.

First, caselaw predating *Baker* had already recognized that copyright law does not protect ideas and concepts, but only authorial expression of them. In Perris v. Hexamer,[85] for example, the Supreme Court ruled that a map maker did not infringe another map maker's copyright when it used substantially the same symbol system for a similar map of a different city, saying that the complainants had "no more an exclusive right to use [these symbols] to express their ideas upon

[82] See supra note xx and accompanying text.
[83] 101 U.S. 99 (1879).
[84] See, e.g., Whelan Associates, Inc. v. Jaslow Dental Labs Corp., 797 F. 2d 1222, 1234-35 (3d Cir. 1983) (crediting *Baker* as the first enunciator of the idea/expression distinction); Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240, 1253 (3d Cir. 1983), and other cases discussed infra in Part IV.
[85] See, e.g., Perris v. Hexamer, 99 U.S. 674 (1879).

the face of the map than they have to use the form of type they select to print the key." [86] A well-known English case, Pike v. Nicholas, involved two contestants for a prize for the best essay on the origins of the English nation. Both authors adopted the same theories, made similar speculations, and reached the same conclusions. When one of them sued the other for copyright infringement, the court rejected the claim, saying that copyright law provided "no monopoly in the main theory of the Plaintiff, or in the theories and speculations by which he has supported it."[87] Pike was unable to show that "there were substantial passages either actually copied, or copied with merely colorable alteration."[88]

Second, the *Baker* decision used the word "idea" only twice, and in neither context was the point that copyright did not protect ideas. The Court said, for instance, that although a book might both describe a useful art and illustrate its use by means of "lines and figures which are reproduced in practice in the application of the art," copyright law would not protect these illustrations because they are "the mere language employed by the author to convey his ideas more

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[86] Id. at 676. See also EATON S. DRONE, A TREATISE ON THE LAW OF PROPERTY IN INTELLECTUAL PRODUCTIONS 98, 205 (1879) ("Literary property…is in the intellectual creation which is embodied in [] language," but "there can be no property in thoughts, conceptions, ideas, [and] sentiments" nor any "exclusive property in a general subject or in the method of treating it; nor in the mere plan of a work; nor in common materials or the manner or purposes for which they are used," citing cases); J.H. Reichman, *Computer Programs as Applied Scientific Knowhow: Implications of Copyright Protection for Commercialized University Research*, 42 Vand. L. Rev. 639, 693 n. 288 (1989) ("the idea/expression distinction dates back to the earliest origins of both domestic and foreign copyright law"). Much of the work that today would be done by the idea/expression distinction was done in the mid-19th century by considering whether the similarities in the plaintiffs' and defendants' works were attributable to common subjects, common sources, and/or common themes. See Drone, supra, at xx.

[87] 5 Ch. App. 251 (1870). See also Sayre v. Moore, 1 East 361, 362, 102 Eng. Rep. 139, 140 (KB 1785) (copyright "guards against the piracy of the words…; but it does not prohibit writing on the same subject" so the question is whether the defendant's work is "a servile imitation"); Jeffreys v. Boosey, 4 H.L.C. 815, 10 Eng. Rep. 681 (1854) (Erle, J.: "the subject of property is the order of words in the author's composition…no[t] the ideas expressed by those words"); Kendrick & Co. v. Lawrence & Co., 25 Q.B. 99 (1890)(copyright in drawing to show illiterate voters how to cast a vote was not infringed by similar drawing for sale to voting officials; copyright did not protect the idea of this drawing; infringement would occur only if there was literal reproduction of the drawing).

[88] Pike v. Nicholas, 5 Ch. App. at xx.

clearly."[89] A second use of "idea" was when the Court noted that the plausibility of Selden's claim "arises from a confusion of ideas produced by the peculiar nature of the art described in [his] books," for "[i]n describing the art, the illustrations and diagrams employed happen to correspond more closely than usual with the actual work performed by the operator who uses the art."[90] In both contexts, the Court was trying to convey that useful arts depicted in copyrighted works are unprotectable regardless of whether they are described in a text or illustrated by forms or drawings,[91] not that abstract ideas, concepts, and principles were unprotectable by copyright law.

Third, a textual analysis of the Court's decision in *Baker* reveals that the main message the Court was trying to convey was that bookkeeping systems and other useful arts were not within the scope of copyright protection for any text that might explain them or any drawing that might illustrate them. This is evident from the frequency with which the Court used the words "system" (22 uses), "method" (8 uses), and "art" (which in context meant "useful art," 32 uses) to identify innovations that copyright law did not protect, although patent law might, and "explain/explanation" (14 uses), "describe/description" (12), and "illustrate/illustration" (22 uses) to indicate what copyright law did protect.[92]

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[89] *Baker*, 101 U.S. at 103.
[90] Id. at 104.
[91] The Court did not use the word "expression" at all. The only time it used the word "express" was in saying that authors have the right to express the truths of science or methods of an art. Id. at 102. See supra note xx and accompanying text for the full text of this quotation.
[92] The Court seems to have used the words "illustrate" and "illustration" most often because it perceived the forms in Selden's book as an illustration of the bookkeeping system described in the text of his book. The Court was trying to convey that the system was unprotectable regardless of whether it was explained or illustrated.

Fourth, in the first 75 years after *Baker*, decisions rarely cited it for the proposition that copyright law did not protect ideas or concepts.[93] During this period, *Baker* was mostly cited for other propositions, such as why copyright does not protect blank forms,[94] methods of doing business,[95] systems embodied in copyrighted works,[96] and useful arts depicted in copyrighted books, pamphlets or drawings.[97]

Baker thus should not be understood to have contributed the exclusion of abstract ideas or concepts to section 102(b), although it is certainly consistent with *Baker* to say that abstract ideas and concepts are not within the scope of copyright's protection.

B. *Baker*'s Specific Contributions to Section 102(b)

The principal holding of Baker v. Selden is that the copyright in Selden's books protected his explanation of his bookkeeping system, not the system itself.[98] *Baker* is thus a key precedent for the designation in section 102(b) of "system[s]" as among the unprotectable elements in copyrighted works.

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[93] A rare case in which *Baker* was so cited was Simms v. Stanton, 75 F. 6, 10 (C.C.N.D. Cal. 1896) Simms sued Stanton for infringement because her book on physiognomy bore numerous resemblances to his books. ("A copyright gives no exclusive property in the ideas of an author. These are public property, and any one may use them as such." Following this, the court cited *Baker*). See also Nutt v. National Institute for the Improvement of Memory, 31 F.2d 326 236, 238 (2d Cir. 1929)(citing *Baker* for the idea/expression distinction). The citation rate for Baker as an idea/expression case rose after Mazer v. Stein, 347 U.S. 201 (1954) in part because of Nimmer's influential interpretation of the case. See infra notes xx and accompanying text for a discussion of Mazer and Nimmer's interpretation.

[94] See, e.g., Brown Instrument Co. v. Warner, 161 F.2d 910 (D.C. Cir. 1947)(upholding denial of register charts used to record data); Taylor Instrument Co. v. Fawley-Brost Co., 139 F.2d 98 (7th Cir. 1943)(no copyright in charts used to record data).

[95] See, e.g., Gaye v. Cillis, 167 F. 416, 418 (D. Mass. 1958)(copyright defendant was free to adopt same method of doing business).

[96] The caselaw relying on *Baker* as to the unprotectability of systems will be discussed in the next subsection. For a discussion of other propositions for which *Baker* has been cited, see Baker Story, supra note xx.

[97] See, e.g., Muller v. Triborough Bridge Authority, 43 F. Supp. 298 (S.D.N.Y. 1911)(copyright in drawing did not extend protection to bridge approach); Fulmer v. United States, 103 F. Supp. 1021 (Ct. Cl. 1952) (copyright in drawing did not protect parachute design).

[98] 101 U.S. 99, 102 (1880). It is worth noting, though, that Baker was not the first Supreme Court decision to rule that "systems" were unprotectable by copyright law. See, e.g., Perris v. Hexamer, 99 U.S. 674, 675 (1879)(use of substantially the same system of coloring and symbols on maps not copyright infringement).

Selden's complaint against Baker explicitly asserted copyright protection not just in his books, but also in his novel bookkeeping system.[99] Selden thought the system was within the scope of his copyrights because it was an original and material part of his book; indeed, his books consisted almost entirely of forms that illustrated use of his system through a particular arrangement of ruled lines and headings, salted with sample entries so that bookkeepers could infer how to use it.[100] The trial court found infringement because of substantial similarities between Selden's forms and those published in Baker's competing book; it did not challenge Selden's claim of copyright in the bookkeeping system.[101]

The Supreme Court conceded that "Baker makes and uses account-books arranged on substantially the same system," but said that

> the proof fails to show that he has violated the copyright of Selden's book, regarding the latter merely as an explanatory work; or that he has infringed Selden's right in any way, unless the latter became entitled to an exclusive right in the system.[102]

The Court then proceeded to explain why bookkeeping systems depicted in copyrighted works should not be within the scope of its protection by giving a set of examples of innovations embodied in copyrighted works that everyone would agree that copyright law should not protect:

> 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 mixture and application of colors for painting or dyeing; or on the mode of drawing lines to produce the effect of perspective, would be the subject of copyright; but no one would contend that the copyright of the treatise

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[99] The complaint characterized Selden as the author of Selden's condensed bookkeeping system as well as the author of six books on this system. See Baker Story, supra note xx, at 163.
[100] See id. at 170-71 (examples of the Baker and Selden forms).
[101] Baker Story, supra note xx at 165-66 (quoting from the trial court's ruling)
[102] *Baker*, 101 U.S. at 101. Leaving aside the words of the title page and the copyright notice, the text of Selden's book was 650 words in length. Baker Story, supra note xx, at xx.

> would give the exclusive right to the art or manufacture described therein.[103]

Copyright in "ornamental designs or pictorial illustrations addressed to the taste," in contrast, were works as to which "their form is of their essence" and "their object [was] the production of pleasure in their contemplation."[104]

Selden's claim that copyright protected his bookkeeping system might initially have seemed plausible because it was embodied in a book rather than, as with most useful arts, in wood, metal, or stone.[105] But, said the Court, "the principle is the same in all. The description of the art in a book, though entitled to the benefit of copyright, lays no foundation for an exclusive claim to the art itself."[106] In line with this principle, Selden's copyright did not give him exclusive rights in his bookkeeping system.

The principal rationale the Court gave for excluding systems and other useful arts described or depicted in copyrighted works from the scope of copyright was that "[t]hat is the province of letters-patent, not of copyright." [107] (I will call this "the patent/copyright distinction.") To get a patent, an inventor must apply to the Patent Office and subject his claimed invention to examination by that Office; only if appropriate procedures have been followed and substantive standards met would a patent issue.[108] "To give to the author of the book an exclusive property in the art described therein, when no examination of its novelty

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[103] *Baker*, 101 U.S. at 102.
[104] Id. at 103. One might call this the "ornamentality/utility" distinction for pictorial and sculptural works to completion the "explanation/use" distinction that Baker endorses for texts. Id. at xx.
[105] Id. at 104.
[106] Id. at 105.
[107] Id.
[108] Id.

has ever been officially made, would be a surprise and a fraud upon the public."[109]

This was pertinent in *Baker* because Selden had, in fact, sought, but apparently not obtained, a patent for the bookkeeping system.[110] The Court seems to have perceived Selden as trying to misuse the copyright in his book to get patent-like protection for the system he had been unable to patent.[111] The *Baker* opinion sought to sharpen the distinction between patents and copyrights to ensure that courts would be more careful in future assessments of copyright claims.[112]

A second rationale *Baker* gave for limiting copyright's scope in this way was the freedom of expression interests of subsequent authors: "Where truths of a science or methods of an art are common property of the whole world, an author has the right to express the one, or explain and use the other in his own way."[113] (I will call this the "authorial freedom of expression" principle.) *Baker* also affirmed the right of readers to make use of unpatented ideas in copyrighted works:

> The very object of publishing a book on science or the useful arts is to communicate to the world the useful knowledge which it contains. But this object would be frustrated if the knowledge could not be used without incurring the guilt of piracy of the book. And where the art it teaches cannot be used without employing the methods and diagrams used to illustrate the book, or such as are similar to them, such methods and diagrams are to be considered as necessary incidents to the art, and given therewith to the public…for the purpose of practical application.[114]

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[109] Id.
[110] See Baker Story, supra note xx, at 174-75.
[111] Id. at 172-79.
[112] Id. at 177-78, 192-93.
[113] *Baker*, 101 U.S. 100-01.
[114] Id. at 103. This passage has sometimes been credited as the origin of the idea/expression merger doctrine. Although that doctrine actually emerged many decades later, the merger principle is nascent in

(This statement is why Baker is seen as the seminal case establishing the "merger" doctrine, under which courts will refuse to extend protection to what might seem to be expression if the ideas in the work are capable of only one or a very small number of expressions, such that ideas and expressions are merged.[115]) *Baker* says further that "the teachings of science and the rules and methods of useful art have their final end in application and use, and this application and use are what the public derive from the publication of a book that teaches them."[116] (I will call this the "freedom to reuse know-how" principle.[117])

Implicit in *Baker* is a recognition that limiting the scope of copyright in this way promotes the ongoing progress of science (that is, knowledge creation and dissemination), as well as ongoing innovation and competition in the marketplace. By limiting a first author's rights to her explanation of a useful art, copyright law allows subsequent authors to reuse the knowledge from that work in the course of making new works. Had Selden's copyright claim succeeded, it would not only have impeded the efforts of Baker and other potential competitors from engaging in the kind of incremental innovation characteristic of practical fields such as bookkeeping, but would also have forced the governmental entities who were Baker's customers to either pay substantially higher fees to use a derivative of Selden's system or refrain from using a more efficient system to

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Baker in that it acknowledges that some aspects of copyrighted works might seem expressive can become unprotectable if they are "necessary incidents" to the idea they express. See Baker Story, supra note xx, at 189-90 concerning the origins of the merger doctrine.

[115] See infra note xx and accompanying text.

[116] *Baker*, 101 U.S. at 104.

[117] The Supreme Court recognized Baker's freedom to reuse information principle in Feist Pub., Inc. v. Rural Telephone Service Co., 499 U.S. 340, xx (1991).

balance their books.[118] As Subparts C and D will show, subsequent cases following *Baker* adverted to ongoing knowledge creation and competition and innovation policies as among the reasons to limit the scope of copyright protection in writings.

Baker sometimes used "system" and "method" interchangeably in relation to Selden's system,[119] but its sweeping language named methods and discoveries as other unprotectable elements of copyrighted works.[120] Although *Baker* did not directly say that principles are unprotectable, it mentioned "truths of science" and "mathematical science" as beyond copyright's scope, which amounts to the same thing.[121] *Baker* did not directly use the words "process" or "procedure" to describe unprotectable elements; yet, the Court used the term "art" 32 times in *Baker* to indicate what copyright did not protect. The patent statute then in force provided that "any person, having discovered or invented any new and useful art, machine, manufacture, or composition of matter" was eligible to apply for a patent.[122] "Art," was used interchangeably with "process" in patent cases in the 19th century.[123] So the process exclusion in section 102(b) also has its roots in *Baker*.

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[118] See Baker Story, supra note xx, at 167-68 (Selden's widow threatened to sue all of the Ohio counties that were Baker's customers as infringers, for she believed she had exclusive rights in the system).
[119] See, e.g., Baker, 101 U.S. at 101 (posing the question "whether, in obtaining the copyright of his books, he secured the exclusive right to use of the system or method of bookkeeping which the said books are intended to illustrate and explain").
[120] See supra note xx and accompanying text for the number of times the Court referred to methods and discoveries. The Court also referred to "plan" twice as unprotectable subject matter in copyrighted works.
[121] Baker, 101 U.S. at 100-01.
[122] See George Ticknor Curtis, A Treatise on the Law of Patents For Useful Inventions 562 (1867) (setting forth sec. 6 of the Patent Act of 1836).
[123] The interchangeability of "art" and "process" in patent law in the latter quarter of the 19th century can be seen in, among other cases, Cochrane v. Deener, 94 U.S. 780, 787-88 (1877) ("That a process may be patentable, irrespective of the particular form of the instrumentalities used, cannot be disputed. If one of the steps of a process be that a certain substance is to be reduced to a powder, it may not be at all material what

The main message the Court sought to convey in *Baker* was that copyright protection did not extend to complex and detailed utilitarian innovations, such as new bookkeeping systems and methods of operation, even when they were embodied in copyrighted works.[124] *Baker*'s contributions to section 102(b) thus mainly lie in the system, method of operation, and process exclusions from the scope of copyright, although it concomitantly endorsed the exclusions of discoveries and principles.

C. Post-*Baker* Caselaw on Systems, Methods, and Processes

This Subpart will discuss some of the many cases following *Baker* that extended its analysis to a wide variety of subject matters beyond bookkeeping methods and systems and offered additional insights about why excluding such things as systems, methods, processes, and procedures from the scope of copyright is socially beneficial. These cases support the House and Senate Report's perception that section 102(b) was a codification of existing caselaw principles.

An early system case involved Amberg File & Index Co. which claimed copyright in component parts of its Directory System of Indexing.[125] After Shea

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instrument or machinery is used to effect that object, whether a hammer, a pestle and mortar, or a mill. Either may be pointed out; but if the patent is not confined to that particular tool or machine, the use of the others would be an infringement, the general process being the same. A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing. If new and useful, it is just as patentable as is a piece of machinery. In the language of the patent law, it is an art.")

Process and procedure also overlap in meaning with the "method" which the Court in *Baker* used repeatedly. Several examples of unprotectable "arts" in *Baker* were processes and procedures. It referred, for example, to the composition and use of medicines, to the mixture and application of colors for painting or dying, and modes of drawing lines to create the effect of depth perspective." *Baker*, 101 U.S. at 102.

[124] The Court's unwillingness to allow these more complex innovations to be brought within the scope of copyright protection is strong evidence that it would reject claims of copyright in abstract ideas and concepts as well.

[125] 78 F. 479 (C.C. N.D. Ill. 1896),

Smith & Co. started competing with Amberg in the sale of such indexing systems, Amberg sued for infringement. Shea's defense was that the system was not copyrightable subject matter. The court agreed: "Mr. Amberg was not an 'author,' as that word is used in the federal constitution, nor is what he produced a 'book,' as that word is used in the federal statute."[126] Amberg's work "does not have the purpose or function of conveying information," but is rather "a mechanism or device for the storage of letters so that they can be preserved and conveniently found afterwards."[127] Amberg could perhaps have obtained a patent for this system, but copyright protection was not available.[128]

Similar reasoning can be found in two others of *Baker*'s progeny, Taylor Instrument Co. v. Fawley-Brost Co.[129] and Brown Instrument Co. v. Warner,[130] both of which involved claims of copyright in charts designed to serve as components of temperature recording systems. Taylor had obtained several hundred copyrights in charts of various dimensions designed for use in connection with its machines.[131] Taylor claimed Fawley-Brost infringed eighteen of its copyrights by making and selling charts that were compatible with Taylor machines and virtually identical to Taylor's charts.[132] The Seventh Circuit rejected Taylor's claim, relying on *Baker* and an old English case, Davis v.

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[126] Id. at 480.
[127] Id.
[128] Id.
[129] 139 F.2d 98 (7th Cir. 1943).
[130] 161 F.2d 910 (D.C. Cir. 1947)
[131] Each time that Taylor redesigned its machines, it also redesigned the charts to conform to the new dimensions of the machines. *Taylor*, 139 F.2d at 101.
[132] The software compatibility caselaw, discussed infra notes xx and accompanying text, relied upon *Baker*, but did not cite to *Taylor*, although the compatibility component of the case would have made it a useful precedent.

Comitti,[133] which led the Register of Copyright to deny registration to Brown for similar charts. Brown appealed the Register's decision, but the D.C. Circuit was persuaded by reasoning in *Baker* and *Taylor* to affirm the rejection.

The court in *Taylor* perceived Congress to have provided "two separate and distinct fields of protection, the copyright and the patent," [134] and to have placed writings of authors in the former and inventive useful arts in the latter. "While it may be difficult to determine in which field protection must be sought, it is plain…that it must be in one or the other; it cannot be found in both."[135] The court quoted extensively from *Baker* as to policy rationales for maintaining the patent/copyright distinction.[136] The court took into account that many patents had issued for temperature recording machines and charts for use in connection with them.[137] But its examination of Taylor's recording devices and charts left "no room for doubt that the latter is a mechanical element of the instrument of which it is an integral part."[138]

The court in *Taylor* went on to observe that "the chart neither teaches nor explains the use of the art. It is an essential element of the machine; it is the art itself."[139] Upholding Taylor's claim would, moreover, "produce[] an intolerable situation" because Taylor could "extend indefinitely the fifty-six years of

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[133] 52 L. T. Rep. (Chan. Div.) 539, 540 (1885)(rejecting claim of copyright in the face of a barometer because it was not a "literary work" or otherwise a proper subject matter for copyright, protection; the court characterized the domains of patent and copyright as "distinct").
[134] *Taylor*, 139 F.2d at 99.
[135] Id.
[136] Id. at 99-100 (quoting extensively from *Baker*).
[137] Id. at 100-01.
[138] Id. at 100. See also *Brown*, 161 F.2d at 910 ("The 83 charts in suit function as working mechanical elements of and essential parts of recording machines manufactured by plaintiff.")
[139] *Taylor*, 139 F.2d at 100. See also *Brown*, 161 F.2d at 910-11 ("Plaintiff has failed to establish that its charts are 'writings of an author' or 'drawings' within the meaning of the Constitution and the copyright statute, or that said charts convey or are capable of conveying the thought of an author.")

protection afforded by the copyright laws" by changing the configuration of its machines and thwart competition by firms such as Fawley-Brost.[140] This resonates with the competition policy principle implicit in *Baker*.

Although Griggs v. Perrin[141] and Brief English Systems, Inc. v. Owens,[142] differ from *Amberg* and *Taylor* in that they involved purely information innovations (i.e., in claiming copyright in stenography and shorthand systems), they too drew upon *Baker* in repudiating claims of infringement based on similarities in the systems described in the plaintiffs' books. In *Griggs*, for instance, the court observed that "[t]he only question…is whether the copyright of a book describing a new art or system of stenography protects the system, apart from the language by which the system is explained, so that another who illustrates the same system in a different book, employing totally different language, can be treated as an infringer."[143] Invoking *Baker*, the court answered no to this question.

In *Brief English Systems* the Second Circuit observed that "[t]here is no literary merit in a mere system of condensing written words into less than the number of letters usually used to spell them out. Copyrightable material is found, if at all, in the explanation of how to do it."[144] Citing *Baker* and *Griggs*, the court went on to say that "the plaintiff's shorthand system, as such, is open to use by

[140] *Taylor*, 139 F.2d at 101. See also *Brown*, 161 F.2d at 911 ("to copyright the charts would in effect continue appellant's monopoly of its machines beyond the time authorized by the patent law.")
[141] 49 F. 15 (C.C. N.D.N.Y. 1892).
[142] 48 F.2d 555 (2d Cir. 1931).
[143] *Griggs*, 49 F. at 15.
[144] *Brief English Systems*, 48 F.2d at 556.

whoever will take the trouble to learn and use it."[145] In the absence of substantial appropriation of the plaintiff's exposition, Owen was free to publish his own book on this system. *Griggs* and *Brief English Systems* endorse the authorial freedom of expression and freedom to reuse principles expressed in *Baker*.

Whether methodical organization of information is protectable by copyright was at issue in two post-*Baker* cases, Burnell v. Chown[146] and Guthrie v. Curlett.[147] Burnell developed a plan for assessing the creditworthiness of citizens in cities, counties or wider areas, which represented "[t]he standing and credit of these citizens…by letters and numbers in a manner which served as a key and from which business men within the same territory, dealing with such citizens, might at a glance ascertain their credit, their financial standing, their promptness in the payment of their debts and such other information of that character."[148] Burnell sold copies of the compiled information to local merchants. After Chown began selling similar books, albeit about citizens from different towns, Burnell sued for copyright infringement. Because Chown's books did not "concern the same persons, [were] not to be used by the same persons, and [concerned] a people living in a territory entirely different from that covered by the plaintiff's publication,"[149] Burnell's claim was merely "that the defendant

[145] Id. Although the court did not suggest that the BES shorthand system should have been patented, it did say that "the way to obtain the exclusive property right to an art, as distinguished from a description of the art, is by letters patent, not by copyright." Id.
[146] 69 F. 993 (C.C. N.D. Ohio 1895).
[147] 36 F.2d 694 (2d Cir. 1929).
[148] *Burnell*, 69 F. at 994.
[149] Id. at 997.

ha[d] appropriated his scheme, device, conception and idea for gathering and imparting this particular information."[150]

In explaining why Burnell's scheme was beyond copyright, the court drew upon a pre-*Baker* Supreme Court case, Perris v. Hexamer, which rejected Perris' claim that Hexamer infringed his copyrights in maps of certain wards of New York City by preparing maps of a different city that were arranged on substantially the same plan and that used a substantially similar symbol system to Perris'.[151] The Court observed:

> Scarcely any map is published on which certain arbitrary signs, explained by a key printed at some convenient place for reference, are not used to designate objects of special interest, such as rivers, railroads, boundaries, cities, towns, etc.; and yet we think it has never been supposed that a simple copyright in the map gave the publisher an exclusive right to the use upon other maps of the particular signs and key which he saw fit to adopt for purposes of his delineations.[152]

Maps would be far more difficult to read if every map-maker was forced by copyright law to use different symbol systems to depict common elements such as railroads and rivers. *Perris* suggests that courts should not interpret copyright law to require developers of fact-intensive works, such as maps, to engage in needless and socially harmful differentiation, for the court spoke of Perris' plan and symbol systems for maps designed to facilitate fire insurance assessments as "useful contrivances for the dispatch of business."[153] Limiting the scope of

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[150] Id.
[151] Perris v. Hexamer, 99 U.S. 674, 675 (1879),
[152] Id. at 676.
[153] Id. at 675.

copyright facilitates comprehension of works of that kind. (I will call this the "comprehension" or "avoiding needless variation" principle.[154])

Guthrie's innovation was in the useful method he devised for consolidating freight tariff information. Guthrie's work addressed was the problem of understanding and being able to compare freight tariff information because the information had to be extracted from a large number of complex documents filed with government entities. Guthrie's index used ruled columns and symbols to represent particular categories of information pertinent to freight tariffs. Guthrie sued Curlett for copyright infringement because the latter sold competing indexes arranged in the same way. The court ruled that Guthrie "has no monopoly upon [freight tariff] information or the purveying of [this] information by a broad general method."[155] Curlett had not copied the expression in Guthrie's work and hence had not infringed his copyright.

Several post-*Baker* decisions involved claims of copyright in systems aimed at enhancing the efficiency of business or governmental operations.[156] In Aldrich v. Remington Rand, Inc.,[157] for instance, the author of a copyrighted manual described a system for the efficient collection, assessment and

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[154] Another of Baker's progeny that recognizes this principle is Crume v. Pacific Mutual Life Ins. Co., 140 F.2d 182, 184-85 (7th Cir. 1944)("To hold that an idea, plan, method or art described in a copyright[ed work] is open to the public but can be used only by the employment of different words or phrases that mean the same thing borders on the preposterous. It is to exalt the accomplishment of a result by indirect means which could not be done directly. It places a premium upon evasion….")

[155] *Guthrie*, 36 F.2d at 696. This was Guthrie's second lawsuit against Curlett. The first had been based on a patent he'd gotten for a method of consolidating freight tariff information. In Guthrie v. Curlett, 10 F.2d 725 (2d Cir. 1926) the court struck down Guthrie's patent on the ground it claimed unpatentable subject matter. The subsequent copyright decision made no mention of Guthrie's patent nor of the court's previous ruling.

[156] Among the cases involving efficient business operations were Gaye v. Cillis, 167 F. Supp. 416 (D. Mass. 1958) (rejecting claim of copyright infringement based on copying of method of doing business); Crume v. Pacific Mutual Life Ins. Co., 140 F.2d 182 (7th Cir. 1944)(rejecting claim for copyright protection for a plan or method to reorganize insolvent life insurance companies).

[157] 52 F. Supp. 732 (N.D. Tex. 1942)

equalization of taxes, along with a bookkeeping system and forms that implemented the system. Aldrich sued the city of Fort Worth, Texas, and Remington Rand for copyright infringement because the latter supplied the city with forms derived from Aldrich's manual. Relying on *Baker*, the court ruled that Fort Worth was free to use this system and Remington Rand was free to copy forms that implemented Aldrich's system. Indeed, all members of the public, said the court, "can use the forms as plaintiff makes them, or modify them, change, improve them, or make them worse, without piracy,"[158] for the 1909 Act defined the term "book" as not including "'forms for use in commercial, legal or financial transactions, which are wholly or partly blank and whose value lies in their usefulness.'"[159] Implicit in *Aldrich* is the premise that copyright should not protect efficient systems, nor forms that implement such systems. (I will call this the "efficiency" principle.)

Even more audacious was the claim in Long v. Jordan.[160] Long had copyrighted a pamphlet describing a system of old age pensions. When Jordan, the California Secretary of State, published copies of a proposed initiative intended for consideration by California voters that would have amended the California Constitution to adopt Long's system, Long charged Jordan with infringement. There was, however, no "identity of language, phraseology, or literary style, arrangement or form" between Long's pamphlet and the proposed

[158] *Aldrich*, 52 F. Supp. at 734. The court also invoked *Baker*'s patent/copyright distinction in support of its ruling. Id. at 733-34.
[159] Id. at 736.
[160] 29 F. Supp. 287 (N.D. Cal. 1939).

California initiative.[161] "The most that might be said is that there is a similarity in plan and purpose and in the method of operation advanced to effectuate the plan and purpose."[162] But this was at most copying of the ideas in his pamphlet, and not a basis for infringement.

Yet, the court went on to say that even had some of the language in the California initiative been the same as in Long's pamphlet, the court thought this would not infringe because the language would have been reproduced "solely for the purpose of effectuating the plan through legislation," and "not for explanatory purposes."[163] The court took into account that Long had devised the system with the hope that it would be adopted by governments. Indeed, Long's pamphlet stated that he wish to dedicate the system "to a more prosperous, independent, progressive, and abundant life for all people" and he "pray[ed] for its early adoption and accomplishment."[164] The court insisted that "a plan or system advanced for government adoption cannot be copyrighted so as to prevent the publication of that plan or system…in the form of a proposed law incident to its submission to the vote of the electorate."[165] This conclusion was a "logical extension of well defined principles" that the court traced back to *Baker*.[166] (I will call this the "government adoption" principle.)

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[161] Id. at 288.
[162] Id.
[163] Id. at 289. *Long* prefigures the contentious debate over copyright in privately drafted legislation that was litigated in Veeck v. Southern Building Code & Congress. Inc., 293 F.3d 791 (5th Cir. 2000) (denying copyright claim in privately drafted code enacted as law). I discuss *Veeck* and various copyright system cases in Pamela Samuelson, *Questioning Copyright In Standards*, 48 B.C. L. Rev. (forthcoming 2007). An excellent article on claims of copyright in privately drafted government rules is Lawrence A. Cunningham, *Private Standards in Public Law: Lawmaking and the Case of Accounting*, 104 Mich. L. Rev. 291 (2005).
[164] *Long*, 29 F. Supp. at 289.
[165] Id.
[166] Id.

The cases discussed above do not come close to exhausting the post-*Baker* caselaw on the unprotectability of systems and methods described or illustrated in copyrighted works,[167] but they suffice to show that *Baker* provided a firm grounding for limiting the scope of copyright in very different kinds of works than Selden's Condensed Ledger. This body of caselaw drew upon many of the principles found in *Baker* and occasionally extended them to explain why copyright law should not be construed as far as plaintiffs typically wanted. All of these decisions remain sound law.

D. Games, Rules and Exercises

Caselaw predating the '76 Act recognized that other things besides ideas, systems, and methods were beyond the scope of protection in copyrighted works.[168] This Subpart will discuss cases in which courts held that games, rules, and exercises cannot be protected by copyright law either.[169] Some of these cases invoke *Baker*; some do not.[170] They collectively support the contention that the list of excludables in section 102(b) should be understood to be illustrative, rather

[167] See, e,g., Burk v. Johnson, 146 F. 209 (8th Cir. 1906)(burial scheme unprotected by copyright); Jackson v. C.G. Conn Ltd., 9 U.S.P.Q. (BNA) 225 (W.D. Okla. 1931)(system for teaching cornet playing); Dunham v. General Mills, 116 F. Supp. 152 (D. Mass. 1953)(method for masks printed on cereal boxes); Seltzer v. Sunbrock, 22 F. Supp. 621 (S.D. Cal. 1938). See also S.S. White Dental Co. v. Sibley, 38 F. 751 (E.D. Pa. 1889)(denying copyright claim in plan for advertising artificial teeth); Ehret v. Pierce, 10 F. 553 (E.D.N.Y. 1880)(denying claim of copyright protection for method of advertising paints).

[168] In addition to the cases discussed in the text, see, e.g., Affiliated Ent. v. Gantz, 86 F.2d 597 (10th Cir. 1936)(rejecting copyright claim in system or plan for giving away prized by lot or chance in places of entertainment open to the public upon payment of an admission fee); Seltzer v. Sunbrock, 22 F. Supp. 621 (S.D. Cal. 1938)(rejecting claim of copyright in roller derby game described in copyrighted works); Lewis v. Kroger Co., 109 F. Supp. 484 (S.D. W.Va. 1952) (dismissing copyright claim for contest); Richards v. Columbia Broadcasting System, Inc., 161 F. Supp. 516 (D. D.C. 1958) (no copyright in quiz show format); Briggs v. New Hampshire Trotting & Breeding Ass'n, 191 F. Supp. 234 (D. N.H. 1960) (rejecting claim of copyright in betting system for horse racing and associated method for processing IBM cards).

[169] In the interest of conciseness, I do not discuss two other well-established categories of exclusion from the scope of copyright, namely, the unprotectability of laws and of facts and data.

[170] See, e.g., Russell v. Northeastern Pub. Co., 7 F. Supp. 571, 572 (D. Mass. 1934) (citing *Baker* in support of its ruling); Whist Club v. Foster, 42 F.2d 782 (S.D.N.Y. 1929) (no citation to *Baker*).

than exhaustive, [171] for there is a substantial caselaw under the '76 Act that endorses the cases discussed below and the principles articulated therein.[172]

Whist Club v. Foster dismissed a complaint for infringement of a literary work about the game of whist.[173] The court observed that "[i]n the conventional laws or rules of a game…there can be no literary property susceptible of copyright."[174] Foster had not copied "the literary composition of the plaintiff's publication, but in language quite distinctly his own, ha[d] restated the same set of conventional precepts" of the game.[175] Hence, he had not infringed.

Relying on *Whist*, the Second Circuit in Chamberlain v. Uris Sales Corp.[176] affirmed dismissal of a lawsuit alleging infringement of Chamberlain's copyright in the rules and layout of the game "Acy-Ducy," which was a variation on backgammon. In the absence of evidence of copying of Chamberlain's literary composition, the court found no grounds for infringement.[177]

A third such case was Russell v. Northeastern Pub. Co.[178] Russell's book, "Rapid Contract Bridge," included a special problem that ascribed certain cards to each of four hypothetical players of a bridge game. Readers were encouraged to

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[171] Further support comes from the testimony of Barbara Ringer, Kaminstein's successor as Register of Copyrights, who did not believe that games were copyrightable subject matter. See Testimony of Barbara Ringer, Hearings on H.R. 2223 Before the Subcomm. On Courts, Civil Liberties, and the Administration of Justice of the House Comm. On the Judiciary, 94th Cong., 1st Sess. 1823 (1975).
[172] See, e.g., Allen v. Academic Games League of Am., 89 F.3d 614 (9th Cir. 1996) (no infringement for rival games using same tournament rules); Landsberg v. Scrabble Crossword Game Players, Inc., 736 F.2d 485 (9th Cir. 1984) (guidebook on scrabble strategy not infringed by similar book featuring same strategies); Jeffrey v. Cannon Films, Inc. 3 U.S.P.Q.2d (BNA) 1373 (C.D. Cal. 1989)(no copyright in rules for arm wrestling).
[173] 42 F.2d 782 (S.D.N.Y. 1929).
[174] Id. at 782.
[175] Id.
[176] 150 F.2d 512 (2d Cir. 1945). See also Affiliated Hospital Products, Inc. v. Merdel Game Mfg. Co., 513 F.2d 1183, 1188-89 (2d Cir. 1975) (rules and game are in the public domain).
[177] Id.
[178] Russell v. Northeastern Pub. Co., 7 F. Supp. 571 (D. Mass. 1934)

send Russell a letter to get the correct solution to the problem and to ask for other problems. When the Boston Daily Record published the same problem, and a week later published a solution to the problem, Russell sued the publisher for copyright infringement. The court ruled that Russell had "no exclusive right in the particular distribution of the fifty-two cards, in the problem of play or the principles of contract bridge applicable to its solution."[179] Since the Boston paper did not use any of the language from Russell's work, but only the problem and solution, it did not infringe his copyright.

The scope of copyright in charts of weightlifting exercises was considered in Universal Athletic Sales Co. v. Salkeld.[180] To aid comprehension of the proper procedures for making correct use of its physical fitness machines, Universal developed charts featuring stick figures to illustrate the proper steps for each exercise. Salkeld's charts were substantially similar to Universal's, although he changed the color scheme, the clothing, and the strokes of the drawings as well as adding "rather extensive text at the bottom of the chart dealing with general weight-training programs, and Super Gym specifications as well as diagrams of two human figures showing the major muscles."[181] Universal pointed to evidence that Salkeld had traced the exercises from Universal's charts, but the court rejected Universal's claim of infringement, saying that "[t]he only real similarities are the use of stick figures in both charts and the corresponding positions of the

[179] Id. at 572.
[180] 511 F.2d 904 (3d Cir. 1975).
[181] Id. at 909.

figures for each exercise."[182] Even if Salkeld copied the exercise procedures, he did not infringe Universal's copyright because he copied neither explanatory material or expressive aspects of the drawings.

E. Summary

The post-*Baker* caselaw is richest in its exclusion of systems and methods from the scope of copyright protection. Indexing, shorthand, stenography, tax collection, and pension plans were all held to be unprotectable systems under the precedent established in *Baker*, as were blank forms that implemented or were constituent elements of unprotected systems. Methods of consolidated freight tariff information and for judging the credit-worthiness of residents of local communities, and methods of business were similarly excluded from protection. Games and exercises may be considered processes, procedures, and/or systems that courts construed as beyond the scope of copyright. There was, therefore, precedential support for exclusion of such elements in the caselaw leading up to the '76 Act, as the legislative history suggested was so.

III. The Evolution of Copyright and Section 102(b) As Applied to Computer Programs

Given explicitness of the legislative history indicating that Congress added section 102(b) to the statute to ensure that the scope of copyright protection in computer programs would be appropriately delimited, one might have expected that the greatest salience of this provision would be manifest in the computer program caselaw. Strangely enough, this has not been so. Part III will discuss the

[182] Id. The court did not cite to *Baker*, but relied upon one of its progeny, Gaye v. Cillis, 167 F.Supp. 416 (D. Mass. 1958) (method of doing business not protected by copyright law). See *Universal*, 511 F.3d at 909.

curious history of section 102(b) in the computer program caselaw. In the first decade of software copyright lawsuits, section 102(b) played almost no role in resolving disputes; instead, the abstract-idea/expression distinction predominated. Section 102(b) and *Baker v. Selden* have attained greater significance in the software copyright caselaw in the past decade. Yet, courts are still more reticent in computer program cases about the words of exclusion in section 102(b) than one might expect—and than they should be.

An important contributing factor to this reticence has been the enduring influence of the treatise authored by now deceased Professor Melville B. Nimmer. Nimmer reinterpreted *Baker* as a case about the unprotectability of abstract ideas. Nimmer mischaracterized *Baker* and ignored much of its legacy and various policy reasons courts had given for excluding complex and detailed information innovations, such as bookkeeping systems and pension plans, from the scope of copyright protection.

This Part will show that the Nimmer interpretation of *Baker* caused some courts to fall into the very trap in computer program cases that section 102(b) had been adopted to avoid, and how *Baker*'s legacy has been rediscovered by the courts in more recent computer program cases.

A. From *Apple* to *Paperback*: An Insignificant Role for Section 102(b) in Early Computer Program Caselaw

The copyrightability of machine-executable forms of Apple Computer's operating system programs was challenged in the early 1980's.[183] After Franklin Computer and Formula International copied Apple's operating systems programs so they could sell computers that would be fully compatible with the innovative Apple II machine, Apple sued both for copyright infringement. Franklin and Formula both challenged the copyrights in Apple's operating system programs.

Franklin initially succeeded in raising sufficient doubt about the validity of Apple's copyrights that the trial court denied Apple's motion for a preliminary injunction.[184] Franklin argued, first, that machine-executable programs were functional processes or methods of operation under *Baker* and section 102(b).[185] Second, it asserted that even if there was some original expression in the Apple programs in source code form, the expression had "merged" with the programs' functionality in object code form.[186] Like the charts in *Taylor Instrument*, Apple's programs had become essential parts of a machine. Third, copying the Apple programs was necessary for Franklin's computer to be compatible with the Apple computer.[187] Fourth, Franklin pointed to patents for some program innovations, invoking *Baker*'s patent/copyright distinction.[188] Fifth, Franklin argued that even if the Third Circuit had correctly ruled that videogame programs

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[183] See Apple Computer, Inc. v. Franklin Computer Corp., 545 F. Supp. 812 (E.D. Pa. 1982), rev'd, 714 F.2d 1240 (3d Cir. 1983); Apple Computer, Inc. v. Formula Int'l, Inc., 562 F. Supp. 775 (C.D. Cal. 1983), aff'd, 725 F.2d 521 (9th Cir. 1984).
[184] Franklin, 545 F. Supp. at 812. The trial court observed: "Section 102(b) explicitly removes from copyright protection 'any idea, procedure, process, system, method of operation…' and section 101 explicitly excludes those works whose 'mechanical or utilitarian' function cannot be separated from the work in which it adheres." Id. at 818.
[185] Id. at 816-23.
[186] Id. at 823-25.
[187] Id.
[188] Id. at 816-17

could be copyrighted,[189] operating system programs could not be because they did not communicate with humans, and CONTU and Congress hadn't contemplated copyright for anything but application programs.[190]

The Third Circuit found no merit in Franklin's arguments. It drew upon the legislative history of the '76 Act, the CONTU Final Report, and amendments implementing CONTU recommendations as evidence that Congress intended to protect all computer programs through copyright law.[191] Although a "literal construction" of *Baker* might seem to preclude copyright for programs because of their utility, the Third Circuit agreed with Professor Nimmer that the Supreme Court's decision in Mazer v. Stein had repudiated this aspect of *Baker*.[192] To be copyrighted, programs needed only to meet the originality and fixation requirements set forth in section 102(a).[193] Apple was not "seek[ing] to copyright the method which instructs the computer to perform its operating functions, but only the instructions themselves."[194] In distinguishing between the ideas and expressions in the Apple programs, the only question was "whether other programs can be written or created which perform the same function as Apple's

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[189] By the time *Franklin* got to the Third Circuit, that court had already upheld the copyightability of videogame programs in Williams Electronics, Inc. v. Artic Int'l, Inc., 685 F.2d 870 (1982), but these games had been registered as "audiovisual works," not as programs or "literary works."
[190] Professor Nimmer's concurrence in the CONTU recommendations about computer programs suggested that it might be appropriate to limit program copyrights to what today we would call application programs. See CONTU Final Report, supra note xx, at xx.
[191] *Franklin*, 714 F.2d at 1246-49.
[192] Id. at 1252.
[193] Id. at 1247-49.
[194] Id. at 1251. The Third Circuit noted that the method used in Apple programs could be protected if at all by patent law. Id.

operation system program." [195] If so, "that program is an expression of the idea and hence copyrightable."[196]

The Third Circuit dismissed Franklin's concerns about the compatibility of its computers with Apple machines as "ha[ving] no pertinence to either the idea/expression dichotomy or merger."[197] In dicta that would prove troublesome in later cases, the court characterized Franklin's compatibility argument as "a commercial and competitive objective which does not enter into the somewhat metaphysical issue of whether particular ideas and expressions have merged."[198]

Neither *Franklin*, nor the Ninth's Circuit's parallel decision in *Formula*, was surprising or controversial, for both defendants had made exact copies of the Apple programs and neither had even tried to write alternative programs to perform the same functions.[199]

Less clear in the mid-1980's, and far more controversial, were questions such as whether the "structure, sequence, and organization" (SSO) and/or the "look and feel" of computer programs was within the scope of program copyrights.[200] In 1986, the Third Circuit Court of Appeals endorsed both theories of "non-literal" copyright infringement for programs in Whelan Associates, Inc. v. Jaslow Dental

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[195] Id. at 1253.
[196] Id.
[197] Id.
[198] Id.
[199] See, e.g., id. at 1245 (Franklin's programs were "virtually identical" to Apple programs; Franklin's engineers never attempted to write alternative programs).
[200] There was a nascent SSO issue in the *Franklin* case, for the trial judge reported that "Apple contends in this suit that Franklin has 'stolen' the logic and structure of their [operating] system," and that Franklin argued that "of necessity [its software must] share a great deal of the essential structure of Apple." *Franklin*, 545 F. Supp.2d at 815. The early caselaw on SSO issues was mixed. Cf. Synercom Technology, Inc. v. University Computing Co., 462 F. Supp. 1003 (N.D. Tex. 1978)(organization and structure of input formats held to be ideas); SAS Inst., Inc. v. S & H Computer Sys., Inc. 605 F. Supp. 816 (M.D. Tenn. 1985)(protecting program structure).

Lab., Inc.[201] *Whelan* was initially influential in software SSO and look and feel cases,[202] although it was substantially discredited over time.[203]

Rand Jaslow was an entrepreneurial dental laboratory professional who realized that computers could be very useful in automating common bookkeeping and administrative functions of dental lab operations.[204] Jaslow initially tried to write such a program on his own, but lacked sufficient expertise to do so. He hired Elaine Whelan to work with him on building such a program. Whelan knew nothing about dental labs, so Jaslow worked closely with her to teach her the components of dental lab business processes. Whelan developed the Dentalab program for IBM Series I computers, and for a time, she and Jaslow collaborated in the sale of Dentalab, but thereafter they had a falling out.

When the IBM PC became a hit in the marketplace, Jaslow recognized the market potential for a program similar to Dentalab for the PC. After Jaslow then developed Dentcomm for the IBM PC with the help of another programmer, Whelan sued him for infringing her copyright in Dentalab. Jaslow defended this lawsuit by claiming to be the sole or at least a joint author of the Dentalab program, accusing Whelan of misappropriating trade secrets of his dental lab, and

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[201] 797 F.2d 1222, 1224-25 (3d Cir. 1986). The court was much more explicit about its endorsement of SSO protection than about look and feel. However, the court relied on testimony about Jaslow's program performing almost identically to Whelan's, id. at 1228, 1247; it quoted from a source saying that designing the look and feel of a program involves more creativity than coding, id. at 1231; and it cited and quoted from decisions endorsing a "total concept and feel" test for copyright infringement, id. at 1234.

[202] See, e.g., Johnson Controls, Inc. v. Phoenix Control Systems, Inc., 886 F.2d 1173, 1175 (9th Cir. 1989) (following Whelan); Broderbund Software, Inc. v. Unison World, Inc. 648 F. Supp. 1127, 1133 (N.D. Cal. 1986); Telemarketing Resources, 12 U.S.P.Q.2d (BNA) 1991 (N.D. Cal. 1989); Pearl Systems, Inc. v. Competition Electronics, 8 U.S.P.Q.2d (BNA) 1520 (S.D. Fla. 1988).

[203] See infra notes xx and accompanying text.

[204] The facts underlying the Whelan and Jaslow disputes are discussed in Whelan Associates, Inc. v. Jaslow Dental Lab., Inc., 609 F. Supp. 1307, 1308-16 (E.D. Pa. 1985) and *Whelan*, 797 F.2d 1225-27.

asserting that the copyright in Dentalab did not extend to program structure, but only to the literal code.[205]

Whelan was far from the only case in the mid-1980's in which the SSO issue was brewing. IBM Corp. was a plaintiff in one of these cases and filed a Declaration of Professor Melville B. Nimmer in support of IBM's claim that copyright protection extended to SSO.[206] Nimmer, who had been vice-chair of CONTU, declared that CONTU "had no views and made no recommendations which would negate the availability of copyright protection for the detailed design, structure, and flow of a program under the copyright principles that make copyright protection available, in appropriate circumstances, for the structure and flow of a novel, a play or a motion picture."[207] For him, the only question was whether structural similarities between programs pertained to "very generalized abstractions," or detailed design elements "which are sufficiently concrete to constitute an expression of … the structure of their development, coordination, and interplay."[208] Nothing in Nimmer's affidavit acknowledged that the functionality of programs had any bearing on scope of copyright issues, that *Baker* and its progeny provided limiting principles for the scope of copyright in

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[205] See id. at 1227-28.

[206] See Anthony L. Clapes, Patrick Lynch, and Mark R. Steinberg, *Silicon Epics and Binary Bards: Determining the Proper Scope of Copyright Protection for Computer Programs*, 94 UCLA L. Rev. 1493 (1987), the Appendix to which reproduces the Declaration of Melville B. Nimmer (hereafter "Miller Declaration") at 1585-94. This Declaration is dated Nov. 15, 1984. Prof. Nimmer died soon thereafter. The *Silicon Epics* was published in an issue of the UCLA Law Review dedicated to Nimmer's legacy. The authors of the article were lawyers who had represented IBM in the matter in which the declaration was filed. Clapes was at the time a senior litigation attorney for IBM Corp., while Lynch and Steinberg were litigators with O'Melveny & Myers. See id. at 1493. Appending the Nimmer Declaration to *Silicon Epics* was a clever way to get into the law review literature the views of Prof. Nimmer endorsing the protectability of program SSO, a position then espoused by IBM lawyers. Prof. Nimmer's death meant he was no longer be available to file declarations or write law review articles. Silicon Epics reads as though it was a derivative work of one or more of IBM's briefs in the case.

[207] Clapes, supra note xx, at 1592, Nimmer Declaration, parag. 28.

[208] Id. at 1589, parag. 17.

functional writings, or that section 102(b) excluded program processes and methods of operation from copyright's scope.

Countering the Nimmer Declaration in that case were two declarations by Professor Arthur Miller. [209] Miller recounted his role in the legislative history of the '76 Act and as chair of the CONTU subcommittee that addressed computer program copyrights. Miller stated that Congress and CONTU had intended that copyright protection for programs should not to extend to such things as algorithms, logic, structure, or program flow, but only to the literal text of programs.[210] Only through patent protection could program innovations such as logic and structure be legally protected against copying.[211]

Given the conflicting declarations of two prominent ex-CONTU Commissioners, one might have expected the IBM case to set an important precedent on legal protection for SSO. But *Whelan* emerged as the first major test case to consider copyright protection for SSO.

In 1985, the trial court ruled that Elaine Whelan was the sole author of the Dentalab program, that Dentcomm infringed Whelan's copyright because "its structure and overall organization" was substantially similar to Dentalab, and because the programs had a similar look and feel when operating, from which the court (erroneously) inferred copying of internal program structure.[212] The Third Circuit affirmed, although it cautioned that judges should not automatically infer

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[209] See Declaration of Arthur R. Miller, in Evergreen Consulting, Inc. v. NCR Comten, Inc., U.S. Dist. Ct. C.D. Cal., No. CV 82-5946 KN, Jan. 3, 1985 ("Miller Declaration"); Second Declaration of Arthur R. Miller In Support of NCR Comten's Motion for Summary Judgment As to Count I (Infringement of Copyrighted Programs) of IBM's First Amended Complaint, in Evergreen Consulting, Inc. v. NCR Comten, Inc., U.S. Dist. Ct. C.D. Cal., No. CV 82-5946 KN, May 20, 1985.
[210] Miller Declaration, supra note xx, at xx.
[211] Id. at 11-12.
[212] Whelan Assoc., Inc. v. Jaslow Dental Lab, 609 F. Supp. 1307, 1321-23 (E.D. Pa. 1985).

copying of program internal structure from similarity in operation, as independently written programs could perform the same functions without having the same internal structure.[213]

The Third Circuit began its SSO analysis with the observation that programs were "literary works" for purposes of copyright law.[214] Like the Nimmer Declaration, it observed that "[t]he copyrights of other literary works can be infringed even when there is no substantial similarity between the works' literal elements,"[215] and cited cases involving movie plots, fantasy characters, greeting card styles, and dramatic plays. "By analogy to other literary works, it would thus appear that the copyrights of computer programs can be infringed even absent copying of literal elements of the program."[216]

In support of his argument that section 102(b) precluded copyright protection for non-literal elements of programs, such as SSO, Jaslow pointed to a Copyright Office Circular stating that copyright protection in programs "extends only to the literary or textual expression contained in a program," and not to "ideas, program logic, algorithms, systems, methods, or layouts."[217] The Third Circuit questioned whether the Circular "deserve[d] deference on a matter so complex as this one."[218] As for Section 102(b), the Third Circuit viewed it as merely a restatement of the idea/expression distinction.[219] *Baker*, moreover, was a case

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[213] *Whelan*, 797 F.2d at 1244.
[214] Id. at 1234.
[215] Id.
[216] Id.
[217] Copyright Office Circular R61 (May 1983), quoted in *Whelan*, 797 F.2d 1242, n. 38.
[218] Id.
[219] Id.

about the "merger of idea and expression" because "the blank forms were necessary incidents to Selden's method of accounting."[220]

It then set forth a test for distinguishing ideas and expressions in programs that it perceived to be consistent with section 102(b) and *Baker* under which "the purpose or function of a utilitarian work would be the work's idea, and everything that is not necessary to that purpose or function would be part of the expression of that idea."[221] Because the idea of an efficient program for managing dental lab functions "could be accomplished in a number of different ways, the structure of the Dentalab program is part of the program's expression, not its idea."[222] The Third Circuit also invoked economic arguments in support of its endorsement of copyright protection for program structure, i.e, without copyright protection for more than program code, there would be too little incentive to invest in program development.[223]

The *Whelan* "test" for software copyright infringement was widely criticized as providing overbroad protection to computer programs, for it conceived of programs as having only one abstract idea each, no matter how complex the program was, it expressly endorsed protecting the overall structure of a program, and it suggested that efficient structural elements of programs were protectable by copyright law.[224] *Whelan* was a key precedent on which Judge Robert Keeton

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[220] Id. at 1235.
[221] Id. at 1236.
[222] Id., n. 28.
[223] Id. at 1237
[224] See, e.g., David Nimmer, Richard L. Bernacchi, & Gary N. Frischling, *A Structured Approach to Analyzing the Substantial Similarity of Computer Software in Copyright Infringement Cases*, 20 Ariz. St. L.J. 625, 629-30 (1988); Steven R. Englund, *Idea, Process, or Protected Expression?: Determining the Scope of Copyright Protection of the Structure of Computer Programs*, 88 Mich. L. Rev. 866, 866-67 (Feb., 1990).

relied in the closely watched "look and feel" case of Lotus Development Corp. v. Paperback Software Int'l.[225] In 1990, Judge Keeton ruled that Paperback's independently written spreadsheet program infringed the Lotus 1-2-3 copyright because it copied the structure of Lotus' "menu command system."[226]

Paperback did not contest that some program SSO could be protected by copyright law, but argued that a menu command "system" was unprotectable by copyright law under section 102(b). The component parts of this system were the command terms of 1-2-3, which could be used as building blocks by users in constructing macro programs to carry out frequently performed sequences of functions (instead of retyping the same sequence every time). To execute macros constructed in 1-2-3 when using an alternative spreadsheet program, the menu of commands for the other program had to be in exactly the same order. Paperback also argued that the Lotus menu command structure was a constituent part of the Lotus macrocommand language, pointing to sources arguing that languages were not copyrightable under section 102(b).[227] Paperback further argued that copying the menu structure of Lotus 1-2-3 was necessary to achieve compatibility with the Lotus program so that "users [could] transfer spreadsheets created in 1-2-3 to VP-Planner without a loss of functionality for any macros in the spreadsheet" and so that firms did not need to retrain users.[228]

Like the Third Circuit in *Whelan*, Judge Keeton regarded *Baker* and section 102(b) as articulations of the distinction between unprotectability of abstract ideas

[225] 740 F. Supp. 37 (D. Mass. 1990).
[226] Id. at 87. Notice the word "system" here.
[227] Id. at 102-06. Judge Keeton disparaged Paperback's "language" argument as a "word game[]." Id. at 106.
[228] Id. at 94.

and the protectability of expressions.[229] Judge Keeton recognized that "the general idea of an electronic spreadsheet" was not protectable by copyright, and certain aspects of spreadsheets, such as "the basic spreadsheet display that resembles a rotated 'L'" were indispensable parts of spreadsheet programs.[230]

But like the Third Circuit in *Whelan*, Judge Keeton regarded the existence of alternative possibilities as a key factor in judging whether program SSO was copyright-protectable expression. "[Lotus'] particular expression of a menu structure is not essential to the electronic spreadsheet idea, nor does it merge with the somewhat less abstract idea of a menu structure for an electronic spreadsheet," for such an idea "could be expressed in a great many if not literally unlimited number of ways."[231] Because the menu structure was original, an expression rather than an idea, and a substantial part of the Lotus program, Judge Keeton ruled that Paperback's copying constituted infringement.[232]

To Paperback's argument that it had to copy the Lotus command hierarchy because it had become a standard, causing ideas and expressions to merge, Judge Keeton responded that "defendants have flipped copyright on its head. Copyright protection would be perverse if it only protected mundane increments while leaving unprotected as part of the public domain those advancements that are

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[229] Id. at 60-68.
[230] Id. at 85
[231] Id. at 88.
[232] Id. at 90-91. Judge Keeton adapted the *Whelan* test for software copyright infringement by melding into it Judge Learned Hand's famous "patterns of abstraction" methodology for judging whether structural similarities among literary works were at higher or lower levels of abstraction. See Nichols v. Universal Pictures, 45 F.2d 121 (2d Cir. 1930), discussed in *Paperback*, 740 F. Supp. at 64-67. The *Paperback* test for infringement called, first, for a patterns of abstractions analysis, then for assessing whether idea and expression had merged, and third, for an assessment of whether copied elements not essential to every expression of the program's idea was a substantial part of the plaintiff's work. See id. at 63, 67-68.

more strikingly innovative."[233] Judge Keeton's opinion embraces the logic of the Nimmer interpretation of *Baker* and section 102(b). Indeed, the Nimmer Declaration was among the sources which Judge Keeton referenced in his lengthy exposition of copyright as applied to computer programs.

Because Paperback's financial resources were insufficient to enable it to appeal Judge Keeton's ruling to the First Circuit Court of Appeals, it was not until another of Lotus' spreadsheet competitors, Borland International, appealed from a very similar ruling, also by Judge Keeton, that the First Circuit had the opportunity to rule that the Lotus menu structure was unprotectable by copyright law under section 102(b). Before delving into Borland and other decisions taking a broader view of Baker and section 102(b), we should consider the Nimmer interpretation of *Baker* to show why it led *Whelan* and *Paperback* astray.

B. An Interlude on Nimmer's Interpretation of *Baker*

The Nimmer treatise on copyright law has had considerable influence in the copyright caselaw,[234] including in the software copyright caselaw. One sign of that influence is that Mazer v. Stein[235] is now widely cited as a precedent for the idea/expression distinction,[236] even though *Mazer* did not rule on this distinction; indeed, it barely even mentioned it. The rise of *Mazer* as an idea/expression case seems to be attributable to the Nimmer treatise. Nimmer drew upon *Mazer* in arguing for strict limits on the application of *Baker* and its

[233] Id. at 129.
[234] As of October 23, 2006, the Nimmer treatise has been cited xx times in federal court cases.
[235] 347 U.S. 201 (1954).
[236] As of October 23, 2006, *Mazer* had been cited 472 times in federal court cases; 177 of these cases cite the Nimmer treatise and mention the idea/expression distinction.

progeny in copyright cases.[237] To revitalize *Baker*'s broader significance, it is necessary to review *Mazer*, the implications Nimmer drew from *Mazer*, and why Nimmer's interpretation of *Mazer* vis a vis *Baker* is unsound.

Stein registered copyrights in some statuettes, including one of a Balinese dancer, as "works of art" under the 1909 Act.[238] He then mass-manufactured the statuettes with holes in the top and bottom so that an electrical cord could run up the middle so that the statuettes could serve as lamp bases. After Mazer began making and selling lamps just like them, Stein sued him for copyright infringement. Mazer defended by claiming, first, that the statuettes were not "works of art" because they were mass-manufactured as lamp bases; second, that Stein had committed a fraud on the Copyright Office by registering the statuettes as works of art when he had intended all along to mass-manufacture them as articles of manufacture; third, that Stein's lamps were uncopyrightable because they were useful; and fourth, that original designs for lamp bases should have been protected, if at all, by design patent law.[239] Mazer argued that *Baker* supported the latter two propositions.[240]

The statutory question before the Court was whether Stein's statuettes qualified for copyright protection as "works of art" or "reproductions of works of

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[237] See 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT sec. 2.18 (2006).
[238] *Mazer*, 347 U.S. at 202. A photograph of one of Stein's statuettes can be found in Julie E. Cohen et al., Copyright in a Global Information Economy 213 (2d Ed. 2006).
[239] Design patents are available to protect original and nonobvious ornamental designs for articles of manufacture. See 35 U.S.C. sec. 171.
[240] Mazer argued that practical utility of the lamps meant they could not qualify as works of art under *Baker*. *Mazer*, 347 U.S. at 203-04, n. 3. Mazer also argued that Baker required exclusivity of patent and copyright subject matter. Id. However, *Baker* said nothing whatever about design patents and copyrights, and for reasons explained infra notes xx and accompanying text, it is consistent with *Baker* for copyright law to protect the statuette as a work whose object was contemplation.

art."[241] Although works of art are not usually mass-manufactured, the Court was not persuaded they should be disqualified from copyright protection if they were. The Court recognized and deferred to the Copyright Office's longstanding policy and practice of accepting registration for works of artistic craftsmanship, such as the Stein statuettes, "'insofar as their form but not their mechanical or utilitarian aspects are concerned.'"[242] Under this standard, Stein's lamps qualified for copyright protection.

The Court made only one brief reference to *Baker* after saying that "[u]nlike a patent, a copyright gives no exclusive right to the art disclosed; protection is given only to the expression of the idea—not the idea itself."[243] It characterized *Baker* as having held that "a copyrighted book on a peculiar system of bookkeeping was not infringed by a similar book using a similar plan which achieved similar results where the alleged infringer made a different arrangement of the columns and used different headings."[244] To Mazer's patent/copyright exclusivity argument, the Court responded that "[n]either the Copyright Statute nor any other says that because a thing is patentable it may not be copyrighted,"[245] although in context, it is clear that the Court was speaking only about design patents and copyrights.[246]

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[241] Id. at 202-03. See 17 U.S.C. sec. 5(g), (h) (now superseded). The 1909 Act differed from previous acts in dropping a requirement that artistic works be "works of fine art," a term that seemed more restrictive than "works of art" or "reproductions of works of art." *Mazer*. 347 U.S. at 212.
[242] Id., quoting from 37 C.F.R, 1949, sec. 202.8. Registration of works of this kind dated back to the 1870 and 1874 Acts. *Mazer*, 347 U.S. at 211.
[243] *Mazer*, 347 U.S. at 217.
[244] Id.
[245] Id.
[246] The footnote proximate to the quoted statement was to a law review article on the borderland where design patent and copyright overlapped. Id. at n. 38.

The Nimmer treatise devotes a subsection to "limitations on copyrightability by reason of utilitarian function," much of which is devoted to contesting the Court's analysis in *Baker* and trying to limit the range of *Baker*'s application.[247] The treatise interprets *Mazer* as having limited the meaning of *Baker* to the idea/expression distinction.[248] Relying on the Court's brief description of *Baker* in *Mazer*, Nimmer asserted that Baker should not be understood as a case about the uncopyrightability of bookkeeping systems, or of forms embodying or illustrating such a system, but rather one in which Baker's form was sufficiently different from Selden's that it did not to infringe.[249] Nimmer further stretches *Mazer* by saying that "[b]y implication at least, *Mazer* suggests that the *Baker v. Selden* distinction between copying for use and copying for explanation was dictum that will no longer be followed."[250]

Nimmer believed *Mazer* also rejected outright *Baker*'s patent/copyright distinction.[251] "There are is an overlapping area wherein certain works may claim either copyright or patent protection," says Nimmer.[252] Nimmer takes *Taylor Instrument* to task for interpreting *Baker* as forbidding copyright in blank forms,[253] such as temperature recording charts, and for its endorsement of (utility)

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[247] See Nimmer, supra note xx, at sec. 2-18. The section does not discuss the progeny of *Baker*, such as the cases discussed above in Part II, nor any of the policy rationales for limiting the scope of copyright in functional writings.
[248] Id. at 2.18 [D][1].
[249] Id.
[250] Id.
[251] Id. at 2.19 ("The Supreme Court has held that a work, such as a work of art, may be eligible for either copyright or patent protection.")
[252] Id.
[253] Id. at 2.18 [B][4].

patent/copyright exclusivity.[254] Section 102(b) is scarcely mentioned in the Nimmer treatise, and no effort is made to interpret the words of exclusion it contains because for Nimmer, section 102(b) is merely a restatement of the abstract-idea/expression distinction and nothing more.

The Nimmer interpretation stretches *Mazer* far beyond what the Court said or can reasonably be understood to have intended. *Mazer* did not criticize *Taylor Instrument* or its endorsement of exclusive domains for utility patent and copyright law; it simply regarded *Taylor* as inapposite in a case presenting a potential overlap of copyright and design patents, which raised different issues.[255] *Mazer* merely said that the potential design patentability of Stein's lamp bases did not preclude copyright in the statuettes as works of art.[256] The Court did not intend to open up copyright to all functional designs, for the Copyright Office regulations to which it deferred denied registration to works insofar as protection was sought for "their mechanical and utilitarian aspects."[257] The Court quoted from Copyright Office rules directing designers of works "of the industrial arts [that were] utilitarian in purpose and character" to seek protection from the patent laws.[258] The main point for which the Court cited *Baker* in *Mazer* was that copyright, unlike patent, does not give exclusive rights to useful arts.[259] Because

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[254] Id. at 2.19 (speaking of *Taylor* as "an older decision" contrary to *Mazer* and other caselaw). Yet, Nimmer does acknowledge that a copyright in blueprints of a machine to insert pills into blister packs would not be infringed if another firm made a machine that did the same thing, saying that for an exclusive right of that sort, one would need a patent. Id. at 2.18 [D][2].
[255] Mazer, 347 U.S. at 216, n. 34 (characterizing Taylor as having held that the mechanical patent and copyright law were mutually exclusive, but saying that a different answer is appropriate as to design patents and copyrights).
[256] The Court then cited to a law review article on the design patent/copyright overlap. Id. at 216, n. 38.
[257] Id. at 213.
[258] Id. at 212, n. 24.
[259] Id. at 217.

Mazer only mentioned *Baker* and the idea/expression distinction in passing, it is inappropriate to read *Mazer* as giving *Baker* a major haircut. That the Court did not intend to dramatically limit the scope of *Baker* is evident from the fact that *Mazer* cites approvingly to some of *Baker*'s progeny ruling that complex intellectual designs (that is, not just abstract ideas) in the useful arts, even when depicted in copyrighted works, were ineligible for copyright protection.[260]

The statuettes in *Mazer* were, moreover, not operational parts of the lamps, but rather ornamental features. *Baker* recognized that copyright protection was appropriate for ornamental designs and other works of art whose form was of their essence.[261] Because the lamp did not function as a lamp any better or worse for having Stein's statuette as a base instead of a block of wood, it is consistent with *Baker* to hold that the artistic statuettes were, indeed, copyrightable subject matter because they were physically as well as conceptually separable from the lamps. In the words of the '76 Act, Stein's statuettes did not have "an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information," and so they would qualify as protectable pictorial, sculptural and graphical works under current law.[262] Nimmer was mistaken in interpreting *Mazer* as having repudiated *Baker*'s explanation/use distinction.

In garden variety literary work cases (that is, cases about novels, plays, and non-fictional texts), Nimmer's reinterpretation of *Baker* and his reliance on Judge

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[260] See, e.g., Fulmer v. United States, 103 F. Supp. 1021 (D. 19xx)(drawing of parachute design not infringed by manufacture of parachutes); Muller v. Triborough Bridge Authority, 43 F. Supp. 298 (S.D.N.Y. 19xx)(drawing of approach to bridge held not to be infringed by construction of bridge). *Fulmer* and *Muller* rely upon *Baker* as a key precedent. *Mazer* cited both as examples of copyright not giving exclusive rights in useful arts embodied in copyrighted works. *Mazer*, 347 U.S. at 217, n. 39.
[261] *Baker*, 101 U.S. at 103.
[262] See 17 U.S.C. sec. 101 (definitions of "pictorial, graphic and sculptural works" and "useful article"). PGS works qualify for copyright protection as long as they don't flunk the useful article test.

Hand's patterns of abstraction test has not distorted copyright rulings because such works generally do not contain functional elements to which *Baker* and the "procedure, process, system, [and] method of operation" limitations of section 102(b) would apply. Yet, Nimmer's interpretation of *Baker* and section 102(b) have had distorting effects in cases involving methods of organizing information,[263] parts numbering systems,[264] and coding systems,[265] as well as in cases like *Whelan* and *Paperback*. Courts in these cases have failed to appreciate that *Baker* and its progeny, and the codification of this tradition in the '76 Act, dramatically limit the scope of copyright in functional writings. Informational procedures, processes, systems and methods of operation, when embodied in the statutory category of "literary works," are unprotectable by copyright law as functional designs depicted in drawings of machines or bridges. As *Baker* said long ago: the principle is the same in all. Any test for copyright infringement in functional writings cases must find a way to filter out procedures, processes,

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[263] Kregos v. Associated Press, 937 F.2d 700 (2d Cir. 1991)(upholding copyright in a blank form intended for use in predicting the outcome of baseball games with nine categories of information about prior games and player performance data; AP argued that the Kregos form was an unprotectable blank form under Baker, that the form implemented a method or system of predicting outcomes; and that the form's expression and idea had merged; the 2d Circuit rejected all claims, citing to Nimmer's criticism of *Baker*, applying a Hand-like patterns of abstraction approach to infringement, and characterizing *Baker* as invalidating copyrights only for "hard" methods, not "soft" ones like Kregos' that merely suggested outcomes of games).

[264] See Toro Co. v. R&R Products Co., 787 F.2d 1208 (8th Cir. 1986)("All that the idea/expression dichotomy embodied in § 102(b) means in the parts numbering system context is that appellant could not copyright the idea of using numbers to designate replacement parts. Section 102(b) does not answer the question of whether appellant's particular expression of that idea is copyrightable.") The Eighth Circuit ultimately affirmed a lower court ruling in R&R's favor after finding Toro's parts numbering system to lack originality because numbers were assigned randomly. Id. at 1213. But see ATC Distrib. v. Whatever It Takes Transmission and Parts, Inc., 402 F.3d 700 (6th Cir. 1997)(rejecting claim of copyright in parts numbering system).

[265] Practice Mgmt. Info. Corp. v. American Medical Ass'n, 121 F.3d 516 (9th Cir. 1997); American Dental Ass'n v. Delta Dental Plan, 126 F.3d 977 (7th Cir. 1997). PMIC and ADA hold coding systems for standardized names and numbers of medical or dental procedures to be within the scope of copyright in texts about them. I criticize these decisions in Samuelson, *Questioning Copyright*, supra note xx.

systems, and methods of operation as well as abstract ideas. Fortunately, the Second Circuit Court of Appeals recognized the limits of the Nimmer-inspired *Whelan* and *Paperback* approaches to analyzing infringement in software copyright cases.

C. From *Altai* to *Borland*: Resurrection of *Baker* and Section 102(b)

Computer Associates Int'l v. Altai, Inc. involved a claim of copyright in a particular kind of program SSO, namely, a parameter list for exchanging information between programs or program modules (i.e., the program interfaces).[266] Drawing upon *Franklin*, CA viewed Altai's compatibility objective as a commercial objective that had no bearing in the copyright inquiry.[267] Computer Associates asserted that the parameter list that Altai copied from CA's program was among the nonliteral (i.e., structural) elements of its program that copyright law should protect, citing and relying upon *Whelan*. The Second Circuit did not dispute that some non-literal elements of programs could be protected by copyright law,[268] but criticized *Whelan* for being grounded in an outdated understanding of computer science and for having adopted an overbroad test for copyright infringement for programs.[269]

The proper "starting point" for cases involving "utilitarian works," such as books on accounting systems and computer programs, said the court, was "the seminal case of *Baker v. Selden*."[270] Such works have only a thin scope of protection from copyright law in order not to protect the functionality embodied in the works.[271] The Second Circuit

[266] 982 F.2d 693, 697-98 (2d Cir. 1992).
[267] See supra note xx and accompanying text.
[268] Altai, 982 F.2d at 702-03.
[269] Id. at 705-06.
[270] Id. at 704.
[271] Id. at 712.

endorsed what it called "the abstraction-filtration-comparison" test for judging infringement in software copyright cases. Step 1 drew upon Judge Hand's patterns of abstraction analysis; Step 2 directed courts to assess whether non-literal elements of programs that defendants may have copied were constrained by external factors (such as the hardware or software with which it needed to interoperate), dictated by efficiency, or constituted standard programming techniques or public domain elements, and if so, these similarities were to be filtered out; Step 3 called upon courts to compare the plaintiff's and defendant's programs as to non-literal elements not filtered out in judging whether the defendant's program was substantial similar in protected expression copied from the plaintiff so as to infringe.[272] *Altai* has displaced *Whelan* as the standard framework of analysis of the proper scope of copyright protection for computer programs.[273] CA's parameter lists constrained the design choices for Altai or other firms seeking to achieve interoperability with existing programs; consequently, the Second Circuit ruled that Altai did not infringe by copying interfaces from CA's program.[274]

The *Altai* test for infringement was derived from a test proposed by Professor Nimmer's son David, who took over maintaining the well-known and widely cited treatise after his father's untimely death in 1985.[275] Although the Nimmer-fils test for software copyright infringement is more compatible with the limiting principles embodied in section 102(b) and with *Baker* and its progeny than the Nimmer-pere test, it does not call for courts to inquire about the meaning of the

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[272] Id. at 707-11.
[273] See, e.g., Borland Amicus Brief, supra note xx, at 121-24 (discussing influence of *Altai*).
[274] *Altai*, 982 F.2d at 714-15.
[275] See David Nimmer, Richard L. Bernacchi, & Gary N. Frischling, *A Structured Approach to Analyzing the Substantial Similarity of Computer Software in Copyright Infringement Cases*, 20 Ariz. St. L.J. 625 (1988). Although this article did not call its proposed test for infringement an "abstraction-filtration-comparison" test, the key elements of what became "the Altai test" were embodied in the article. Id. at 636-51. See also 3 Nimmer on Copyright sec. 13.03[E]-[F].

process, procedure, system, and method of operation limitations as applied to computer programs or to filter out these elements in the second stage of the *Altai* test for infringement.

The most notable post-*Altai* software copyright decision to have applied the *Baker*-inspired "process, procedure, system, method of operation" limitations of section 102(b) was the First Circuit Court of Appeals in *Lotus Dev. Corp. v. Borland Int'l.*[276] , Borland developed a highly rated alternative spreadsheet program to Lotus 1-2-3 called Quattro Pro. Unlike Paperback, it was not a "clone" of Lotus 1-2-3. Its native user interface had a menu command structure different from 1-2-3, but ike Paperback, Borland copied the menu command structure of the Lotus 1-2-3 program for its emulation mode so that those experienced with 1-2-3 could reuse their macros. Borland argued that the Lotus menu command structure was an unprotectable functional system or method under *Baker* and Section 102(b) because the hierarchy was indispensable to users' ability to construct compatible "macros" for commonly used sequences of operations. The First Circuit, invoking Section 102(b) and *Baker*, decided that Lotus' command hierarchy was an unprotectable method of operating a computer to perform spreadsheet functions.[277]

The First Circuit's analysis of section 102(b) as applied to the Lotus command structure was not particularly well-developed or compelling. A more persuasive rationale for limiting the scope of Lotus' copyright in 1-2-3 would have focused on Judge Keeton's observation in *Paperback* that "the exact hierarchy [of 1-2-3]—or structure, sequence,

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[276] 49 F.3d 807 (1st Cir. 1995).

[277] *Borland*, 49 F.3d at 815-17. The Supreme Court accepted Lotus' petition for certiorari, but shortly after the oral argument, the Court affirmed the First Circuit's ruling by an equally divided vote. Lotus Dev. Corp. v. Borland Int'l, Inc., 516 U.S. 233 (1996). Thirty-four copyright professors argued to the Court that the Lotus command hierarchy was unprotectable under section 102(b) because it was a fundamental part of the functionality of the Lotus macro system. See Borland Brief, supra note 211, at 131 (relying on *Baker*).

and organization—of the menu system is a fundamental part of the functionality of the macros."[278] If the menu command structure is a fundamental part of the functionality of a macro system, it should be beyond the scope of copyright protection in the program that embodies it.[279] Recognizing the macro system and its constituent parts as unprotectable by copyright law would have enabled the First Circuit to draw more usefully upon *Altai* as support for Borland's compatibility defense.

Lotus petitioned the Supreme Court to grant a writ of certiorari to review the First Circuit's ruling, arguing, among other things, that courts should not take the words of section 102(b), such as "system" and "method of operation," literally for such literalism would logically preclude copyright protection for programs, notwithstanding Congress' clear intent to extend copyright protection to programs.[280] Section 102(b) was merely a "'a legislative embodiment of the idea/expression dichotomy.'"[281] Since the Lotus menu structure was "not dictated by functional considerations," Judge Keeton had been correct in holding that it was protectable expression under copyright law.[282] Lotus relied upon the Nimmer Declaration cited above as authority in support of its interpretation of the scope of software copyright protection.[283] Although the Court granted Lotus' petition, it deadlocked on the issue presented, affirming the First Circuit ruling without setting a

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[278] *Paperback*, 740 F. Supp. at 65.
[279] See, e.g., Pamela Samuelson, *Computer Programs, User Interfaces, and Section 102(b) of the Copyright Act of 1976: A Critique of* Lotus v. Paperback, 55 Law & Contemp. Prob. 311 (1992)(arguing that the menu structure was a constituent element of the Lotus macro system that was ineligible for copyright protection under Baker and section 102(b)).
[280] See Lotus' Reply in Support of Petition For Writ of Certiorari to U.S. Supreme Court, July 5, 1995, at 7, available at http://www-swiss.ai.mit.edu/6805/articles/int-prop/lotus/lotus-cert-reply.htm.
[281] Id. (quoting from Borland's brief).
[282] Id.
[283] Id. at 6, 10, n.1.

precedent.[284] Although Lotus tried to resurrect the *Whelan* and *Paperback* approaches to protecting program SSO, courts have adhered to the *Altai* approach,[285] sometimes adapting its test to filter out unprotectable procedures, processes, systems, and methods of operation, as well as elements of programs mentioned in *Altai*.[286] Especially now that so many patents have issued on functional design elements of computer programs,[287] courts should be wary of expansive copyright protection for program SSO that would confer patent-like protection to innovations that have not, in fact, met patent standards.

The danger of patent-like protection through copyright was recognized in *Sega Enterprises Ltd. v. Accolade, Inc*,[288] which considered whether reverse engineering of program code for purposes such as getting access to functional design elements of programs, such as interfaces, was fair use. The court observed that "[i]f disassembly of copyrighted object code is per se an unfair use, the owner of the copyright gains a de facto monopoly over the functional aspects of his work—aspects that were expressly denied copyright protection by Congress,"[289] citing Section 102(b). The court went on to say that "to enjoy a lawful monopoly over the idea or functional principle underlying a work, the creator of the work must satisfy the more stringent standards imposed by the patent laws."[290] Although the Ninth Circuit did not cite *Baker* for this proposition, the statement resonates with the Court's decision in *Baker*. The Ninth Circuit also agreed with *Altai* that functional works such as computer programs and those describing

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[284] Lotus Dev. Corp. v. Borland Int'l, 516 U.S. 233 (1996). Justice Stevens recused himself. The other members of the Court divided 4-4.
[285] As of October 23, 2006, *Altai* has been followed in 49 subsequent cases.
[286] See, e.g., Gates Rubber Co. v. Bando Chemical Indus., Ltd., 9 F.3d 823 (10th Cir. 1993)(filtering out similarities in algorithms as precluded by sec. 102(b)).
[287] See, e.g., Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 Tex. L. Rev. 961 (2005).
[288] 977 F.2d 1510, 1527-28 (9th Cir. 1992).
[289] Id. at 1526.
[290] Id.

bookkeeping systems were entitled, as *Baker* had long ago held, to only "thin" protection from copyright law.[291] Other cases have followed *Sega*, although some controversy still exists about the proper scope of copyright protection for computer programs and the extent to which *Baker* limits the scope of copyright for functional writings.[292]

IV. POLICY RATIONALES FOR 102(b) EXCLUSIONS

Several policy rationales can be distilled from the caselaw and commentary for the exclusion of certain aspects of copyrighted works from the scope of copyright protection under section 102(b). This Part will discuss these policies and argue that courts faced with trying to apply the idea et al./expression distinction should consider these policies as the decisional process in future cases. I agree with the Third Circuit in *Franklin* that courts should not construe the terms of exclusion in section 102(b) so literally that they undermine the clear intentions of Congress, but if the parties—particularly the plaintiffs—call their innovations "systems" or "methods," and if the innovations satisfy the definition of these terms, courts should consider whether the innovations are among the elements in copyrighted works rendered unprotectable by section 102(b).

Fundamental Building Blocks of Knowledge. Widely recognized as a policy reason for limiting the scope of copyright protection is social desirability of allowing free reuse to fundamental building blocks of knowledge, such as abstract ideas, concepts, and scientific and mathematical principles, all of which are explicitly excluded from copyright protection by section 102(b).[293] Professor Goldstein explains that "[t]he reason for withholding copyright from creative

[291] Id. at 1524.
[292] See, e.g., *Symposium, Toward a Third Intellectual Property Paradigm*, 94 Colum. L. Rev. 2307 (1994).
[293] See, e.g., Goldstein, sec. 2.3.1.1.

building blocks lies in the very object of copyright law: to stimulate the production of the most abundant possible array of literary, musical and artistic expression."[294] As Justice Brandeis observed in his famous dissent in International News Service v. Associated Press, "[a]n author's theories, suggestions, and speculations," as well the "knowledge, truths, ideas, or emotions which the composition expresses"[295] are beyond the scope of copyright protection, as are facts, information, know-how, data, and news because they are all fundamental building blocks of new knowledge.[296]

Freedom of Authorial Expression. A related rationale for treating ideas, principles, and facts as beyond the scope of copyright protection is the freedom of expression interests of subsequent authors. In Harper & Row Pub. v. Nation Enterprises, the Court explained that copyright law was compatible with the First Amendment's protection of freedom of speech and freedom of expression interests of authors in part because copyright law excludes ideas, conceptions, and the like from the scope of its protection.[297] In Feist Pub. Inc. v. Rural Telephone Service Co., the Court opined that "raw facts [in copyrighted works] may be copied at will," saying that "[t]his result is neither unfair nor unfortunate. It is the means by which copyright advances the progress of science and the useful arts."[298] The Court in *Feist* found wisdom in *Baker*'s observation that "[t]he very object of publishing a book on science or the useful arts is to communicate to the

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[294] Id.
[295] International News Service v. Associated Press, 248 U.S. 215, 254-55 (1918).
[296] See, e.g., Feist Pub. v. Rural Telephone Service Co., 499 U.S. 340 (1991). See Jessica Litman, *After* Feist, xx U. Dayton L. Rev. (1992)(emphasizing the building block rationale for excluding facts from the scope of copyright).
[297] 471 U.S. 539, 556-57 (1985).
[298] 499 U.S. 340, 350 (1991).

world the useful knowledge which it contains. But this object would be frustrated if the knowledge could not be used without incurring the guilt of piracy of the book."[299] Drawing upon cases such as *Feist*, some scholars have argued that ideas, concepts, facts and the like are elements of a constitutionally protected public domain that promotes freedom of expression interests.[300]

Maintaining Boundaries Between the Patent and Copyright Domains. Ideas, concepts, and principles are unprotectable by copyright law mainly because of their abstract nature and their role as fundamental building blocks of knowledge, but *Baker* articulates an important rationale for treating more complex and detailed intellectual creations, such as designs for new machines and processes for manufacturing medicines, as beyond the scope of copyright protection in works that describe or otherwise depict them. To get exclusive rights to control the making and selling of useful arts, inventors must seek utility patent protection for them. It would significantly undermine incentives to use the patent system if inventors merely had to write a pamphlet or draw a diagram about their new machines or methods of operation to get a longer period of exclusive rights than they could have gotten if they had applied for and obtained patent protection for their invention.

The exclusion of procedures, processes, systems and methods of operation from the scope of copyright in section 102(b) is an important way to ensure that

[299] Id., quoting Baker v. Selden, 101 U.S. 99, 103 (1880).
[300] See, e.g., Pamela Samuelson, Enriching Discourse on Public Domains, 55 Duke L. J. 783, 792-94, 805-08 (2006)(discussing scholarship on the constitutional public domain).

copyright does not spill over into patent law's domain.[301] Cases such as *Altai* and *Sega* follow *Baker* in limiting the scope of copyright protection in computer programs, in order to ensure that copyright law does not give patent-like protection to functional designs embodied in copyrighted works.[302]

Competition Policy. An related reason not to allow copyright protection to give patent-like protection is to enable competition among firms seeking to sell different expressions of the same or a substantially similar "idea" (in the metaphorical sense). Altai, for instance, wanted to compete against Computer Associates in a submarket of the software industry, Accolade wanted to sell videogames to compete with those made by Sega, and more than a hundred years earlier, Baker wanted to compete with Selden in the market for bookkeeping systems. The thin scope of copyright protection in these functional writings enabled this competition to occur.

Competition policy also explains why courts have been reluctant to extend copyright protection to such things as part numbering systems for machine parts,[303] even when such numbering systems are unpatented and arguably unpatentable.[304] Some judgment and skill may be required to design numbering systems for catalogues of such parts, and there may be many ways to design part

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[301] See, e.g., These exclusions may not, however, be limited in scope to procedures and processes which could be patented

[302] Altai, at xx; Sega, at xx.

[303] See, e.g., ATC Distribution, Inc. v. Whatever It Takes Transmissions & Parts, Inc., 402 F.3d 700 (6th Cir. 2005)(rejecting copyright claims in parts numbering system for transmission parts); Southco, Inc. v. Kanebridge Corp., 390 F.3d 276, 277-79 (3d Cir. 2004)(rejecting claims of copyright in parts numbering system for screws and the like). See also Toro v. R&R Products (rejecting challenge to parts numbering system as unprotectable by section 102(b) but holding that the parts numbers were randomly assigned and hence unprotectable for lack of creative originality).

[304] The Court of Appeals for the Federal Circuit has a very broad conception of what constitutes patentable subject matter, but under the old printed matter rule and under Supreme Court precedents such as Gottschalk v. Benson, it is unlikely that a parts numbering system could have been patented.

numbering systems.[305] Yet, courts should bear in mind that firms that manufacture machine parts do not compete in selling catalogs, but rather in selling the machine parts, innovations that copyright law does not and should not protect. Competitors who utilize the same numbering system as the system's developer may simply be trying to inform consumers about the availability of alternative sources from which to obtain machine parts. By denying copyright protection for part numbering systems, courts can ensure that competition in the market for machine parts will be more robust.

Effective Communication/Avoiding Needless Variation. Systematically organizing and representing information is often socially desirable so that there will be a standard system available for all to draw upon. This may explain why the Supreme Court rejected Perris' claim of infringement of his copyrighted maps of urban structures in certain wards of New York City that was based on copying of the map symbol system he devised for the map by Hexamer in a map of urban structures of Philadelphia. Comprehensibility of maps is furthered when there is some commonality in the symbols used to depict common features in maps.

Mathematical formulae and the periodic table of chemical elements are other examples of systematic arrangements of information that should be regarded as unprotectable under section 102(b).[306] Considerable originality may underlie formulae, but mathematical precision and comprehensibility of mathematical ideas are better served

[305] See, e.g., *ATC*, 402 F.3d at 707.
[306] The periodic table of elements is in the public domain and is widely available on the Internet. See, e.g., http://www.csudh.edu/oliver/pubdomdb.htm. Hughes agrees that mathematical formulae are unprotectable subject matter from copyright. Hughes, supra note 46, at 599.

by standardizing the language elements of formulae.[307] The periodic table is a useful tool for teaching students about the fields of chemistry and physics precisely because of its standardized representation of atomic phenomena. Gratuitous differences in the fields of mathematics and science would impede effective communication of the core concepts and principles of these fields.

User investments in macros they had developed with the Lotus 1-2-3 macro system as a rationale for limiting copyright protection in the Lotus menu structure also resonates with the effective communication/avoidance of needless variation principle. Why should users of a spreadsheet program have to rewrite the macros they have constructed in 1-2-3 when they use another program? Extending copyright protection to macro systems would impede not only user reuse of their own macros but their ability to exchange macros and spreadsheets with their macros with other persons.

Efficiency. Professor Goldstein has aptly characterized copyright law as aimed at producing abundant expression, while patent law aims to produce efficient designs and solutions.[308] The Second Circuit in *Altai* recognized that "[i]n the context of computer program design, the concept of efficiency is akin to deriving the most concise logical proof or formulating the most succinct mathematical computation."[309] Copyright protection ought not to extend to an efficient algorithm embodied in a copyrighted computer program because algorithms are, by definition, effective procedures for carrying out certain tasks,[310] and computer science and programming texts routinely

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[307] When analyzing a new mathematical formula created by math whiz A, math whiz B should not have to use different notations (e.g., N instead of X, O instead of Y, P instead of Z) to convey insights about flaws in A's analysis or uses to which the formula might be put.
[308] Goldstein, supra note xx, at xx.
[309] Altai, 982 F.2d at 708. The Second Circuit adapted the merger doctrine as a mechanism for excluding efficient design elements of programs from the scope of copyright protection. See id.
[310] See, e.g.,

advise programmers about which algorithms they should use to achieve optimal results for commonly performed functions.[311]

It is consistent with *Baker* and its progeny to exclude from the scope of copyright protection efficient information innovations such as Aldrich's efficient tax collection system and Guthrie's freight tariff index. Efficiency is an important component of the functionality of an innovation, i.e., how effective it is and how fast results can be achieved. Copyright should not confer exclusive rights on that which yields more efficient operations or results in order to avoid protecting functionality.

Constraining Other Innovations. The caselaw on interoperability among computer programs exemplifies the policy rationale for limiting the scope of copyright in programs on account of the constraints that the development of one innovation can impose on subsequent innovations. The design of a new interface may require considerable skill and judgment and may easily satisfy the modicum of creativity standard that copyright law requires for originality. Once created, however, the components of the interface serve as a constraint on the design choices of subsequent developers who want to develop programs capable of successfully interoperating with that program. While the *Altai* test draws upon a merger-like analysis to explain why interface specifications constrain subsequent designer choices, it might have been more straightforward to describe interface specifications as a systematic organization of information for achieving functional interoperation, and apply the section 102(b) limitation on the scope of copyright as a statutory basis for denying protection to interface specifications.

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[311] See, e.g., Thomas H. Cormen et al., An Introduction to Algorithms (1990); Donald E. Knuth, Sorting and Searching (4th Ed. 1975).

The constraints rationale may also help to explain why rules and laws should be beyond the scope of copyright under section 102(b) as well. Rules are typically component elements of systems (e.g., of games) for which they provide guiding principles; they constrain the interactions of the players who must follow them in the course of fulfilling the system's purpose.

Incidental to Uncopyrightable Tasks. *Baker* and several of its progeny rejected copyright claims in blank forms on the ground that the forms were embodiments of unprotected systems. Yet, the Supreme Court in *Baker* was also trying to convey that forms shouldn't be protected by copyright law because they are useful in enabling people to perform tasks, such as keeping track of different accounts, that are far afield from the domain of copyrightable expression. Counties used Baker's and Selden's forms to keep track of monies spent on bridges, roads, or hospitals, and taxes received from businesses or property owners. The forms did not explain anything about how to keep books; they were incidental tools in the implementation of business processes in which counties were engaged.

I have argued elsewhere that similar considerations should be brought to bear in cases involving coding systems designed for efficient billing purposes:

> [T]he AMA characterized the purpose of [its coding system] as "to provide a uniform *language* that accurately describes medical, surgical, and diagnostic services, and thereby serves as an effective means for reliable *communication* among physicians, and other healthcare providers, patients, and third parties."[312] Similarly, ADA had encouraged use of its Code by dentists, insurers, and others because "standardization of *language* promotes interchange among professionals."[313] AMA and ADA

[312] CPT Process, supra note 10, at 1 (emphasis added).
[313] *ADA*, 126 F.3d at 981 (emphasis added). Interchange is, in this context, a synonym for communication. Thus, ADA code has essentially the same data interoperability purpose as AMA's code.

> developed uniform standard names and numbers for medical and dental procedures to enable more effective and efficient record-keeping and information processing about these procedures. These standards promoted interoperability of data among many professionals who had to exchange information on a daily basis. HCFA mandated use of the CPT to lower its costs for processing Medicare and Medicaid claims, standardize payments to doctors for the same procedures, and avert fraud arising from non-uniform reporting procedures.[314] Facilitating efficient record-keeping is among the reasons that copyright law precludes protection of blank forms,[315] and this reinforces the rationale for denying copyright to numbering systems.

Universal v. Salkeld also tried to stretch copyright to get protection for uncopyrightable subject matter. Although the court rightly focused on the lack of copying of artistic details and text in Salkeld's exercise charts, later courts would have benefited had the court in Salkeld given more attention to the lessons of *Baker* in rejecting claims that copyrights in the charts extended to the exercise procedures for Universal's fitness machines. Had *Salkeld* focused more on why exercise procedures were not proper subject matter for copyright protection, the judge in the *Bikram Yoga* case would have more guidance when deciding whether to dismiss Bikram's claim of copyright in a set of yoga poses.[316] The abstract idea/expression distinction and originality requirement did not give the judge enough tools to make a sensible decision in that case.[317]

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[314] See, e.g., CPT Process, supra note 10; Matherlee, supra note 43. See also ROBERT J. GLUSHKO, DOCUMENT ENGINEERING sec. 16.2.3.5 (2005).

[315] The Nimmer treatise considers lack of originality as the only basis for denying copyright to blank forms. See NIMMER, supra note 25, secs. 2.08, 2.18 (2004). Other policy considerations support denial of copyright in forms: forms may embody systems, standard forms lower training and information processing costs, and such forms may be useful in facilitating non-copyrightable transactions. See, e.g., Bibbero Sys., Inc. v. Colwell Sys., Inc., 893 F.2d 1104 (9th Cir. 2004)(medical billing form held uncopyrightable).

[316] See Open Source Yoga Unity v. Choudhury, 2005 U.S. Dist. LEXIS 10440 (N.D. Cal. 2005) (denying defendant's motion for summary judgment).

[317] See, e.g., Katherine Macham, *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, 53-54 (2004)(discussing the functionality of the Bikram yoga sequences).