Copyrighting the User Interface: Too Much Protection

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COPYRIGHTING THE USER INTERFACE: TOO MUCH PROTECTION?

by Joseph T. Verdesca, Jr.

I. INTRODUCTION

SOFTWARE plays an increasingly important role in the computer industry.[1] Employers today regard a working understanding of the more common applications[2] as a valuable asset and increasingly as a necessity.[3] An intuitive user interface[4] can greatly reduce the difficulties involved in acquiring or developing such skills.[5] For this reason, the user interface represents a very valuable aspect of a program, perhaps the most valuable one.[6] The development of the user interface requires extensive work and effort on the part of the developers, sometimes much more than is involved even in writing the actual computer code.[7] This comment ad-

1. *See Airing Both Sides of the 'Look-and-Feel' Debate*, COMPUTERWORLD, Aug. 13, 1990, at 171 (Computer software has become the driving force of the industry . . . ."); *Copyright Protection of Computer Software*, 5 COMPUTER L. REP. 413 (1985).

2. The Copyright Act of 1976 (the Act) defines a computer program as "a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result." 17 U.S.C. § 101 (1988). One or more programs constitute an application. Word processing, spreadsheets, and databases are examples of applications.

3. *See* Jacobs, *Copyright and Compatibility*, 30 JURIMETRICS J. 91, 99 (1989) ("As computing power is disseminated further throughout enterprises and corporations, the investment in training in the user interface becomes an increasingly important component of the enterprise's competitive advantage."); Note, *Protecting the Look and Feel of Computer Programs*, 10 CARDOZO L. REV. 561, 575 n.36 (1988) [hereinafter Note, *Protecting the Look*].

4. The user interface includes the menu system of commands, including its structure, organization, and choice of terms, the function key assignments, screen displays, and macro language. *See infra* note 252 and accompanying text. *See also* Chisum, Dreyfuss, Goldstein, Gorman, Karjala, Kitch, Menell, Raskind, Reichman, Samuelson, *LaST Frontier Conference Report on Copyright Protection of Computer Software*, 30 JURIMETRICS J. 15, 26 (1989) [hereinafter LaST Conference Report] ("User interfaces include all of the devices by which the human user can interact with the computer in order to accomplish the tasks the computer is programmed to perform.").

5. *See* Note, *Protecting the Look*, *supra* note 3, at 576 ("A program that mirrors the user's thought process allows that user to spend time concentrating on the substance of his task rather than on the steps necessary to operate a computer.").

6. *See* Note, *A Thousand Clones: The Scope of Copyright Protection in the "Look and Feel" of Computer Programs*, 63 WASH. L. REV. 195, 195 (1988) ("[T]he 'user interface' (or 'look and feel') is the single most important factor in the marketability of a computer program." (footnotes omitted)).

7. Whelan Assocs., Inc v. Jaslow Dental Laboratory, 797 F.2d 1222, 1231 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987); Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 56 (D. Mass. 1990). *See also* INFO WORLD, Nov. 11, 1985, at 13 ("the 'look and feel' of a computer software product often involves much more creativity and often is of greater commercial value than the program code which implements the product . . . .").

dresses the question of how much protection the copyright laws afford the user interface.

Current case law extends copyright protection to the user interface.[8] Judge Robert Keeton directly addressed this issue in *Lotus Development Corp. v. Paperback Software International*.[9] The *Lotus* court held that the structure, sequence, and organization of the 1-2-3 menu structure constituted copyrightable material.[10] The computer industry[11] reacted with surprise and anger.[12] Further controversy arose when Lotus sued two other competitors for user interface infringement within a week of defeating Paperback.[13] What effect the *Lotus* decision will have on the computer industry remains uncertain.[14]

This Comment analyzes the protection provided under the Copyright Act of 1976 (the Act)[15] for the user interface,[16] the soundness of such constructions, and offers a proposal for new legislation.[17] This Comment argues that current copyright law provides too much protection to the look and feel of user interfaces.[18] This overprotection prevents the public from receiving important benefits that would derive from standardization and increased

8. *See infra* notes 143-301 and accompanying text.

9. 740 F. Supp. 37 (D. Mass. 1990). *See generally* Note, Lotus Development Corp. v. Paperback Software International: *Broad Copyright Protection For User Interfaces Ignores The Software Industry's Trend Toward Standardization*, 52 U. PITT. L. REV. 689 (1991). In October 1990 Paperback agreed to pay Lotus $500,000, discontinue producing its spreadsheet programs, and not appeal the trial court's decision. *See* N.Y. Times, Oct. 17, 1990, at D4, col. 3.

10. *Lotus*, 740 F. Supp. at 68.

11. Ashton-Tate and Apple, however, who are currently suing other companies for user interface infringement, were most likely pleased by the decision. *See* Barker, *Nanobytes*, BYTE, Sept. 1990, at 20.

12. *See* Dvorak, *The Death of Code*, PC MAGAZINE, Nov. 13, 1990, at 81. *But see* Dyson, *Lotus Lawsuit Leaves a Gloomy Lesson*, PC COMPUTING, October 1990, at 21 (stating that, although Lotus deserved to win its suit, it should compete in the marketplace rather than in the courts). *But cf.* Zachmann, *Lotus-Paperback Precedent Need Not Harm the Industry*, PC WEEK, July 9, 1990, at 10 ("Provided that the courts reject the broader claims to copyright protection in cases where direct copying of a program as a whole is not involved, competition, innovation and the vigor of the software industry aren't likely to be severely threatened."). Lotus' victory also drew protests. *See, e.g.*, COMPUTERWORLD, Aug. 6, 1990, at 6 (quoting Richard Stallman, founder of the League of Programming Freedom: "We have come to warn the public of the terrible harm that Lotus is trying to do to computer users.").

13. *See, e.g.*, Lavin, *Spirit of the Law: Lotus Development Corp.'s Lawsuits*, PC USER, July 18, 1990, at 29 (commenting on the short period ("less than a week") between winning the Paperback suit and filing against two more competitors).

14. Lotus has negotiated settlements with three of its competitors. *See* Lotus Dev. Corp. v. Mosaic Software, Inc., No. 870074K (D. Mass. filed Jan. 12, 1987) (settled prior to trial); Lotus Dev. Corp. v. Paperback Software Int'l, 740 F.Supp. 37 (D. Mass. 1990) (settled after the court found for Lotus: Paperback agreed to pay $500,000, remove its product from the market, and not appeal the judgment); Lotus Dev. Corp. v. Santa Cruz Operation, Inc., (filed one week after Lotus won its case against Paperback, and settled on June 17, 1991. *See, e.g.*, N.Y. Times, June 18, 1991, at D4, col. 2.). Lotus' suit against Borland Software, Inc., perhaps the most important of the four suits brought by Lotus, is still pending. *See* Siegmann, *Lotus Wins Third Copyright Battle*, San Francisco Chronicle, June 18, 1991, at C1. *See also* the interview with Borland discussing the case in Business Wire, June 19, 1991.

15. 17 U.S.C. §§ 101-914 (1988 & Supp. 1989).

16. *See infra* notes 143-301 and accompanying text.

17. *See infra* notes 308-41 and accompanying text.

18. *See infra* notes 308-41 and accompanying text.

compatibility.[19]

Computer software differs from other types of works protected by the Act.[20] This Comment shows that the current copyright law fails to accommodate the unique characteristics of software, such as the lack of industry standards, the importance of building on prior innovations, the functional nature of software, the rapid pace of development, the corresponding rate of obsolescence, and the complex nature of the subject matter.[21] Separate and specific legislation is required to balance properly the public good with private interests in the context of software publication.[22]

The Comment is organized as follows. First, the Comment provides an overview of the historical development of the law.[23] The second section presents the law as currently formed by the leading cases.[24] The third section then discusses the need for a statutory solution to the problem of balancing protection and public interest in the software context.[25]

II. HISTORICAL DEVELOPMENT OF COPYRIGHT IN THE SOFTWARE CONTEXT

A. Constitutional Basis

The United States Constitution provides the basis of American copyright law.[26] The Constitution empowers Congress to grant limited monopolies to authors of works as an incentive to produce those works, which, in turn, would benefit the public.[27] The Supreme Court has emphasized that the benefit to the public is the primary rationale for copyright protection,[28]

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19. *See* Damman, *Copyright of Computer Display Screens: Summary and Suggestions*, 9 COMPUTER L.J. 417, 445 (1989) (standardization of user interfaces would benefit the public in increasing the users' ability to change software packages with the minimum of retraining. Such standardization would also push software companies to rely on the competitiveness of their product instead of on the inertia of an installed base of users trained only in their proprietary interface.).

20. *See infra* notes 308-31 and accompanying text.

21. *See generally* Note, *Protecting the Look*, *supra* note 3, at 578, 591.

22. *See infra* notes 332-41 and accompanying text.

23. *See infra* notes 97-142 and accompanying text.

24. *See infra* notes 143-301 and accompanying text.

25. *See infra* notes 308-41 and accompanying text.

26. U.S. CONST. art. I, § 8, cl. 8 ("The Congress shall have Power . . . To promote the Progress of Science and Useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.").

27. *See* Mazer v. Stein, 347 U.S. 201 (1954) ("The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in 'Science and Useful Arts.' "). *See also* 1 M. NIMMER, NIMMER ON COPYRIGHT § 1.03[A], at 132 (1987) ("[T]he authorization to grant to individual authors the limited monopoly of copyright is predicated upon the dual premises that the public benefits from the creative activities of authors, and that the copyright monopoly is a necessary condition to the full realization of such creative activities.").

28. *See* Fox Film Corp. v. Doyal, 286 U.S. 123, 127 (1932) ("The sole interest of the United States and the primary object in conferring the monopoly lie in the general benefits derived by the public from the labors of authors."). *See also* Twentieth Century Music Corp. v. Aiken, 422 U.S. 151, 156 (1975) ("The immediate effect of our copyright law is to secure a fair return for an author's creative labor. But the ultimate aim is, by this incentive, to stimulate artistic creativity for the public good.").

while the private benefit of the author is only of secondary consideration.[29] Both Congress and the courts must balance two competing interests: the encouragement of progress and innovation of an art or science,[30] and the broad public availability of the fruits of the authors' labors.[31] Without any protection authors would lose the incentive to innovate, and as a consequence the public would have fewer works to enjoy.[32] With too much protection the law would stifle innovation, and the public would again lose.[33]

B. Statutory Embodiment

The Constitution limits Congress's power to grant copyright protection in two ways: the protection must be for a limited duration,[34] and the primary purpose must be public rather than private benefit.[35] Congress has not extended protection to all works.[36] In order to qualify for protection under the Act, the item must be original,[37] a work of authorship,[38] and fixed in a tangible medium of expression.[39] Examples of works of authorship include literary works[40] and pictorial, graphic, and sculptural works.[41] Congress

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29. *See* United States v. Paramount Pictures, 334 U.S. 131, 158 (1948) ("The copyright law, like the patent statute, makes reward to the owner a secondary consideration").

30. *See* Mazer v. Stein, 347 U.S. 201, 219 (1954) ("Sacrificial days devoted to such creative activities deserve rewards commensurate with the services rendered.").

31. *See* Twentieth Century Music Corp. v. Aiken, 422 U.S. 151, 156 (1975).

> The limited scope of the copyright holder's statutory monopoly, like the limited copyright duration required by the Constitution, reflects a balance of competing interest: Creative work is to be encouraged and rewarded, but private motivation must ultimately serve the cause of promoting broad public availability of literature, music, and the other arts.

Id.

See also Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222, 1235 (3d Cir. 1986) ("[T]he purpose of copyright law is to create the most efficient and productive balance between protection (incentive) and dissemination of information, to promote learning, culture and development."), *cert. denied*, 479 U.S. 1031 (1987); Sid & Marty Krofft Television Prod., Inc. v. McDonald's Corp., 562 F.2d 1157, 1163 (9th Cir. 1977) ("This principle [the idea-expression dichotomy] attempts to reconcile two competing social interests: rewarding an individual's creativity and effort while at the same time permitting the nation to enjoy the benefits and progress from use of the same subject matter.").

32. *See infra* note 85 and accompanying text.

33. *See infra* notes 308-31 and accompanying text.

34. *See* Sony Corp. v. Universal City Studios, Inc., 464 U.S. 417, 429 (1984) ("The monopoly that Congress may authorize are neither unlimited nor primarily designed to provide a special private benefit.").

35. *Id.*

36. Sid & Marty Krofft Television Prod., Inc. v. McDonald's Corp., 562 F.2d 1157, 1163 (9th Cir. 1977).

37. 17 U.S.C. § 102 (1988) (effective Jan. 1, 1978). The originality requirement is minimal, requiring only that the work "owes its origin" to the author. *See* Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53 (1884).

38. 17 U.S.C. § 102(a) (1988).

39. *Id.* ("Copyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.").

40. 17 U.S.C. § 101 (1988) (" 'Literary works' are works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects . . . in which they are embodied.").

41. 17 U.S.C. § 102(a)(1), (5) (1988).

expressly excluded ideas, processes and discoveries.[42] Furthermore, the Act grants only limited protection to useful articles.[43]

C. *Judicial Doctrines*

The courts must interpret the Act.[44] Courts interpreting the Act have developed three interrelated concepts: the idea-expression dichotomy,[45] the doctrine of merger,[46] and the concept of scenes a faire.[47] These concepts merit discussion before reviewing the cases dealing with protection of the user interface.

1. The Idea-Expression Dichotomy

The idea expression dichotomy serves as a limiting principle to the scope of copyright protection.[48] The oft-repeated rule that copyright protects only expression and never ideas[49] is simple enough to state, yet difficult to apply.

> "Pictorial, graphic, and sculptural works" include two-dimensional and three-dimensional works of fine, graphic, and applied art, photographs, prints and art reproductions, maps, globes, charts, diagrams, models, and technical drawings, including architectural plans. Such works shall include works of artistic craftsmanship insofar as their form but not their mechanical or utilitarian aspects are concerned; the design of a useful article . . . shall be considered a pictorial, graphic, or sculptural work only if, and only to the extent that, such design incorporates pictorial, graphic, or sculptural features that can be identified separately from, and are capable of existing independently of, the utilitarian aspects of the article.
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> . . . .
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> A "useful article" is an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information. An article that is normally part of a useful article is considered a "useful article."

17 U.S.C. § 101 (1988).

42. 17 U.S.C. § 102(b) (1988) ("In no case 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."). *See also* H.R. REP. NO. 1476, 94th Cong., 2d Sess. 51, 57, *reprinted in* 1976 U.S. CODE CONG. & ADMIN. NEWS 5659, 5670 [hereinafter House Report] ("the actual processes or methods embodied in the program are not within the scope of the copyright law").

43. 17 U.S.C. § 101 (1988) ("[T]he design of a useful article . . . shall be considered a pictorial, graphic or sculptural work [and thus copyrightable] only if, and to the extent that, such design incorporates pictorial, graphic, or sculptural features that can be identified separately from, and are capable of existing independently of, the utilitarian aspects of the article.").

44. Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 46 (D. Mass. 1990).

45. *See infra* notes 48-62 and accompanying text.

46. *See infra* notes 64-67 and accompanying text.

47. *See infra* notes 69-73 and accompanying text.

48. Sid & Marty Krofft Television Prod., Inc. v. McDonald's Corp., 562 F.2d 1157, 1163 (9th Cir. 1977) ("Clearly the scope of copyright protection does not go this far. A limiting principle is needed. This is provided by the classic distinction between an 'idea' and the 'expression' of that idea.").

49. *See supra* note 42. *See also* Mazer v. Stein, 347 U.S. 201, 217 (1954) ("Unlike 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."); Baker v. Selden, 101 U.S. 99, 102 (1880) ("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."); Whelan Assocs., Inc v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222, 1234 (3d Cir. 1986) ("It is axiomatic that copyright does not protect ideas

The difficulty arises in defining the idea, and in drawing the line between that idea and its expression.[50]

In *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*[51] a court, however, attempted to formulate a rule. The court in *Whelan* distinguished the idea from its expression by determining what elements were exclusive to the idea.[52] The court would not protect any material essential or necessary only to the idea.[53] Protection could extend to those elements not necessary or essential to the idea.[54]

Judge Learned Hand,[55] on the other hand, declared that a judge must make the distinction on a case-by-case basis.[56] Judge Hand devised an approach based on abstractions.[57] Under this approach one would consider a work from the most detailed to the most abstract levels.[58] Between those extremes exists a point at which protection of the abstraction would also protect the idea.[59] This point provides the basis for distinguishing idea from expression[60] but must again be determined on a case-by-case basis.[61] The distinction between idea and expression provides a powerful policy tool to the courts, as copyrightability can turn entirely upon the definition of the

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only, but the expression of ideas."), *cert. denied*, 479 U.S. 1031 (1987); *Krofft*, 562 F.2d at 1163 ("It is an axiom of copyright law that the protection granted to a copyrighted work extends only to the particular expression of the idea and never to the idea itself."). *See also* Note, *Copyright Protection of Computer Screen Displays*, 72 MINN. L. REV. 1123, 1156 (1988) ("[T]he demarcation of uncopyrightable idea from copyrightable expression . . . is a subjective, policy-guided process.").

50. *See Krofft*, 562 F.2d at 1163 ("The difficulty comes in attempting to distill the unprotected idea from the protected expression."). *See also* Franklin Mint Corp. v. National Wildlife Art Exch., Inc., 575 F.2d 62, 65 (3d Cir.) (distinguishing between idea and expression in any given work is a very subjective process), *cert. denied*, 439 U.S. 880 (1978).

51. *Whelan*, 797 F.2d at 1235-36 ("*[T]he 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 the idea.*" (emphasis in original)).

52. *Id.* at 1236.

53. *Id.*

54. *Id.*

55. Judge Learned Hand decided many of the foundation cases in copyright law, including Peter Pan Fabrics, Inc. v. Martin Weiner Corp., 274 F.2d 487 (2d Cir. 1960); Sheldon v. Metro-Goldwyn Pictures Corp., 81 F.2d 49 (2d Cir. 1936), *aff'd*, 309 U.S. 390 (1940); Nichols v. Universal Pictures Corp., 45 F.2d 119 (2d Cir. 1930), *cert. denied*, 282 U.S. 902 (1931).

56. *Peter Pan*, 274 F.2d at 489 ("The test for infringement of a copyright is of necessity vague. . . . Obviously, no principle can be stated as to when an imitator has gone beyond copying the 'idea,' and has borrowed its 'expression.' Decisions must therefore inevitably be ad hoc."). *See also* Atari, Inc. v. North Am. Philips Consumer Elecs. Corp., 672 F.2d 607, 615 (7th Cir.) ("There is no litmus paper test by which to apply the idea-expression distinction; the determination is necessarily subjective."), *cert denied*, 459 U.S. 880 (1982); Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930) ("Nobody has ever been able to fix that boundary [between idea and expression], and nobody ever can."), *cert. denied*, 282 U.S. 902 (1931).

57. *Nichols*, 45 F.2d at 121 ("Upon any work . . . a great number of patterns of increasing generality will fit equally well, as more and more of the incident is left out. . . . [T]here is a point in this series of abstractions where they are no longer protected, since otherwise the playwright could prevent the use of his 'ideas,' to which, apart from their expression, his property is never extended.").

58. *Id.*

59. *Id.*

60. *Id.*

61. *Id.*

idea.[62]

2. *The Concept of Merger*

The doctrine of merger stems from the idea-expression dichotomy.[63] Copyright does not protect expression where only one or a limited number of ways of expressing that idea exist.[64] To protect the expression in such circumstances would create the potential for monopolization of the idea by copyrighting all possible expressions of that idea.[65] The *Whelan* court's analysis,[66] based on necessity, reflects this same concern.[67] The doctrine of merger supplements the principle of the idea-expression dichotomy in that it prevents the removal of ideas from the public domain through copyright law.[68]

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62. *See infra* notes 213-301 and accompanying text.

63. *See* Atari, Inc. v. North Am. Phillips Consumer Elecs. Corp., 672 F.2d 607, 616 (7th Cir.) (merger is a "related concept" of the idea-expression dichotomy), *cert. denied*, 459 U.S. 880 (1982).

64. *See* Baker v. Selden, 101 U.S. 99, 103 (1879) (referring to a ledger form necessary to an accounting system in a book: "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"). *See also* M. Kramer Mfg. Co. v. Andrews, 783 F.2d 421, 436 (4th Cir. 1986) (test in computer context is if "there is only one way to express the idea, 'idea' and 'expression' merge and there is no copyrightable material."); *Atari*, 672 F.2d at 616 ("[W]here idea and expression are indistinguishable, the copyright will protect against only identical copying."); Herbert Rosenthal Jewelry Corp. v. Kalpakian, 446 F.2d 738, 741-42 (9th Cir. 1971) (expression of jeweled bee pin merges with idea of same, as there exists only a limited number of ways in which to express the idea of a jeweled bee pin); Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 59 (D. Mass. 1990) ("If a particular expression is one of a quite limited number of the possible ways of expressing an idea, then . . . the expression is not copyrightable."); Manufacturers Technologies, Inc. v. CAMS, Inc., 706 F. Supp. 984, 995 (D. Conn. 1989) (placement of menus and tools on screen was one of only a very limited number of ways of expressing the idea of formatting a screen display for ease of use); Digital Communications v. Softklone Distrib., 659 F. Supp. 449, 457 (N.D. Ga. 1987) ("ideas, as such, are not copyrightable and, as a corollary, necessary expression incident to an idea 'merge' with that idea and also are not copyrightable. . . .").

65. *See Digital*, 659 F. Supp. at 458 ("If there exists only one expression for an idea, then granting copyright protection with its attendant ease of obtainment and long duration . . . would unduly prevent use of the idea by society."). *See also* Morrissey v. Proctor & Gamble Co., 379 F.2d 675, 678-79 (1st Cir. 1967):

> When the uncopyrightable subject matter is very narrow, so that "the topic necessarily requires," . . . at best only a limited number [of forms of expression], to permit copyrighting would mean that a party or parties, by copyrighting a mere handful of forms, could exhaust all possibilities of all future use of the substance. In such circumstances . . . the subject matter would be appropriated by permitting the copyrighting of its expression. . . . [I]n these circumstances, we hold that the copyright does not extend to the subject matter at all, and plaintiff cannot complain even if his particular expression was deliberately adopted.

Id.

66. *See supra* note 51 and accompanying text.

67. Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222, 1236 (3d Cir. 1986) ("Where there are various means of achieving the desired purpose, then the particular means chosen is not necessary to the purpose; hence, there is expression, not idea."), *cert. denied*, 479 U.S. 1031 (1987).

68. *See supra* notes 48-62 and accompanying text.

3. *The Concept of* Scenes a Faire

The concept of *scenes a faire* derives from the doctrine of merger.[69] Copyright law will not protect scenes a faire.[70] Examples of scenes a faire include elements of a work which represent the only reasonable way of expressing a certain idea.[71] If the idea were a maze-chase game such as PACMAN, the maze, scoring table, wraparound tunnel and scoring dots are all elements indispensable to the idea and thus constitute scenes a faire.[72] Like merger, the concept of *scenes a faire* seeks to prevent the removal of ideas from the public domain through copyright.[73]

D. Protection of Nonliteral Elements

Copyright clearly protects literal aspects of a copyrighted work.[74] Finding which nonliteral aspects of any given work also enjoy protection presents a more difficult problem.[75] In the computer context, the actual code (both source and object) constitutes the literal aspect of a program,[76] and it is well established that it is a work of authorship and a literary work.[77] Thus copyright protects the program code itself.[78] Copyright also extends to a

69. *See Whelan*, 797 F.2d at 1236 ("Consideration of copyright doctrines related to scenes a faire and fact-intensive works supports our formulation, for they reflect the same underlying principle").

70. *See* Atari, Inc. v. North Am. Philips Consumer Elecs. Corp., 672 F.2d 607, 616 (7th Cir.) (such stock literary devices are not protectible by copyright), *cert. denied*, 459 U.S. 380 (1982); *Whelan*, 797 F.2d at 1236 ("*Scenes a faire* are afforded no protection because the subject matter represented can be expressed in no other way than through the particular *scene a faire*").

71. *See* Alexander v. Haley, 460 F. Supp. 40, 45 (S.D.N.Y. 1978) ("[I]ncidents, characters or settings which are as a practical manner indispensable, or at least standard, in the treatment of a given topic" constitute scenes a faire.); Reyher v. Children's Television Workshop, 533 F.2d 87, 91 (2d Cir. 1976), *cert. denied*, 429 U.S. 980 (1976); *Atari*, 672 F.2d at 616.

72. *Atari*, 672 F.2d at 617.

73. *See* Landsberg v. Scrabble Crossword Game Players, Inc., 736 F.2d 485, 489 (9th Cir.) (granting a copyright "would give the first author a monopoly on the commonplace ideas behind the scenes a faire"), *cert. denied*, 469 U.S. 1037 (1984).

74. The Act defines literary works as "works, other than audiovisual works, expressed in words, numbers or other verbal or numerical symbols or indicia, regardless of the nature of the material objects such as books, periodicals, manuscripts, phonorecords, film, tapes, disks, or cards, in which they are embodied." 17 U.S.C. § 101 (1988). *See* House Report, *supra* note 42, at 54, *reprinted* at 5667 ("[t]he term 'literary works' . . . includes . . . computer programs"). *See also* Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240, 1246-47 (3d Cir. 1983) (source and object code protected), *cert. dismissed*, 464 U.S. 1033 (1984); Stern Elec. Inc. v. Kaufman, 669 F.2d 852, 855 n.3 (2d Cir. 1982) ("written computer programs are copyrightable as literary works"); Williams Elec., Inc. v. Artic Int'l, Inc., 685 F.2d 870, 876-77 (3d Cir. 1982) (object code); Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 49 (D. Mass. 1990) ("computer programs fall squarely within the statutory definition of literary works"); Digital Communications Assocs., Inc. v. Softklone Distrib. Corp., 659 F. Supp. 449, 454 (N.D. Ga. 1987); Midway Mfg. Co. v. Strohon, 564 F. Supp. 741, 750 (N.D. Ill. 1983) (source and object code); Hubco Data Prod., Corp. v. Management Assistance Inc., 219 U.S.P.Q. 450, 454 (D. Idaho 1983) (object code).

75. Note, *The Test for Proving Copyright Infringement of Computer Software: "Structure, Sequence, and Organization" and "Look and Feel" cases*, 14 WM. MITCHELL L. REV. 105, 106 (1988) [hereinafter Note, *Proving Copyright Infringement*].

76. *See id.*

77. *See supra* note 74 and accompanying text.

78. *See supra* note 74 and accompanying text.

flowchart of a program.[79]

The structure, sequence, and organization of the user interface qualify as nonliteral aspects of a program.[80] The question of whether copyright protects these elements has plagued the courts.[81] Further, if the law undertakes to protect the interface, the courts must determine the extent of that protection.

Even completely different programs, written independently in different programming languages for different machines, can produce nearly identical screen displays.[82] In such a situation, since the computer code was not duplicated, no literal copying occurred.[83] Yet, to the user, the second program looks like the original work. The following hypothetical illustrates the problem.

Creator has developed a new user interface for a program. Creator spent time, effort, and money optimizing the interface for ease of use, intuitiveness, and efficiency. The interface works well and quickly develops a strong customer base. Clonemaker, seeing the utility and popularity of the interface, integrates many of its elements[84] into his own work. Clonemaker lacks Creator's expenses of designing, developing, optimizing, and marketing the interface and thus can sell the clone program for less. In this way Clonemaker can steal Creator's customer base by offering a product substantially identical to Creator's less expensive product. Such unbeatable competition discourages Creator from expending the money and effort needed to develop innovative interfaces.[85]

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79. NATIONAL COMMISSION ON NEW TECHNOLOGICAL USE OF COPYRIGHTED WORKS, FINAL REPORT AND RECOMMENDATIONS 43 (1978) [hereinafter CONTU FINAL REPORT], *reprinted in* 5 COPYRIGHT, CONGRESS AND TECHNOLOGY: THE PUBLIC RECORD (N. Henry, ed. 1980), *cited with approval in* Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 45 (D. Mass. 1990) *and in* Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222, 1241 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987). *See also* Data Cash Sys., Inc. v. JS&A Group, Inc., 480 F. Supp. 1063, 1067 n.4 (N.D. Ill. 1979) (protection under copyright covers "computer programs in their flow chart, source and assembly phases," holding that object code and therefore program at bar was not copyrightable), *aff'd on other grounds*, 628 F.2d 1038 (7th Cir. 1980) (publication without notice rendered program uncopyrightable); Synercom Technology, Inc. v. University Computing Co., 462 F. Supp. 1003, 1013 n.5 (N.D. Tex. 1978) (noted in dictum that "it would probably be a violation to take a detailed description of a particular problem solution, such as a flowchart" and create a program with it).

80. Note, *Proving Copyright Infringement*, *supra* note 75, at 106.

81. *See infra* notes 97-301 and accompanying text.

82. *See* Manufacturers Technologies, Inc. v. CAMS, Inc., 706 F. Supp. 984, 991 (D. Conn. 1989) ("[T]wo different computer programs, whose source codes were created independently of one another, can produce computer screen displays which are very similar, if not totally alike"); *see also* Stern Elec., Inc. v. Kaufman, 669 F.2d 852, 855 (2d Cir. 1982) ("many different computer programs can produce the same 'results,' whether those results are an analysis of financial records or a sequence of images and sounds"); Midway Mfg. Co. v. Strohan, 564 F. Supp. 741, 749 (N.D. Ill. 1983) ("it is quite possible to design a game that would infringe Midway's audiovisual copyright but would use an entirely different computer program").

83. *See supra* note 77 and accompanying text.

84. Elements could include the locations, structures, and terms used in the command menu.

85. *Cf.* Spector, *Software, Interface, and Implementation*, 30 JURIMETRICS J. 79, 87 (1989).

Courts have long dealt with the protection of nonliteral elements of literary works outside of the computer context.[86] Copyright protects some nonliteral elements of traditional works, including plot, characters, and setting.[87] In these cases courts have often based their findings of infringement on the total concept or feel of the allegedly infringing work.[88] In addition, protection for structure, sequence, and organization is recognized in the non-computer context in compilations and derivative works.[89]

Protection of nonliteral elements in the computer context has proved more troublesome.[90] Courts have held the structure, sequence, and organization of the computer code to be copyrightable.[91] The problem for the

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> [D]eveloping an interface is a creative and time-consuming activity, and the interface designers deserve sufficient protection to ensure appropriate rewards. Furthermore, it has been argued that protecting interfaces may encourage "leapfrogging," that is, development of interfaces that are substantially different and much better. If interfaces are less protected, one could argue that there would be a lot of "sheep" in the world.

Id. at 88. *See supra* notes 26-33 and accompanying text.

86. *See* Sheldon v. Metro-Goldwyn Pictures Corp., 81 F.2d 49, 56 (2d Cir. 1936) ("[A] play may be pirated without using the dialogue. . . . [N]o plagiarist can excuse the wrong by showing how much of his work he did not pirate"), *cert. denied*, 298 U.S. 669 (1936). *See also* Steinberg v. Columbia Pictures Indus., Inc., 663 F. Supp. 706 (S.D.N.Y. 1987) (substantial similarity does not require duplication or near identity (movie poster)); Warner Bros. Inc. v. American Broadcasting Co., 720 F.2d 231, 241 (2d Cir. 1983) (infringement based on "total concept and feel" of Superman character); Sid & Marty Krofft Television Prod., Inc. v. McDonald's Corp., 562 F.2d 1157, 1167 (9th Cir. 1977) ("total concept and feel" of characters); Roth Greeting Cards v. United Card Co., 429 F.2d 1106, 1110 (9th Cir. 1970) (infringement of card found based on "total concept and feel."); Detective Comics, Inc. v. Bruns Publications, Inc., 111 F.2d 432, 433 (2d Cir. 1940) (infringement of comic book character); Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930) (protection of literary property in the context of a play is not limited literally to the text, "else a plagiarist would escape by immaterial variations"), *cert. denied*, 282 U.S. 902 (1931); Fred Fisher, Inc. v. Dillingham, 298 F. 145 (S.D.N.Y. 1924) (finding infringement of music even where melodies were different).

87. *See supra* note 86.

88. *See Roth*, 429 F.2d at 1106; *Krofft*, 562 F.2d at 1167; Hartman v. Hallmark Cards, Inc., 833 F.2d 117, 120 (8th Cir. 1987); Warner Bros., Inc. v. American Broadcasting Co., 720 F.2d 231, 241 (2d Cir. 1983); Atari, Inc. v. North Am. Philips Consumer Elecs. Corp., 672 F.2d 607, 614 (7th Cir.), *cert. denied*, 459 U.S. 880 (1982).

89. 17 U.S.C. § 103 (1988) extends protection to compilations and derivative works, which are defined in 17 U.S.C. § 101 (1988) as follows:

> A "compilation" is a work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship.
>
> . . . .
>
> A "derivative work" is a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship, is a "derivative work."

Id.

90. At least two different lines of thought are present in court decisions regarding the protection of nonliteral elements such as the user interface or the code structure. *Compare infra* note 97 (cases supporting the protection of nonliteral elements) *with infra* note 124 (cases denying copyright protection to nonliteral elements).

91. *See* Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222, 1240 (3d Cir. 1986) (protection extends to "structure, sequence and organization"), *cert. denied*, 479

courts is the protection of the user interface, including the menu structure, organization, command terms, and display screens.[92] While software manufacturers have brought numerous look and feel lawsuits,[93] few have been adjudicated.[94]

Protecting the user interface implicates the precarious balance between providing adequate incentive to spur innovation and allowing the public to benefit from standardized interfaces.[95] The difficulty lies in providing just the right amount of protection. Too much protection would fragment the market and deprive the public of the benefits of interface standardization.[96] Too little protection would reduce the incentive to innovate, thus depriving the public of the benefits of new creations and progress in the field.

1. *Protection of Structure, Sequence, and Organization:* Whelan v. Jaslow *and Other Cases.*

Several courts have extended protection to the nonliteral aspects of computer programs.[97] In *Whelan Associates, Inc. v. Jaslow Dental Laboratory,*

U.S. 1031 (1987); SAS Inst., Inc. v. S & H Computer Sys., Inc., 605 F. Supp. 816, 830 (M.D. Tenn. 1985) (copyright protects "organization and structural details"); QCo. Indus. v. Hoffman, 625 F. Supp. 608 (S.D.N.Y. 1985) (copyright extends to "structure and arrangement" of program). *But see* Plains Cotton Coop. Ass'n v. Goodpasture Computer Serv., Inc., 807 F.2d 1256 (5th Cir. 1987) (rejecting protection of structure, sequence and organization), *reh'g denied*, 813 F.2d 407 (5th Cir.), *cert. denied*, 484 U.S. 821 (1987); Synercom Technology, Inc. v. University Computing Co., 462 F. Supp. 1003, 1013 (N.D. Tex. 1978) ("If sequencing and ordering is expression, what separable idea is expressed?"). *See infra* note 97 and accompanying text.

92. Display screens have some probative value in analyzing infringement of the underlying program. *Whelan*, 797 F.2d at 1244. Courts have classified screen displays found in video games as audiovisual works. *See* M. Kramer Mfg. Co. v. Andrews, 783 F.2d 421 (4th Cir. 1986); Williams Elec., Inc. v. Artic Int'l, Inc., 685 F.2d 870 (3d Cir. 1982); Atari, Inc. v. North Am. Philips Consumer Elecs. Corp., 672 F.2d 607 (7th Cir.), *cert. denied*, 459 U.S. 880 (1982).

93. *See supra* note 14 and accompanying text.

94. Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37 (D. Mass. 1990). *See infra* notes 213-301 and accompanying text.

95. *See* Spector, *supra* note 85, at 87 ("If a society is to foster creativity it must provide sufficient benefit to the innovators. Balanced against that, society must also ensure that designers can build upon the advances of others. Innovators need protection, but not monopoly, and society needs a system that promotes technical progress.").

96. *See* Farrell, *Standardization and Intellectual Property*, 30 JURIMETRICS J. 35, 42 (1989) (With strong protection, however, compatible competition is prevented, and competition may be diverted to incompatible products. Thus intellectual property protection may tend to obstruct *de facto* standardization, destroying network benefits and fragmenting the market.").

97. *See* Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222, 1248 (3rd Cir. 1986) ("copyright protection of computer programs may extend beyond the programs' literal code to their structure, sequence, and organization"), *cert. denied*, 479 U.S. 1031 (1987); Broderbund Software, Inc. v. Unison World, 648 F. Supp. 1127, 1133 (N.D. Cal. 1986) ("copyright protection is not limited to the literal aspects of a computer program, but rather . . . it extends to the overall structure of a program, including its audiovisual displays"). *See also* Johnson Controls, Inc. v. Phoenix Control Sys., Inc., 886 F.2d 1173, 1175 (9th Cir. 1989) ("structure, sequence and/or organization of the program, the user interface, and the function, or purpose, of the program" are copyrightable so long as they are expression rather than idea); Telemarketing Resources v. Symantec Corp., 12 U.S.P.Q.2d (BNA) 1991, 1993 (N.D. Cal. 1989) ("Copyright protection applies to the user interface, or overall structure and organization of a computer program, including its audiovisual displays, or screen 'look and feel' ");

Inc.,[98] a well-known opinion, the court held that a program's copyright protection goes beyond the literal code to the program's structure.[99] The case involved a dental laboratory record keeping program, rewritten in a different programming language for a different computer system.[100] The primary issue facing the court was that of substantial similarity.[101] As in the hypothetical, no literal copying of computer code occurred.[102] The court considered the copyrightability of a program's structure.[103] The defendants argued that the structure of a computer program is idea rather than expression, and therefore not copyrightable.[104] The court rejected this argument, creating a rule for distinguishing idea from expression in the software context.[105]

Citing *Baker v. Selden*,[106] the court opined that the purpose of a work is its idea, and anything not essential to that purpose constitutes expression of that idea.[107] The court relied on the concept of scenes a faire to support this rule, emphasizing that any elements necessary to a work's purpose or function merge with the work's idea.[108] The court also cited the limited protection of factual material as supporting its rule for defining the boundary between idea and expression in software.[109] The court first reasoned that something, such as the retelling of a historical event, can only be accomplished in a limited number of ways. Thus, the device used to retell the event merges with the idea.[110] Such a device, therefore, receives no protection from copyright.[111]

The *Whelan* court believed that the economic implications of its rule were consistent with the purpose of copyright law.[112] Noting that one of the greatest costs associated with a program's development lies in establishing its structure and logic, the court stated that its rule would protect the incentive

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Pearl Sys., Inc. v. Competition Elec., Inc., 8 U.S.P.Q.2d 1520, 1524, Copyright L. Dec. (CCH) ¶ 26,338 (S.D.Fla. 1988) ("Copyright protection of computer software is not limited to the text of the source or object code"); SAS Inst., Inc. v. S & H Computer Sys., Inc., 605 F. Supp. 816, 825 (N.D. Tenn. 1985) ("copying of the organization and structural details" can constitute infringement); QCo. Indus. v. Hoffman, 625 F. Supp. 608, 616 (S.D.N.Y. 1985) (no infringement found in case at bar, but similar "structure and arrangement" of programs can constitute infringement). *But see infra* note 124 and accompanying text.

98. 797 F.2d 1222 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987).

99. *Whelan*, 797 F.2d at 1236.

100. *Id.* at 1225-27.

101. *Id.* at 1232-33.

102. *Id.* at 1233.

103. *Id.* at 1234.

104. *Whelan*, 797 F.2d at 1235.

105. *Id.* at 1236.

106. 101 U.S. 99, 103 (1879). *But see* Sumner, *The Copyright/Patent Interface: Patent Protection for the Structure of Program Code*, 30 JURIMETRICS J. 107, 114 (1989) (stating that a program's structure, as a patentable function or process, is an idea and cannot be copyrightable, and citing *Baker v. Selden* as holding "that subject matter protectable by patent law is not the object of copyright protection.").

107. *Whelan*, 797 F.2d at 1236.

108. *Id.*

109. *Id.* at 1236-37.

110. *Id.* at 1237.

111. *Id.*

112. *Whelan*, 797 F.2d at 1237.

necessary for innovation in the field, while still allowing competition.[113] The court found no qualitative differences between progress in the computer field and progress in the other areas traditionally covered by copyright.[114] For this reason the court held that traditional copyright principles apply in the computer software context.[115]

The *Whelan* court declined to follow the holding of *Synercom Technology, Inc. v. University Computing Co.*[116] The court in *Synercom* held that the sequencing and ordering of input formats constituted ideas, not expression.[117] The *Whelan* court first distinguished *Synercom* on the basis of the complexity of the programs involved.[118] The *Whelan* court also criticized *Synercom's* differentiating the computer context from that of other literary works, stating that Congress had made no such distinction.[119] *Whelan* went on to confront Judge Higginbotham's central question posed in *Synercom*: if structure is expression, then what is the underlying idea?[120] The response hinges on the definition of the idea in the particular case.[121] The *Whelan* court defined the idea as the efficient organization of a dental lab. The court went on to find that many alternative program structures existed that could express that idea.[122] Thus copyright protected the sequencing and ordering of this particular program as expression did not merge with the underlying idea.[123]

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113. *Id.* ("The rule proposed here, which allows copyright protection beyond the literal computer code, would provide the proper incentive for programmers by protecting their most valuable efforts, while not giving them a stranglehold over the development of new computer devices that accomplish the same end."). *But see* LaST Conference Report, *supra* note 4, at 20:

> To the extent that the idea/expression distinction reflects a determination of the level of competition desirable in regard to the subject matter under consideration, as numerous courts have suggested, this formulation restricts competition more broadly than would be the case even in regard to traditional works of art and literature.

Id.

114. *Whelan*, 797 F.2d at 1238 ("We are not convinced that progress in computer technology or technique is qualitatively different from progress in other areas of science or the arts.").

115. *Whelan*, 797 F.2d at 1238.

116. 462 F. Supp. 1003 (N.D. Tex. 1978).

117. *Id.* at 1013-14.

118. *Whelan*, 797 F.2d at 1239 ("Synercom did not deal with precisely the same materials at issue herein, but formats are structurally simple as compared to full programs and it may therefore be distinguishable."). But consider why that would make a difference. By considering the added effort involved in creating the structure of a full program as opposed to merely input formats, is the court using copyright to protect effort and not merely expression? *See* Financial Information, Inc. v. Moody's Investors Serv., Inc., 808 F.2d 204, 207 (2d Cir. 1986) (in reference to compilations, the statutory definition "requires that copyrightability not be determined by the amount of effort the author expends, but rather by the nature of the final result"), *cert. denied*, 484 U.S. 820 (1987).

119. *Whelan*, 797 F.2d at 1240 ("To the extent that Synercom rested on the premise that there was a difference between the copyrightability of sequence and form in the computer context and in any other context, we think that it is incorrect.").

120. *Id.*; Synercom Technology, Inc. v. University Computing Co., 462 F. Supp. 1003, 1013 (N.D. Tex. 1978) ("[I]f sequencing and ordering are expression, what separable idea is being expressed?").

121. *Whelan*, 797 F.2d at 1240.

122. *Id.*

123. *Id.*

2. *No Protection of Structure, Sequence, and Organization:* Synercom *and* Plains Cotton

Two courts have refused to extend copyright protection to the structure, sequence, and organization of programs.[124] The *Synercom* court held that copyright did not protect the organization and structure of input formats in a structural engineering program.[125] The finding that the input formats constituted expression formed the foundation of the court's decision.[126] The court noted a difference in the protection of structure between the computer and non-computer contexts.[127] The structure, sequence, and organization[128] in a non-computer context constitutes purely stylistic expression.[129] In the case of software, that structure, sequence, and organization constitute idea.[130] The court also noted in dicta that protectible expression in the computer context could exist, but only where the expression exhibits more creativity than required by the idea of structure and sequence.[131]

The *Synercom* court raised an enlightening analogy involving public policy and public benefits.[132] The following is a summary of the analogy.[133] An auto manufacturer chooses the figure-H pattern of a manual transmission for use in its automobile production. Many other alternative patterns to the figure-H would serve equally well in operating the transmission system. The original manufacturer photographs, describes, draws, and films the pattern. Such photographs, descriptions, drawings, and films constitute expressions of the pattern, and as such enjoy copyright protection. Other manufacturers may also photograph, describe, draw, and film the pattern.

Copyright protects only expressions, including those of the competing manufacturers. Copyright does not protect the pattern itself, for the pattern is an idea. Thus the other manufacturers may use the pattern in their own cars as they wish. Such widespread copying of the pattern would actually enhance the value of the pattern by leading to standardization around that pattern. Widespread use of the same design would have important social benefits, as drivers could drive all automobiles built around that pattern after having trained on only one.[134] The benefits of standardization is what drove

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124. *Synercom*, 462 F. Supp. at 1014 (merger of expression with idea in input formats); Plains Cotton Coop. Ass'n v. Goodpasture Computer Serv., Inc., 807 F.2d 1256, 1262 (5th Cir. 1987) (sequence and organization in case at bar dictated by external market), *reh'g denied*, 813 F.2d 407 (5th Cir.), *cert. denied*, 484 U.S. 821 (1987).

125. Synercom Technology, Inc. v. University Computing Co., 462 F. Supp. 1003, 1014 (N.D. Tex. 1978).

126. *Id.* at 1003.

127. *Id.* at 1014 ("[I]n the usual case sequence, choice, and arrangement have only stylistic significance, rather than constituting as they would here, the essence of the expression.").

128. Referred to in *Synercom* as "sequence, choice and arrangement." *Id.*

129. *Id.*

130. *Synercom*, 462 F. Supp. at 1014.

131. *Id.* ("It would follow that only to the extent the expressions involve stylistic creativity *above and beyond* the bare expression of sequence and arrangement, should they be protected." (emphasis in original)).

132. *Id.* at 1013.

133. *Id.*

134. *Id.* ("Use of the same pattern might be socially desirable, as it would reduce the retraining of drivers. . . . Admittedly there are many more possible choices of computer for-

the *Synercom* court to its decision not to extend copyright protection.[135]

Following *Synercom*'s reasoning, the court in *Plains Cotton Cooperative Association v. Goodpasture Computer Service, Inc.*[136] also held that copyright does not protect the structure, sequence, and organization of software.[137] The defendants urged the court to adopt the holding in *Whelan* and reject the premise that sequence and form in the computer context should receive different treatment than in a non-computer context.[138] The *Plains Cotton* court expressly declined to protect the structure, sequence, and organization of a program.[139] The court found two reasons for this action. First, the record was only partially developed since the case reviewed denial of a motion for preliminary injunction.[140] Second, the court found that market forces mandated many of the similarities between the programs at bar.[141] To the extent that market forces dictated the structure used in the programs, the doctrine of merger would preclude protection of that structure.[142]

III. CURRENT LAW

Four recent cases have dealt with screen displays generated by programs.[143] Only *Lotus Development Corp. v. Paperback Software International.*[144] has specifically ruled on the copyrightability of the user interface. All tend to support the position that copyright protection extends to the user interface.

A. Broderbund Software v. Unison World

The court in *Broderbund Software, Inc. v. Unison World, Inc.*[145] held that audiovisual displays of a program constitute protectible expression under the Act.[146] Though the court dealt primarily with the concept of audiovisual

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mats, and the decision among them more arbitrary, but this does not detract from the force of the analogy.")

135. *See infra* notes 308-331 and accompanying text.

136. 807 F.2d 1256 (5th Cir.) *reh'g denied*, 813 F.2d 407 (5th Cir.), *cert. denied*, 484 U.S. 821 (1987).

137. *Id.* at 1262. *But see infra* note 142 and accompanying text.

138. *Id.*

139. *Id.*

140. *Id.*

141. *Plains Cotton*, 807 F.2d at 1262.

142. The court of appeals did not actually go into great detail concerning its analysis. It needed merely to review the record for an abuse of discretion of the trial judge. How the court would have held had it had a complete record before it on appeal, and how important a role the externalities of the market played in their decision, appears uncertain.

143. Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37 (D. Mass. 1990) (*see infra* notes 213-301 and accompanying text); Manufacturers Technologies, Inc. v. CAMS, Inc., 706 F. Supp. 984, 993 (D. Conn. 1989) (*see infra* notes 191-212 and accompanying text); Digital Communications Assocs., Inc. v. Softklone Distrib. Corp., 659 F. Supp. 449, 462–63 (N.D. Ga. 1987) (*see infra* notes 160-90 and accompanying text); Broderbund Software, Inc. v. Unison World, Inc., 648 F. Supp. 1127, 1133 (N.D. Cal. 1986) (*see infra* notes 146-59 and accompanying text).

144. 740 F. Supp. 37 (D. Mass. 1990).

145. 648 F. Supp. 1127 (N.D. Cal. 1986).

146. *Id.* at 1135 (Copyright extends to "the overall structure, sequence and arrangement of the screens, text, and artwork (i.e., the audiovisual displays in general)").

displays, it nonetheless discussed the principles involved in determining the copyrightability of a user interface.[147] The court reasoned that the audiovisual displays were protected as pictorial or graphic works within section 102 of the Act.[148] The design of the displays grew out of aesthetic rather than functional considerations.[149] The court considered the apparent conflict between the *Whelan* and *Synercom* decisions and chose to follow *Whelan*.[150] The *Broderbund* court, however, misinterpreted *Whelan* as standing for the protection of audiovisual displays.[151]

The *Broderbund* court held that the ideas of the menu screens, input formats, and sequencing of screens did not merge with the expression of those ideas.[152] The court pointed to the existence of a competing printing program in rejecting the defendant's argument for merger.[153] The court also applied the rules and instructions doctrine.[154] If only a limited number of possible expressions of an idea can exist, then copyright protects none of those expressions.[155] Were protection allowed, one could copyright all possible expressions of an idea and effectively monopolize the idea.[156] The court held that the existence of an alternative expression of the idea[157] refuted the defendant's argument for the rules and instructions exception.[158] The court further noted that the menu screens contained more than merely instructions.[159]

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147. *See infra* notes 148-59 and accompanying text.

148. *Broderbund*, 648 F. Supp. at 1134.

149. *Id.* (The displays were "dictated primarily by artistic and aesthetic considerations, and not by utilitarian or mechanical ones."). *But cf.* Curtis, *Engineering Computer "Look and Feel": User Interface Technology and Human Factors Engineering*, 30 JURIMETRICS J. 51, 63 (1989) ("The design of user interfaces is a matter of engineering rather than art.").

150. *Broderbund*, 648 F. Supp. at 1133.

151. *Id.* The court concluded, "*Whelan* thus stands for the proposition that copyright protection is not limited to the literal aspects of a computer program, but rather that it extends to the overall structure of a program, *including its audiovisual displays*." (emphasis added). *Id.* In fact, *Whelan* actually addressed the issue of format inputs, not screen displays. Whelan held that "copyright protection of computer programs may extend beyond the programs' literal code to their structure, sequence, and organization . . . ." Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222, 1248 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987). The court in Digital Communications Assocs., Inc. v. Softklone Distrib. Corp., 659 F. Supp. 449, 455 (N.D. Ga. 1987), maintained that the *Broderbund* court apparently misread *Whelan* as standing for the protection of audiovisual displays under the copyright in the underlying program. *Id.* at 462-63. *See infra* notes 163, 197 and accompanying text.

152. *Broderbund*, 648 F. Supp. at 1132. *See supra* notes 64-67 and accompanying text covering merger.

153. *Id.* at 1132 ("[T]he existence of 'Stickybear Printer' proves that there do exist other, quite different ways of expressing the ideas embodied in 'Print Shop.' ").

154. *Id.* at 1134 (citing Affiliated Hosp. Prod., Inc. v. Merdel Game Mfg. Co., 513 F.2d 1183 (2d Cir. 1975) and Decorative Aides Corp. v. Staple Sewing Aides Corp., 497 F. Supp. 154 (S.D.N.Y. 1980), *aff'd*, 657 F.2d 262 (2d Cir. 1981)). The rules and instructions doctrine stems from the doctrine of merger. *See supra* notes 64-67 and accompanying text.

155. *Broderbund*, 648 F. Supp. at 1134.

156. *Id.* ("[W]here an idea can be expressed in only a very limited number of ways, affording copyright protection to the rules or instructions would be tantamount to affording copyright protection to the games or processes themselves.").

157. The existence of an additional competing printing program was an alternative expression of the idea. *Id.* at 1132.

158. *Id.* at 1134.

159. *Id.* (The artwork, layout and sequencing "provides a significant element of entertain-

B. Digital Communications v. Softklone

The *Softklone* court found infringement of an independently-copyrighted[160] status screen generated by a copyrighted program. Copyright protection extended to the status screen as a literary work[161] and as a compilation of command terms.[162] The court rejected *Broderbund*'s interpretation of *Whelan*, stating instead that the *Whelan* court did not extend protection of the underlying program to its screen displays.[163] After considering *Whelan* and *Broderbund*, the *Softklone* court held that the underlying program's copyright did not protect the screen displays produced by that program.[164] In the case at bar, the screen display enjoyed the protection of an independent copyright,[165] and thus did not need protection from the program's copyright anyway.

The *Softklone* court considered the idea-expression dichotomy in its discussion of the status screen's copyrightability.[166] Citing *Whelan*, the court applied a test of necessity, in which everything not necessary to the idea or purpose of the work constitutes expression.[167] First one defines the idea underlying the work.[168] Then one determines whether the expression of the status screen is necessary to that idea.[169] The court found that the idea behind the work lay in a screen that gives information about the program's status and in a command system activated by two keys.[170] The expression subsisted of the particular arrangement, capitalization, and highlighting of the command terms in that screen.[171] If the defendants copied that unnecessary expression, the defendants took copyrightable expression.[172]

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ment for the user (often a child)." Therefore the screens contain "stylistic creativity above and beyond the bare expression" of rules or instructions and thus do not fall within the rules and instructions exception.).

160. The screen display itself was registered with the Copyright Office. Prior to 1988 the Copyright Office granted separate copyrights for screen displays and for the underlying program, but now will issue only a single copyright that shall cover both the program and its screen displays. *See* Registration Decision; Registration and Deposit of Computer Screen Displays, 53 Fed. Reg. 21,817 (1988).

161. Digital Communications Assocs., Inc. v. Softklone Distrib. Corp., 659 F. Supp. 449, 462 (N.D. Ga. 1987).

162. *Id.* at 463.

163. *Id.* at 455.

164. *Id.* (though the screen display itself could be separately copyrighted). A copyright in an audiovisual screen display does confer copyright protection on the underlying program, as the program is a copy of the screen, but not vice versa. *Id.* at 456 (citing M. Kramer Mfg. Co. v. Andrews, 783 F.2d 421, 442 (4th Cir. 1986)). Thus a program is a copy of its screen display, but a screen display is not considered a copy of its underlying program. "This apparent anomaly is created because of the unusual nature of computers." *Id. See* 17 U.S.C. § 101 (1988) (effective Jan. 1, 1978) for a definition of "copy."

165. *See supra* note 160.

166. *Softklone*, 659 F. Supp. at 457-58.

167. *Id.* at 458.

168. *Id.*

169. *Id.*

170. *Id.* at 458-59 ("Thus, 'idea' is the process or manner by which the status screen, like the car, operates and the 'expression' is the method by which the idea is communicated to the user.") *Id.* at 458.

171. *Softklone*, 659 F. Supp. at 459.

172. *Id.* at 459-60. Note that had the defendant simply designed a keystroke-compatible

The *Softklone* court also confronted the issue of merger.[173] If the developer could only express the underlying idea in one way, then clearly the expression would merge with that idea.[174] Where expression merges with idea, that expression receives no protection under copyright.[175] Unlike in *Synercom*, the defendant copied more than merely a format sequence necessary to the idea.[176] Rather the defendant copied the arrangement, capitalization, and highlighting of the command terms,[177] which were not necessary to the underlying idea.[178] Judge O'Kelley found that a developer could express the idea underlying the status screen in many substantially dissimilar ways.[179] The expression found in the original work was not necessary to the underlying idea and did not merge with that idea.[180]

The court also rejected the argument that the status screen acted merely as a blank form.[181] Blank forms that do not impart information receive no protection from copyright.[182] The fundamental concern behind the rule that blank forms receive no protection relates to the doctrine of merger.[183] The law must beware of protecting a blank form for fear of protecting the underlying idea.[184] Such a determination must be made on a case-by-case basis.[185]

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program without significant aesthetic similarities, the court indicated in dicta that it would have found no infringement. *Id.* at 460 (Had the defendants merely created a program "which accepted all of the same commands utilized by the plaintiff, . . . there would have been only an appropriation of the plaintiff's idea and not its expression.")

173. *Id.* at 457-60.

174. *Id.* at 458. *See also supra* notes 64-67 and accompanying text.

175. *Id.* at 457-58. *See also supra* notes 64-67 and accompanying text.

176. *Softklone*, 659 F. Supp. at 460. The court in *Synercom* found that the idea and expression of the sequence of input cards merged. Synercom Technology, Inc. v. University Computing Co., 462 F. Supp. 1003, 1013-14 (N.D. Tex. 1978) ("If sequencing and ordering is expression, what separable idea is expressed?"). Many courts have cast doubt on the *Synercom* decision, while a few have expressly declined to follow it. *See* Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987); Manufacturers Technologies, Inc. v. CAMS, Inc., 706 F. Supp. 984, 993 (D. Conn. 1989). *But see* Plains Cotton Coop. Ass'n v. Goodpasture Computer Serv., Inc., 807 F.2d 1256 (5th Cir. 1987) (following *Synercom*), *cert. denied*, 484 U.S. 821 (1987).

177. *Softklone*, 659 F. Supp. at 460.

178. *Id.* at 459.

179. *Id.* at 460. The court also noted that "the arrangement of the status screen involves considerable stylistic creativity and authorship above and beyond the ideas embodied in the status screen." *Id.*

180. *Id.* at 460.

181. *Id.* at 461-62. The Copyright Office defines a "blank form" as "time cards, graph paper, account books, diaries, bank checks, score cards, address books, report form[s], order forms and the like, which are designed for recording information and do not in themselves convey information . . . ." *Id.* at 461 (citing 35 C.F.R. § 202.1(c)(19)).

182. *See* Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222, 1243 (3d Cir. 1986) ("Only those [blank forms or computer files] that by their arrangement and organization convey some information can be copyrighted."), *cert. denied*, 479 U.S. 1031 (1987). *See also* John H. Harland Co. v. Clarke Checks, Inc., 711 F.2d 966, 971 (11th Cir. 1983) ("[B]lank forms which do not convey information or contain original pictorial expression are not copyrightable."); *Softklone*, 659 F. Supp. at 461 ("[I]f the work provides the user information beyond simply indicating where to record data (*Synercom* implies even this alone may be sufficient), then the work is copyrightable."); *Synercom*, 462 F. Supp. at 1011 (The "litmus seems to be whether the material proffered for copyright undertakes to express.").

183. *See supra* notes 64-67 and accompanying text.

184. *Softklone*, 659 F. Supp. at 462.

185. *Id.* at 461.

Here the court ruled that the status screen, though it might be a form, nonetheless conveyed information.[186] The status screen, therefore, merited protection.[187]

Finally, the court rejected the policy argument for standardization in the industry.[188] Citing *Whelan*, the court reasoned that its ruling maintained a proper balance between incentive and public dissemination.[189] Judge O'Kelley stressed that the holding granted no protection to the ideas of a status screen, a command driven program, or of the particular command terms used therein.[190]

C. Manufacturers Technologies v. CAMS

The court in *Manufacturers Technologies, Inc. v. CAMS, Inc.*,[191] another screen display case, ruled that copyright protection extended to screen displays in a cost estimation program.[192] Separate copyrights had been granted to the screen displays.[193] The court noted that the difficulty stemmed from the unique nature of software and the screen displays produced by programs.[194] In reaching its decision the court first analyzed *Broderbund* and *Softklone*.[195]

The *CAMS* court questioned the analysis in *Broderbund*,[196] particularly the apparent misinterpretation of *Whelan*[197] and failure to acknowledge the unique nature of software.[198] The court also doubted the continuing validity of *Softklone*,[199] as the Copyright Office had since modified its position regarding separate registration for display screens.[200]

In analyzing the copyrightability of the display screens, the court addressed the issues of the idea-expression dichotomy, merger, and blank

186. *Id.* at 462.

187. *Id.* ("Application of this principle [of protecting blank forms only where such protection would not give the copyright owner undue control over the underlying idea] to the plaintiff's status screen, which undisputably required substantial effort to author and which has innumerable possible variations so that its copyrighting would not permit the plaintiff to monopolize its underlying ideas, argues for granting it copyright protection.").

188. *Id.*

189. *Softklone*, 659 F. Supp. at 462 ("[T]he proper balance of protection and communication supports the copyrightability of the status screen arrangement and design").

190. *Id.*

191. 706 F. Supp. 984 (D.Conn. 1989).

192. *Id.* at 996.

193. *Id.* at 988.

194. *Id.* at 991. *See supra* note 82 and accompanying text.

195. *Id.* at 992-93.

196. *CAMS*, 706 F. Supp. at 992-93.

197. *Id.* at 992 (In holding that the existence of a third printing program meant that "there existed expression embodied in the menu screens separable from the idea of the plaintiff's program," the *Broderbund* court "overextended the scope of copyright protection applicable to those screen displays."). *See supra* note 151 and accompanying text.

198. *Id.* at 992-93 ("Such an approach [adopted in Broderbund] ignores the fact recognized by both the *Whelan* and *Softklone* courts that more than one computer program can produce virtually the same screen display."). *See supra* note 82 and accompanying text.

199. *Id.* at 992.

200. *Id.* *See supra* note 160 and accompanying text.

forms.[201] The creation of display screens formatted for maximum ease of use constituted the idea.[202] The court focused on the question of what elements of expression fell within the boundaries of copyright.[203] Much of the expression found in the screens fell outside of those boundaries because of merger.[204] The developer had few alternatives in choosing the uniform screen format[205] and the internal method of navigation through the screens.[206] As the potential existed for monopolizing the idea, these expression protection did not extend to.[207]

One aspect of expression protected by the court was the status screen.[208] Copyrightable elements included: the selection of items to monitor, the arrangement of those items, the assignment of numbers to individual departments, and the manner in which the status screen evolved as the user advanced through the steps of the program.[209] The court also classified a job identification screen as copyrightable, as the screen gave information to the user beyond what was necessary to express the idea.[210] The court rejected the blank form argument concerning this screen, again because it conveyed information.[211] An alphabetical, two-column display of departments and several lists failed to meet the requirements for protection, as their expression merged with the idea.[212]

D. Lotus Development v. Paperback Software International

In *Lotus Development Corp. v. Paperback Software Int'l*[213] the court held that the structure, sequence, and organization of a menu structure falls

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201. *CAMS*, 706 F. Supp. at 994-98.
202. *Id.* at 995.
203. *Id.* at 994-98.
204. *Id.* at 995-96.
205. *Id.* at 995 ("[T]he plaintiff has adopted conventions from a very narrow range of possibilities").
206. *CAMS*, 706 F. Supp. at 995.

> [T]he idea at issue, the process or manner of navigating internally on any specific screen displays likewise is limited in the number of ways it may be simply achieved to facilitate user comfort. To give the plaintiff copyright protection for this aspect of its screen displays, would come dangerously close to allowing it to monopolize a significant portion of the easytouse internal navigational conventions for computers.

Id.
207. *Id.* *See supra* notes 64-67 and accompanying text.
208. *Id.* at 996.
209. *Id.*
210. *Id.* at 997.
211. *CAMS*, 706 F. Supp. at 997.

> First, it [the display screen in question] suggests that identifying a job entails more than just naming the prospective purchaser or person requesting the estimate as is evidenced by the identification of a job number, part number, part name, and customer name. Second, it suggests to the user . . . that certain attributes of the part to be manufactured need to be considered when identifying a particular job, because those attributes will affect the derivation of an estimate. For these reasons, this screen display contains expression and is therefore, [sic] subject to copyright protection.

Id.
212. *Id.* at 996-97.
213. 740 F. Supp. 37 (D. Mass. 1990).

within the scope of copyright protection.[214] *Lotus* is the first case decided directly on the basis of the copyrightability of the user interface.[215] The outcome of a series of pending cases may depend on this court's holding.[216]

The Constitution authorizes Congress to grant authors limited monopolies for the promotion of progress.[217] Congress exercised this authority in creating the Act.[218] Congress neither mentioned protection of user interfaces in the Act, nor amended the Act to cover the subject. Clearly, however, Congress could protect such nonliteral elements if it chose to do so.[219] In interpreting the Act, the *Lotus* court considered three factors: the language of the law, the provisions of the law taken as a whole, and the object and policy behind the law.[220]

The *Lotus* court found that the Act requires the use of the idea-expression distinction as the primary test for copyrightability.[221] The court rejected the applicability of a test based on the literal-nonliteral distinction proposed by Paperback Software.[222] The court maintained that the idea-expression test is consistent with the treatment of useful articles[223] and of nonliteral elements of expression in music, drama, literature, and film.[224] The court also ruled that the user interface, as well as other nonliteral aspects of computer programs, does not constitute a mere useful article.[225] Such a finding complies with the objectives and policies of copyright law.[226]

The *Lotus* court questioned *Synercom*'s continuing validity.[227] Two courts[228] had already expressly rejected *Synercom*'s central proposition.[229] The court also noted a number of other cases that extended copyright pro-

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214. *Id.* at 68.

215. The user interface includes the structure and organization of the menu system, its command terms, their structure and order, their display in the screen, the use of function keys, and the macro command system. *Id.* at 63. The court held that screen displays are different. "I emphatically reject defendants' premise, based on yet another word game, that equates the user interface of 1-2-3 with 1-2-3's 'screen displays.'" *Id.* at 79. *CAMS*, *Softklone*, and *Broderbund* dealt with screen displays. *Whelan*, *SAS*, *Synercom* and *Plains Cotton* involved the structure, sequence, and organization of program code.

216. *See supra* note 14.

217. *Lotus*, 740 F. Supp. at 46. *See supra* note 26 and accompanying text.

218. 17 U.S.C. §§ 101-914 (1988 & Supp. 1989).

219. *Lotus*, 740 F. Supp. at 46 ("The central question is not whether Congress could render nonliteral elements such as those of [Lotus] 1-2-3 copyrightable, but whether it has done so.").

220. *Id.* at 46-47.

221. *Id.* at 53-54.

222. *Id.* at 54.

223. *Id.*

224. *Lotus*, 740 F. Supp. at 54.

225. *Id.* at 54 ("articles having an intrinsic utilitarian function").

226. *Id.* ("[T]o encourage the creation and dissemination of new *ideas* by protecting, for limited times, the specific way that an author has *expressed* those ideas.") (emphasis in original).

227. *Id.* at 55.

228. *See* Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222, 1248 (3d Cir. 1986) ("copyright protection of computer programs may extend beyond the programs' literal code to their structure, sequence and organization . . . "), *cert. denied*, 479 U.S. 1031 (1987); Broderbund Software, Inc. v. Unison World, 648 F. Supp. 1127, 1133 (N.D. Cal. 1986) ("copyright protection is not limited to the literal aspects of a computer program, but rather . . . it extends to the overall structure of a program, including its audiovisual displays.").

229. *Lotus*, 740 F. Supp. at 55 (Interpreting the holding in *Synercom* as "the expression of

tection beyond the literal computer code.[230] The court reasoned that since the creation of a program's interface requires more creativity and intellectual work than the actual coding, protecting only the code would overly limit the amount of protection given to software.[231] Such a result would yield nothing more than trade secret protection for nonliteral elements, which provides a very short period of protection.[232] This would conflict with mandates of copyright law.[233]

The defendants argued that the copyright does not protect the interface due to the useful nature of the interface.[234] The defendants introduced the gear shift analogy from *Synercom*,[235] the standardized layout of the QWERTY keyboard, and the configuration of the controls in musical instruments in support of their argument that the interface was only a useful pattern.[236] The court rejected this argument, stating that copyright extends to expression contained in a useful article so long as that expression is independent and separable from the functional idea.[237] The mere fact that an article may be useful does not render it ineligible for copyright protection.[238]

The *Lotus* court declined to use the concepts of look and feel or total concept and feel in making its decision of copyrightability.[239] The court emphasized that total concept and feel applies to the test for substantial similarity, not for copyrightability.[240] Furthermore, the court noted that look and feel is a conclusion and does not lend itself well to application as a test in itself.[241] The *Lotus* court declined to offer a bright-line test for copyrightability, relying instead on a scale of abstractions.[242] The abstractions test involves simultaneously weighing three factors: the definition of the underlying idea,[243] the distinction between essential and nonessential expressions

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nonliteral sequence and order is inseparable from the idea and accordingly is not copyrightable").

230. *Id.* at 55. *See supra* note 97 and accompanying text.

231. *Lotus*, 740 F. Supp. at 56.

232. *Id.*

233. *Id.*

234. *Id.* at 54-58.

235. *Lotus*, 740 F. Supp. at 55. *See supra* notes 132-35 and accompanying text.

236. *Id.* at 55.

237. *Id.* at 58-59.

> Elements of expression, even if embodied in useful articles, are copyrightable if capable of identification and recognition independently of the functional ideas that make the article useful.
>
> . . . .
>
> If, however, the expression of an idea has elements that go beyond all functional elements of the idea itself, and beyond the obvious, and if there are numerous other ways of expressing the noncopyrightable idea, then those elements of expression, if original and substantial, are copyrightable. . . .

Id. See supra note 43 and accompanying text.

238. *Lotus*, 740 F. Supp. at 56-58.

239. *Id.* at 62-63.

240. *Id.* at 63 (citing Roth Greeting Cards v. United Card Co., 429 F.2d 1106, 1109 (9th Cir. 1970)); Sid & Marty Krofft Television Prod., Inc. v. McDonald's Corp., 562 F.2d 1157, 1161, 1167 n.9 (9th Cir. 1977).

241. *Lotus*, 740 F. Supp. at 63.

242. *Id.* at 60-61.

243. *Id.* at 60.

of that idea,[244] and the determination of whether the nonessential expressions constitute a substantial part of the original work.[245] A survey of these three factors is essential to understanding the test.

1. Defining the Idea

First, the decisionmaker must define the idea underlying the work.[246] Without such a delineation one could not distinguish between the public domain idea and the copyrightable expression.[247] In determining where the elusive line between idea and expression lies, the court relied upon Judge Learned Hand's method developed sixty years ago in *Nichols v. Universal Pictures Corp.*[248] The method involved conceiving of the work in patterns of increasing generality, from the most specific set of details to the most general idea underlying the work.[249] At some point between the two extremes, the pattern could no longer be protected without monopolizing the idea.[250] However, this determination must be made on a case-by-case basis, as that point is different in every case.[251]

The user interface consists of five elements: the menus, the long prompts, the display screens, the function keys, and the macro language.[252] The structure, sequence, and organization of the menus were determinative in the court's determination of infringement.[253] In applying Learned Hand's test the court listed several examples of spreadsheet programs and stated that they all express the same basic idea of an electronic spreadsheet, though each is quite different in structure, appearance, and method of operation.[254] This most general level, that of a simple electronic spreadsheet with nothing more, dwells in the realm of the uncopyrightable idea.[255] The court mentions three different programs that share this idea, all of which vary widely in their expression.[256]

2. Identifying Nonessential Expression

Second, the decision maker must distinguish essential and nonessential expression.[257] A number of examples serve to illustrate the court's reasoning

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244. *Id.* at 61.
245. *Id.*
246. *Lotus*, 740 F. Supp. at 60.
247. *See supra* notes 48-62 and accompanying text.
248. 45 F.2d 119 (2d Cir. 1930).
249. *Id.* at 121.
250. *Id.*
251. *Id.* ("Nobody has ever been able to fix that boundary, and nobody ever can."). In Peter Pan Fabrics, Inc. v. Martin Weiner Corp., 274 F.2d 487, 489 (2d Cir. 1960), Learned Hand stated: "Obviously, no principle can be stated as to when an imitator has gone beyond copying the 'idea,' and has borrowed its 'expression.' Decisions must therefore inevitably be ad hoc." *Id.*
252. Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 63 (D. Mass. 1990).
253. *Id.* at 68.
254. *Id.* at 65.
255. *Id.*
256. *Id.* at 66.
257. Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 61 (D. Mass. 1990) ("whether an alleged expression of the idea is limited to elements essential to expression of that

in this part of the test. The L-shaped design of the programs involved is one of a limited number of possible expressions of the idea of an electronic spreadsheet and thus receives no copyright protection.[258] Similarly, the designation of a certain key to invoke the menu system fails the test, as only a limited number of reasonable and easily accessible alternatives exist.[259] The court also held uncopyrightable the use of certain keys to designate mathematical operations as essential elements to the idea of an electronic spreadsheet.[260] Judge Keeton found these examples present in most expressions of the idea.[261]

The structure, sequence, and organization of the menu structure do not constitute elements essential to the idea.[262] The court found the idea underlying the structure of a menu in an electronic spreadsheet capable of expression in many ways.[263] Thus Lotus' expression of a spreadsheet was not essential to the underlying idea.[264] The decision maker must look at the menu structure as a whole.[265] Copyrightability may stand despite the noncopyrightability of particular components or terms.[266] The court then found that 1-2-3's menu structure satisfied the second part of the test, in that 1-2-3's menu structure was not essential to the idea of an electronic spreadsheet.[267]

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idea (or is one of only a few ways of expressing the idea) or instead includes identifiable elements of expression not essential to every expression of that idea").

258. *Id.* at 66.

259. *Id.* ("this expression merges with the idea of having a readily available method of invoking the menu command system").

260. *Id.* at 66-67.

261. *Id.* at 67.

262. *Lotus*, 740 F. Supp. at 67 (D. Mass. 1990). Other aspects of these programs, however, need not be present in every expression of an electronic spreadsheet. An example of distinctive details of expression is the precise structure, sequence, and organization of the menu command system. *Id.* at 68.

263. *Id.*

> This 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. The idea of a menu structure—including the overall structure, the order of commands in each menu line, the choice of letters, words, or "symbolic tokens" to represent each command, the presentation of these symbolic tokens on the screen (*i.e.*, first letter only, abbreviations, full words, full words with one or more letters capitalized or underlined), the type of menu system used (*i.e.*, one, two, or three-line moving-cursor menus, pull-down menus, or command-driven interfaces), and the long prompts"—could be expressed in a great many if not literally unlimited number of ways.

Id. Judge Keeton continued, "I conclude that a menu command structure is capable of being expressed in many if not an unlimited number of ways, and that the command structure of 1-2-3 is an original and nonobvious way of expressing a command structure." *Id.* at 68.

264. *See supra* note 263 and accompanying text.

265. *Lotus*, 740 F. Supp. at 67 ("[T]he court need only identify those elements that are copyrightable, and then determine whether those elements, *considered as a whole*, have been impermissibly copied.") (citing Atari Games Corp. v. Oman, 888 F.2d 878, 882-83 (D.C. Cir. 1989)) (emphasis in original).

266. *Id.* at 67.

267. *Id.* at 68 ("Accordingly, the menu structure, taken as a whole—including the choice of command terms, the structure and order of those terms, their presentation on the screen, and the long prompts—is an aspect of 1-2-3 that is not present in every expression of an

3. *Measuring the Substantiality of the Nonessential Expression*

Third, the decisionmaker must determine whether identified nonessential elements constitute a qualitatively or quantitatively substantial part of the original work.[268] The court found with little difficulty that the structure, sequence, and organization of the 1-2-3 menu interface formed a substantial part of the work.[269] The court noted as well that the defendant's efforts in copying the interface reinforced its finding of substantiality.[270] Having considered the three factors, Judge Keeton held the structure, sequence, and organization of the 1-2-3 user interface to be protected under copyright.[271]

4. *Policy Considerations*

The court in *Lotus* pointed out that while it must observe the object and policy behind the law, a court must nonetheless take care not to ignore express or implied mandates of the law.[272] The defendant set forth three policy-based arguments against protection of the user interface.[273] First, the industry needs a bright-line rule to avoid uncertainty.[274] Second, developers must have the ability to borrow the expression of others in the computer industry.[275] Third, the public would benefit most from compatibility and standardization in the industry.[276]

a. Bright-Line Rule for Infringement of User Interfaces

The need for a bright-line rule argument stems from the potential uncertainty that would arise out of a case-by-case determination of infringement in interfaces.[277] The lack of certainty in the industry due to the absence of a bright-line rule could have detrimental effects on the innovation and development of better software.[278] The court rejected this argument, reasoning that it was for Congress, not the court, to draw such a bright-line rule, and it chose not do so.[279]

In a similar vein, the defendants also argued that the circumstances had changed since the last computer amendment passed in 1980.[280] They intro-

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electronic spreadsheet. It meets the requirements of the second element of the legal test for copyrightability.").

268. *Id.* at 61.

269. *Id.* at 68 ("The user interface of 1-2-3 is its most unique element, and is the aspect that has made 1-2-3 so popular.").

270. *Id.*

271. *Id.*

272. *Lotus*, 740 F. Supp. at 71.

273. *Id.*

274. *Id.* at 73.

275. *Id.* at 77.

276. *Id.* at 73-77.

277. *Lotus*, 740 F. Supp. at 73 ("Software developers would like to know what they may and what they must not copy.").

278. *Id.*

279. *Id.* ("Congress could have constitutionally drawn defendants' proposed bright-line, providing protection only to computer program code and not to nonliteral elements of computer programs, but Congress has not done so.").

280. *Id.* at 73-74.

duced expert testimony concerning the potentially disastrous effects of protecting the user interface under copyright.[281] The testimony suggested that protection of interfaces and file formats would detrimentally affect the American software industry by slowing innovation.[282] The court also allowed Lotus to introduce testimony to the contrary, which asserted that strong copyright protection benefitted the industry.[283] The court stated that it excluded all of this evidence from its consideration of the case.[284] The court declared considering such testimony would lie beyond the scope of its authority.[285] In addition, the court felt that the defendants failed to show a significant change in the facts upon which Congress based its enactment of the law.[286]

b. OTSOG (On the Shoulders of Giants)[287]

Defendants further argued that, especially in the field of user interfaces,

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281. *Id.*

282. *Lotus*, 740 F. Supp. at 74.

> I believe that such a decision would throw the entire software industry into confusion. . . . [T]here would be a chilling effect on development and advancement in many areas. . . .
>
> This case has implications about whether or not new, improved programs can read and execute data users created for themselves with an older program. The quantity of data to be affected by this decision is incomprehensively vast. It is not a case about "cheap copies."
>
> If aspects of screen displays that are governed by functionality (such as a command language like the 1-2-3 command structure) are held to be within the scope of copyright protection, then progress in application and systems computer programs could be dramatically slowed in the United States.

Id. The court also cited a survey of user interface designers that indicated that they oppose strong protection from copyright, and that they feel that such protection would hurt, rather than help the software industry. *Id.* (citing Samuelson & Glushko, *Comparing the Views of Lawyers and User Interface Designers on the Software Copyright "Look and Feel" Lawsuits*, 30 JURIMETRICS J. 121, 137 (1989)).

283. *Lotus*, 740 F. Supp. at 75.

> [T]he tremendous growth and success of the U.S. software industry is the direct result of the creative and original efforts of its software developers, laboring under the protection of the copyright laws. Innovation has been the key to market success . . . .
>
> It is no accident that the world's strongest software industry is found in the United States, rather than in some other jurisdiction which provides weaker protection for computer programs. The system is working, and there is no reason to change it.

Id. The court also cited A. CLAPES, SOFTWARE, COPYRIGHT & COMPETITION: THE "LOOK AND FEEL" OF THE LAW 202-03 (1989) (user interface requires strong copyright protection to encourage innovation and progress). *Lotus*, 740 F. Supp. at 75.

284. *Lotus*, 740 F. Supp. at 74-75 ("courts are free to consider 'evidence' of this type when deciding 'legislative' (or 'premise') facts.").

285. *Id.* at 76.

> I conclude that a court would be going well beyond even the precedents most receptive to consideration of legislative history if it took into account expert opinions of persons experienced in the field of computer software development that are manifestly inconsistent with the accommodation that Congress struck when it enacted the Copyright Act of 1976 and the most recent amendments of the copyright law.

Id.

286. *Lotus*, 740 F. Supp. at 76.

287. *Id.* at 77 (it is a well-established doctrine that authors may build upon prior work and

developers need to have the capability to borrow expression from other developers' works.[288] Such borrowing is indispensable to continued innovation and progress.[289] The court agreed in principle that the OTSOG principle was alive and well in intellectual property, but disagreed in its application to expression.[290] OTSOG applies only to ideas, and that alone should provide sufficient basis for further innovation, even in the user interface field.[291] Where expression merged with the idea, however, the expression could not of course be copyrighted.[292] The case of the L-shaped design element of an electronic spreadsheet provides an example of expression merged with idea.[293]

c. *Standardization and Compatibility*

The court also rejected the argument that the need for standardization in the computer industry weighs against granting copyright protection to the user interface.[294] The defendants unsuccessfully argued that their program had to be keystroke compatible with the Lotus 1-2-3 program in order to have a chance of commercial success.[295] The court pointed to a competitor to 1-2-3 that did not use the same interface or menu structure but which nonetheless enjoyed commercial success.[296] The competitor was able to import and export 1-2-3 compatible files and use a conversion utility to convert 1-2-3 macros into its own proprietary macro language.[297] The court rea-

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innovation in order to further the "Progress of Science and useful Arts." The phrase derives from Newton, who said "If I have seen further it is by standing on ye sholders of Giants.").

288. *Id.*

289. *Id.* ("Copyrightability of a user interface, they argue, will frustrate the public interest in allowing programmers to achieve innovation by 'borrowing' and improving upon ideas of other programmers . . . .").

290. *Id.* at 78.

291. *Lotus*, 740 F. Supp. at 78.

> It is sufficient that programmers are privileged to borrow and improve upon previous ideas—such as the ideas for an electronic spreadsheet and a two-line moving cursor menu. Adequate room for innovation remains even though successors are barred from copying earlier authors' particular expressions—such as the particular structure, sequence, and organization of a menu command system.

Id. See also Pearl Sys., Inc. v. Competition Elec., Inc., 8 U.S.P.Q.2d (BNA) 1520, 1525 (S.D. Fla. 1988), *cited in Lotus*, 740 F. Supp. at 78.

292. *See supra* notes 63-68 and accompanying text.

293. *Lotus*, 740 F. Supp. at 78.

294. *Id.* at 78-79.

295. *Id.*

296. *Id.* at 78 (referring to Microsoft Excel).

297. Microsoft Excel uses a different interface and different commands, but it does not run on the lower-power computers that comprised the main base of installed machines like 1-2-3 and VP Planner do. The author finds fault with the court's reasoning in that Excel, the primary example used by the court to illustrate an alternative noninfringing expression of the idea of an electronic spreadsheet, is nonetheless not a true alternative. Lotus 1-2-3 and VP-Planner are character or text-based programs, which rely on and are limited by the symbols built into the computer, of which there are only 128 (similar to the keys found on a keyboard or typewriter, plus basic line drawing symbols). Thus there exist substantial limitations to the number of possible ways of expressing the idea of an electronic spreadsheet, at least in terms of screen displays.

Excel, on the other hand, is a graphics-based program, which creates its screen display as a

soned that not protecting a product because it was good enough to become a de facto standard would pervert the law of copyright.[298] Denying protection in such a case would fly in the face of one purpose of copyright, the encouragement of innovation.[299] The court also indicated that the defendants had alternatives other than marketing a competing look-alike spreadsheet without license from Lotus.[300] Furthermore, the court stated that no precedent or statute supported the proposition that the public would benefit from standardization.[301]

IV. ANALYSIS AND PROPOSAL

A. Copyright Protection Currently Extends to the Structure, Sequence, and Organization of the User Interface.

The precedent facing a court today calls for the protection of the structure, sequence, and organization of the user interface.[302] The *Broderbund* court protected the interface as an audiovisual display.[303] The *Softklone* court found infringement of a status screen protected by a separate copyright.[304] The *CAMS* court allowed the protection of display screens under a program's copyright.[305] The *Lotus* court held the structure, sequence, and organization of a menu system to be copyrightable.[306] The Act neither re-

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picture composed of as many as 256,000 pixels (dots on the screen). The great burden of calculating the positioning and coloration of all of the pixels falls on the microprocessor of the computer. For this reason, Excel is only able to function properly on "AT" or compatible computers. Until fairly recently, the AT type computers were far outnumbered by the lesser "XT" type machines. Such lower-powered XT machines, though unable to run Excel, could run 1-2-3, VP-Planner, or any of the other programs mentioned by the court. Had the distinction between graphics and text-based programs been clearly drawn for the court, the concept of merger might have played a greater role.

This author would argue that one should distinguish between the idea of text-based and a graphics-based electronic spreadsheets. Should such a distinction be made, one could well argue, at least in terms of screen displays (which were discussed by the *Lotus* court in its consideration of structure, sequence and organization, *Id.* at 80), that the number of possible expressions is in fact limited. The doctrine of merger would argue against allowing the protection of an expression where the number of possible expressions is limited (see *supra* notes 63-68 and accompanying text), as perhaps the ten or twenty spreadsheets have monopolized the expression of a text-based electronic spreadsheet.

298. *Id.* at 79. "Copyright protection would be perverse if it only protected mundane increments while leaving unprotected as part of the public domain those advancements that are more strikingly innovative." *Id.*

299. *Id.* ("both the text and history of the copyright law manifest a purpose of encouraging innovation and of doing so through copyright protection.").

300. *Id.* at 78 (alternatives included using conversion utilities to maintain macro compatibility, seeking a license from Lotus to use the menu structure (perhaps not very feasible), offering to sell their improvements to Lotus for future versions of 1-2-3, or selling VP-Planner as an add-in to 1-2-3.).

301. *Lotus,* 740 F. Supp. at 79.

302. *See supra* notes 213-301 and accompanying text (*Lotus*); *supra* notes 160-190 and accompanying text (*CAMS*); *supra* notes 160-190 and accompanying text (*Softklone*); *supra* notes 146-159 and accompanying text (*Broderbund*); *supra* notes 97-123 and accompanying text (*Whelan*).

303. *See supra* notes 146-59 and accompanying text.

304. *See supra* notes 160-90 and accompanying text.

305. *See supra* notes 191-212 and accompanying text.

306. *See supra* notes 213-301 and accompanying text.

jects nor supports an interpretation calling for such protection.[307]

B. Copyright Protection Should Not Extend to the Structure, Sequence, and Organization of a Program's User Interface.

Although copyright currently protects the user interface, it should not do so.[308] The public would benefit from increased compatibility and standardization in the software industry.[309] Compatibility refers to products that work easily with one another.[310] Compatibility exists, for example, where one program can read the files created by a different program. Standardization means building compatible products.[311] Producing programs that can

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307. *See* 17 U.S.C. § 102 (1988) (effective Jan. 1, 1978).

308. *See* Farrell, *supra* note 96 ("[T]he user interface, the format for data storage and transmission, and other relatively arbitrary aspects that must be standardized in order to achieve compatibility benefits, should be unprotected, so that other software developers are encouraged to achieve standardization."). *See also* Jacobs, *supra* note 3, at 104 ("Copyright law should not require vendors to arbitrarily change the interfaces simply to avoid intellectual property disputes."); Samuelson & Glushko, *Survey on the Look and Feel of Lawsuits*, COMMUNICATIONS OF THE ACM, May 1990, at 483:

> More than 80 percent of the 667 respondents to the survey opposed copyright protection for the look and feel of user interfaces, although they strongly supported copyright protection for source and object code. They regard the kind of strong copyright protection being sought in the current look and feel lawsuits as likely to have a negative effect on their own work and on the user interface design community and industry. They oppose strong copyright protection for user interfaces because they think such protection would adversely affect the climate of open exchange and discussion of research and design innovations that has brought progress to the field.
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> . . . .
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> In the case of user interfaces, the CHI [Computer-Human Interaction] survey clearly demonstrates that a significant segment of the leading designers and researchers in the user interface field are overwhelmingly opposed to strong copyright protection for user interfaces and regard such protection as likely to be harmful to the field, rather than helpful. *These are the very people whom the copyright law is supposed to be encouraging to be creative.*

Id. at 483, 487 (emphasis added). *See also* Damman, *Copyright of Computer Display Screens: Summary and Suggestions*, 9 COMPUTER L.J. 417, 445 (1989) (recommending a rebuttable presumption of noncopyrightability for the structure, sequence, and organization of the user interface); Samuelson & Glushko, *supra* note 282, at 122 (describing in detail the exact results of the survey). *Cf.* Kapor, *Litigation vs. Innovation*, BYTE, Sept. 1990, at 520; Spector, *supra* note 85, at 88 ("Program and user interfaces are so important to software reusability that I argue for relatively little protection of them. Protecting the code that implements the interface should be sufficient to provide reward to the interface designer.").

> If you want to keep this industry as vibrant and successful as it's been, then a properly constructed intellectualproperty [sic] policy will respect protection but give preference to innovation. Overprotection of intellectual property is as pernicious as underprotection in its stifling effects on innovation and the consequent loss to society.

Kapor, *supra*, at 520. *Cf. also* Note, *Protecting the Look*, *supra* note 3, at 578 ("Legislation is needed to supplement copyright, patent, and other laws to fashion protection for the look and feel of computer programs that meets [sic] the requirements of the industry.") The author went on to present a proposal for separate legislation designed for the unique problems associated with the user interface. *Id.* at 579-86. *See also* Note, *supra* note 49, at 1154 ("Should each developer have to design a unique user interface, use of computers will become needlessly complex, seriously impairing the very productivity that computers are designed to enhance.").

309. *See generally* Jacobs, *supra* note 3; Farrell, *supra* note 96.

310. Farrell, *supra* note 96, at 36.

311. *Id.*

all read and write a certain file format reflects standardization.[312] Standardization also means using the same command structure so as to reduce the need for retraining. Protection of the user interface obstructs compatibility and standardization. Protection in this context thus runs contrary to public interest.

Without compatibility, today's computer user becomes locked into a specific vendor's application.[313] For example, the user spends tremendous amounts of time, effort, and money to learn to use an application. The user may also create macros within the application to increase efficiency. The user may build stores of data and information in files created by the application. Protected by copyright laws, the vendor's proprietary interface effectively restricts that user to utilizing only that vendor's application. The time and money spent developing macros in one application would be wasted if the user were to change to a noncompatible application. The user would have to unlearn old commands and learn new ones if the user interfaces shared little in common.

Given the user's tremendous investment in time, money, and effort, even a more efficient and productive program would be unlikely to sway the user from his current application, unless they shared similar interfaces. A competing program having a similar user interface would allow the user to decide between the products on the basis of their productivity, efficiency, and features. Keystroke compatibility would ensure macro compatibility.[314] Without such a common interface, the user would most likely continue using the first vendor's product, even if far inferior to its competition, in an effort to preserve her investment.[315]

Allowing similar user interfaces would foster competition, control prices, and spur further innovation.[316] Vendors would not have to overcome the user's training investment in a proprietary interface. Users could employ the most efficient programs, thus maximizing productivity. Products would become more available to the public as competition drove prices down. The initial development costs entailed in designing a new interface, while significant, would not outweigh the benefits of being the first on the market with a

312. *Id.*

313. *Id.* at 38 ("[T]he lack of standards can "lock in" users to a single vendor, creating a degree of what has been called '*ex post* monopoly.' ").

314. Many macro languages use the first letter of the represented menu command to execute that function when the macro runs.

315. *See* Jacobs, *supra* note 3, at 99 ("As computing power is disseminated further throughout enterprises and corporations, the investment in training in the user interface becomes an increasingly important component of the enterprise's competitive advantage.").

316. *Cf.* Farrell, *supra* note 96, at 36.

> Standards have other, indirect benefits. For instance, the more people use a given computer operating system, the more software is likely to be written for that system, and the more choice and competition those users will have available. In addition, entry, competition, and innovation may be easier if a competitor need only produce a single better component, which can then hook up to the market range of complementary components, than if each innovator must develop an entire "system."

Id.

new product.[317] The increased competition would spur vendors to make even more innovative products in order to compete.[318]

Denying copyright protection to the user interface would entail benefits to developers and end users alike.[319] Strong protection requires developers to carefully avoid creating any resemblance to competing products.[320] The cost of developing a new and nonsimilar interface for every program of every product line increases the costs paid by consumers. If protection were withheld from the interface, then developers would not need to expend resources reinventing the wheel. Most programs derive their origins at least in part from other programs.[321]

The protection of interfaces has the potential for undesirable effects.[322] Copyright law does not protect ideas, functions, or processes.[323] Yet where a program becomes a de facto standard, protection of its interface could create a de facto monopoly on the underlying idea or function.[324]

For example, suppose a seventy per cent majority of users have trained in using program X. They have invested valuable time and effort in this training. No other program may use a similar interface to that found in program X. Due to the exorbitant cost of retraining, the majority users will not change programs. The minority users employing other programs find them-

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317. *See infra* note 329 and accompanying text.

318. *See* Jacobs, *supra* note 3, at 102 ("Independent development [where a compatible product is independently developed], moreover, will lead to innovations in implementation, in the quality and reliability of the code, in its performance, and in its cost.").

319. *See, e.g.*, Grossman, *Programmers Protest Lotus 'Look and Feel' Victory; League for Programming Freedom Protests at Lotus Corp. Headquarters*, PC WEEK, August 6, 1990, at 125 ("Common user interfaces are good for both users and programmers, allowing users to learn a common set of commands and programmers to concentrate on the substantive components of their programs instead of worrying about infringing on another company's interface design."). *But see*, Lemberg (chief counsel for Lotus Dev. Corp.), *quoted in* Reinhardt, *The Lotus Case: Judge Rules User Interface is Protected by Copyright*, BYTE, Sept. 1990, at 19, 20:

> We see it [the judgement for Lotus] as a great victory for innovation because it provides a framework that allows people to invest in engineering and be protected enough to recover their investments .... If the law protected the right of a programmer to copy the de facto standard, then there would be no need to innovate.

Id. at 20.

320. *See* Jacobs, *supra* note 3, at 104 ("Copyright law should not require vendors to arbitrarily change the interfaces simply to avoid intellectual property disputes.").

321. Lotus derived 1-2-3 from Visicalc, and Apple developed its Macintosh interface from the Xerox Star system.

322. *See* Samuelson & Glushko, *supra* note 308, at 487.

> If each software firm had to develop a different style of user interface to comply with copyright law, there is concern that copyright might impede how those in the user interface field do their work, might harm the health of the industry, and might make more difficult the achievement of the goal of making computers usable by ordinary people.

Id.

323. *See supra* note 308 and accompanying text.

324. LaST Conference Report, *supra* note 4, at 28 ("If the original program becomes widely adopted, the interface may become a de facto standard. Copyright protection of the original interface may then confer a de facto monopoly on the function performed by the program, analogous to a copyright on the standard 'QWERTY' typewriter keyboard."). *See also* Farrell, *supra* note 96, at 38 ("[T]he lack of standards can 'lock in' users to a single vendor, creating a degree of what has been called '*ex post* monopoly.' ").

selves out of the mainstream of compatibility. Yielding to pressures to join the standard and reap the benefits of such standardization, the minority adopt program X. Thus program X enjoys not only the exclusive use of its original expression, but also a monopoly on the underlying idea.[325]

Protection of the user interface could also inhibit the continued growth of the software industry.[326] Larger firms such as Lotus and Ashton-Tate can threaten smaller firms with expensive lawsuits. As courts decide infringement on a case-by-case basis,[327] developers do not know how far they can go. This uncertainty in the industry could discourage or retard new innovation. Furthermore, large firms seeing their market share lost to smaller competitors may regard litigation as an alternative to competing in the marketplace.[328] Instead of a proliferation of innovative and competing products, one might find a limited selection of bloated major name programs bristling with protective measures.

The constitutional purposes of copyright will not suffer for lack of protection of the user interface. The law would still guard against the copying of any program code. Developers would continue to generate new and ever more innovative products, though others could copy their interfaces. To the extent that a standard is developed, allowing others to produce similar inter-

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325. LaST Conference Report, *supra* note 4, at 28.

326. *See* Bricklin testimony quoted in Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 74 (D. Mass. 1990).

> If the law is interpreted to say that a developer may not make a new program that can use the data files and inputs accepted by existing programs, then computer advancement as we know it will be slowed. . . .
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> I believe that such a decision would throw the entire software industry into confusion . . . . [T]here would be a chilling effect on development and advancement in many areas . . . .
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> This case has implications about whether or not new, improved programs can read and execute data users created for themselves with an older program. The quantity of data to be affected by this decision is incomprehensively vast. It is not a case about "cheap copies."
>
> If aspects of screen displays that are governed by functionality (such as a command language like the 1-2-3 command structure) are held to be within the scope of copyright protection, then progress in application and systems computer programs could be dramatically slowed in the United States.

Id.

See also Jacobs, *supra* note 3, at 103 ("[I]f the structure, sequence, and organization rules are extended beyond the facts of *Whelan*, compatible development could first be chilled by the very existence of these similarities and then, again, shut down entirely. This would be inconsistent with copyright principles.") (The court in *Lotus* has extended the *Whelan* holding in protecting the structure, sequence, and organization of the 1-2-3 interface.).

See also Kapor, *supra* note 308:

> Twisting and straining each step of the way to secure additional copyright protections, too many companies seem to have decided that it's easier to sue their rivals than compete with them. Litigation is becoming a business tactic, not a practice of last resort. Software should not be an industry driven by litigation. That would be bad for both the industry and its millions of customers.

Id.

327. *See supra* note 56 and accompanying text.

328. Some industry observers feel that Lotus has sued its competitors in order to counteract its loss of market share. *See, e.g.*, Quindlen & Alsop, *Protectionist Actions by Lotus and Apple Show Fear of Competition*, INFOWORLD, July 16, 1990, at 102 (Lotus lawsuit based on fear of competition).

faces can boost the sales of a product. The first vendor to create a new interface would enjoy an exclusive market position until other vendors developed their own programs utilizing a similar interface.[329] The first vendor would also hold the reputation of having been the first on the market. Assuming the product achieves a certain level of success, other vendors would market programs incorporating interfaces similar to the original.[330] These secondary vendors would enjoy the chance of luring users away from the original product. They could achieve this only by competing with the original product by adding features, increasing efficiency and/or lowering prices. Users would benefit from the increased competition, lower prices, greater variety of viable alternatives, and reduced retraining time. Copyright would still provide adequate incentive for developers to continue to innovate, while yielding the greatest public benefits.[331]

C. *The Unique Nature of Software Demands Separate Legislation.*

Copyright law currently covers art, literature, drama, music, and software.[332] Though well suited to the first four subjects, copyright fails to accommodate the unique needs of software.[333] Unlike art or literature, software grows obsolete within a very short time. Only experts can make sense of the actual code used in creating programs. The software industry itself has evolved and changed drastically since Congress amended the Act in 1980.[334] The current law does not properly balance the incentives needed

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329. Cloning the interface of a successful product does not guarantee success. The clone applications must be able to stand on their own against the competition. *See* Kapor, *supra* note 308, at 520 ("Cloning applications is an unviable business strategy. Success in the software business depends on many factors: documentation, training, customer support, and the quality of customer relations in general.").

330. *See* Jacobs, *supra* note 3, at 102-3 (the competitors must still "go through the vast majority of the development effort.") ("[I]ndependent development is a technically difficult task, at least as difficult as, and perhaps more difficult than, noncompatible development.") ("Permitting the independent development of compatible products thus does not introduce into the copyright equation a free rider problem of any significance.").

331. *Cf.* Farrell, *supra* note 96, at 42.

> With weak protection [of the user interface], a successful innovator's imitative rivals are likely to produce "clones" or compatible products . . . . This competition *within* the standard actually reinforces the standard . . . . strengthening still further the incentives for still more rivals to join the bandwagon. Thus with an open standard, firms are likely to compete on price, performance and additional features, as with the PC standard in personal computers.

Id.

332. *See generally* 17 U.S.C. §§ 101-02 (1988) (effective Jan. 1, 1978).

333. *See* N.Y. Times, Jul. 22, 1990, § 3, at 4, col. 1 (quoting M. Kapor, the original founder of Lotus: "The copyright and patent frameworks were developed over hundreds of years, and they just don't work well with digital, computerbased media. . . . Ultimately the Congress is going to have to do something that addresses intellectual property rights for digital media."); *see also* Lavin, *supra* note 13, at 29.

> It's about time that legislators both here and across the Pond woke up to the fact that PCs (and the machines that will spring from PC lineage in the near future) will play a big part in shaping society and economies in years to come. Bending a 10-year-old law to fit the Lotus user interface is the wrong way to go about managing this dynamic facet of human enterprise.

Id.

334. *See* Lavin, *supra* note 13, at 29 ("In the decade since Congress last addressed the issue

for innovation and the benefits available to the public in the software context. Protecting software conflicts at times with protecting traditional works.[335] Separate legislation could achieve a better balance between the public benefits from compatibility and the private incentives to innovate.

Separate legislation protecting software would have similarities with copyright. Such a legislative act would still grant a limited monopoly for a substantial term[336] for the literal computer code.[337] The act should treat the user interface in one of three ways. Either the interface should receive no protection,[338] very limited protection,[339] or substantial protection with mandatory licensing.[340] Due to the complex and rapidly changing nature of the field, Congress should delegate the authority to update and modify the act as needed to an independent agency or committee of experts.[341]

V. CONCLUSION

Copyright law should not protect the user interface.[342] The dual purposes of copyright envision adequate incentive to innovate balanced against the public interest in the dissemination of the works.[343] Current copyright law gives more protection than needed to encourage innovation, thus depriving the public of significant benefits. Standardization and compatibility would serve the public welfare by reducing retraining time and increasing competition. The balance between private incentive and public benefit has gone awry. Congress should enact separate legislation specifically addressing the unique characteristics of the user interface and of the software industry to regain the balance.[344]

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of copyright, little attention has been paid to writing laws that foster more creativity and innovation (and protect that innovation) in the unique environment that is the modern PC industry.").

335. *See* N.Y. Times, Oct. 13, 1990, § 1, at 1, col. 1 (amendment to the Act concerning fair use of unpublished works failed solely out of concern for its effect on software).

336. 75 years, for instance.

337. Both source and object code should continue to enjoy protection.

338. Thus allowing anyone to immediately use the structure, sequence, and organization of the menu structure, screen displays, function key assignments, and macro functions in producing his own program. This would allow sharper competition, but could potentially provide less than the ideal amount of incentive to further innovate.

339. Two or three years of exclusive use, for example.

340. Fifty years of protection, but with a mandatory licensing provision after the first year at a rate fixed by Congress, CONTU (National Commission on New Technological Uses of Copyrighted Works), or a royalty committee.

341. CONTU might serve well for such a purpose.

342. *See supra* notes 308-31 and accompanying text.

343. *See supra* notes 26-33 and accompanying text.

344. *See supra* notes 332-41 and accompanying text.