American University International Law Review

Volume 7 | Issue 2 Article 3

1992

Lotus Development Corp. v. Paperback Software Int'l: Copyrightability for the User Interface of Computer Software in the United States and the International Realm

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NOTES & COMMENTS

LOTUS DEVELOPMENT CORP. v. PAPERBACK SOFTWARE INT'L: COPYRIGHTABILITY FOR THE USER INTERFACE OF COMPUTER SOFTWARE IN THE UNITED STATES AND THE INTERNATIONAL REALM

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If I have seen further
it is by standing on ye shoulders of Giants.[1]

INTRODUCTION

Just as computers[2] have become an integral element of the legal

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1. Sir Isaac Newton, Letter to Robert Hooke (February 5, 1675/1676), *reprinted in* R. MERTON, ON THE SHOULDERS OF GIANTS: A SHANDEAN POSTSCRIPT 31 (1965) [hereinafter Newton].

2. *See* Stern Elecs. Inc. v. Kaufman, 669 F.2d 852, 853-56 (2d Cir. 1981) (defining the term "computer" and explaining how the device works); Williams Elecs., Inc. v. Artic Int'l, Inc., 685 F.2d 870, 871-74 (3d Cir. 1982) (establishing the definition of an electronic computer).

The electronic computer ("computer") performs mathematical and logical functions electronically. A computer consists of hardware and software. Hardware refers to the physically embodied parts of the computer, including the metal box, the circuits (e.g., the central processing unit (CPU)), the input devices (e.g., the keyboard and mouse), the output devices (e.g., the CRT or display screen and the printer or plotter), and the input/output devices (e.g., the internal memory, including random access memory (RAM) and read-only memory (ROM), and the external memory, including the internal or external hard disk drive and 3 and ½ or 5 and ¼ inch disk drives). *Williams Elecs., Inc.*, 685 F.2d at 872. Software, on the other hand, refers to the written instructions, prepared by a human operator, which operates the computer, also called the computer program. *Id.*

profession,[3] so has the computer become an essential tool of modern life.[4] Accordingly, the men and women who make these electronic marvels run, these computer programmers,[5] increasingly seek greater protection for the fruits of their labor.[6] Among the sources of intellectual

3. *See generally* Harrington, *Use of LEXIS and WESTLAW Too Is Vital To Any Law Practice*, NAT'L L.J., Oct. 12, 1987 at 18 (stating that "lawyers who do not know what LEXIS and WESTLAW offer are practicing law with blinders. They will suffer what they deserve.").

4. *See Year of the Computer*, TIME, Jan. 1, 1983, at 13 (deeming the computer "'Man' of the Year" and describing the increasing role of computers in modern life).

5. Computer programmers produce two types of computer software: operating system programs and application programs. Operating system programs—like DOS and OS/2—control the hardware and actually make the machine run. Application programs instruct the computer to perform specific functions—such as word processing, data base management, spreadsheet calculations, or games. Programmers create computer programs through the use of a computer language. A machine language program, the lowest-level computer language or a language which the computer's CPU can understand without translation, represents an object program or object code. An assembly language program represents the intermediate-level computer language. Typically, however, most programmers utilize a higher-level computer language which must be translated by a compiler into information that the computer's CPU can understand. A source program or source code, such as FORTRAN, COBOL, PASCAL, BASIC or C, affords the programmer easier access to the control of computer operations. *See* D. CURTIN & L. PORTER, MICROCOMPUTERS — SOFTWARE AND APPLICATIONS 36-78 (1986) (presenting the structure and mechanisms of the electronic computer); *id.* at 81-108 (explaining the types of computer software and how a computer program executes functions and operations on the electronic computer).

6. *See* Note, *The Expansion of the Berne Convention and the Universal Copyright Convention to Protect Computer Software and Future Intellectual Property*, 11 BROOKLYN J. INT'L L. 283, 285 (1985) [hereinafter Note, *Future Intellectual Property*] (describing the three means by which a programmer may seek protection of a computer program under the auspices of intellectual property: (1) patent law, (2) copyright law, and (3) trade secret law); *see also* Schachter, *Intellectual Property Takes Center Stage*, ELECS., Aug. 1990, at 108 (addressing the development of patent and copyright protection issues for computer software).

A patent generally extends a monopoly of limited duration to the inventor of the unique idea, process, or design. J. BAXTER, WORLD PATENT LAW AND PRACTICE 1 (1973). Although each nation's patent laws vary, the International Convention for the Protection of Industrial Property established a system of uniform international treatment (or "national treatment"). This Convention provides for reciprocal protection between all signatory countries in that one country affords the same protection to all computer software marketed in another signatory country as that signatory grants to its own nationals. CONVENTION OF PARIS FOR THE PROTECTION OF INDUSTRIAL PROPERTY, Mar. 20, 1883, *revised at* Lisbon, Oct. 31, 1958, 13 U.S.T. 1, T.I.A.S. No. 4931, 828 U.N.T.S. 107. At present, however, only the United States recognizes the patentability of certain types of software. Note, *Future Intellectual Property*, *supra*, at 290. *See* Diamond v. Diehr, 450 U.S. 175, 182-84 (1981) (first establishing the patentability of computer software for a computer program which controlled the curing of tire rubber).

Trade secret laws usually encompass an implied contractual relationship between the proprietor and user of an idea, process, or design. 12 BUSINESS ORGANIZATIONS, MILGRAM ON TRADE SECRETS § 2.01 (1984). The advantage of trade secret law is theoritical uniformity, in that most nations provide some sort of trade secret protection. Note, *Future Intellectual Property*, *supra*, at 296. For mass-marketed computer software,

property protection, copyright law represents the primary means of securing an author's rights in computer software.[7] Hence, programmers have turned to the sources of both national and international copyright law in protecting the basic computer program (the literal manifestations of the programmer's work) as well as the programmer's unique expressions of creativity and originality within the work (the nonliteral manifestations of the computer program).[8]

Internationally, copyright law represents a complex system of interrelated agreements through which member-nations honor the copyright laws of other member-nations.[9] Because each nation maintains different copyright laws, however, the term "international copyright" presents a somewhat misleading concept.[10] In resolving an international copyright law conflict, the parties look not to some finite body of law known as

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however, trade secret law fails to provide adequate legal protection, even when the software contains a licensing agreement. *Id.* at 298-99 (citing M. EPSTEIN, MODERN INTELLECTUAL PROPERTY 217 (1984)). This failure results from the very essence of trade secret law—the secrecy—because trade secret directly contrasts with the required public disclosure of mass-marketed software information. *See* M. SCOTT, COMPUTER LAW § 4-25 (1984) (addressing the secrecy requirement of trade secret law); *see also* T. HARRIS, THE LEGAL GUIDE TO COMPUTER SOFTWARE PROTECTION: A PRACTICAL HANDBOOK ON COPYRIGHTS, TRADEMARKS, PUBLISHING, AND TRADE SECRETS 135 (1985) (addressing the unavailability of trade secret protection after disclosure).

A copyright grants the exclusive rights of reproduction, distribution, adaptation, performance, and display to the owner for the life of the author plus fifty years. In the case of a corporate author, the protection exists for 75 years after the date of first publication or 100 years after the date of creation, whichever expires first. *See* J. HELLER & S. WIANT, COPYRIGHT HANDBOOK 7 (1984) (describing the general rights of the copyright owner and the term of copyright protection).

7. Note, *Future Intellectual Property*, *supra* note 6, at 283.

8. The "nonliteral manifestations of a computer program" include all components of computer software which are inherent to the application program. For a review of the types of computer programs, *see supra* note 5 (describing an application program as a series of instructions which enable the computer to perform specific tasks). The most common nonliteral manifestation of a computer program is the "user interface," or the means by which the user communicates with the computer program. I. SOMMERVILLE, SOFTWARE ENGINEERING 23-24 (3d ed. 1989). This Note uses the term, user interface, to refer not to the physical means by which an operator accesses the computer (via a keyboard, mouse, touch-screen, or microphone), but the computer program's method by which the user executes commands and the textual or graphic presentations of that method. D. LONGLEY & M. SHAIN, MACMILLAN DICTIONARY OF PERSONAL COMPUTING & COMMUNICATIONS 186-187 (1986); WEBSTER'S NEWWORLD DICTIONARY OF COMPUTER TERMS 193 (3d ed. 1988).

9. *See infra* notes 21-66 and accompanying text (describing the various international agreements, conventions, and treaties relating to copyright).

10. *See* Comment, *Improving the International Framework for the Protection of Computer Software*, 48 U. PITTS. L. REV. 1151, 1154 (1987) [hereinafter Comment, *Improving the International Framework*] (explaining the inadequacy of the international application of national copyright laws, which results from the unclear scope of protection to copyrightable subject matter, especially in the case of computer software).

international copyright but, instead, consider the copyright laws of each member-nation in relation to any underlying agreement. In determining the actual scope of copyright protection for a single computer program (or for the program's user interface), member-nations must give deference to the country in which the copyright exists and/or the country in which the infringement action occurs. This "national treatment" relegates the focus of international copyright law to the country of most copyright conflict—the United States. For the purposes of this Note, the doctrine of national treatment highlights the essential role of the United States in classifying the scope of international copyright for the user interface of computer software.

The United States maintains the most comprehensive laws establishing the scope of copyright protection for computer software.[11] All fed-

11. The copyright of computer software found its birth in Apple Computer, Inc. v. Franklin Computer, Corp., 714 F.2d 1240 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984). *Apple Computer* led to a revolution in the judicial interpretation of copyright law for computer software. In 1981, the APPLE II line of personal computers, peripheral equipment, and computer programs realized annual sales of $335,000,000 for Apple Computer Incorporated (Apple). *Id.* at 1242. Assessing the vast market for personal computers in the United States, Franklin Computer Corporation (Franklin) introduced the ACE 100 personal computer. The ACE 100 promised complete compatibility with the APPLE II line of computers. *Id.* at 1243. Subject to this claim, Apple sued Franklin, asserting copyright infringement for fourteen operating system programs as well as patent infringement, unfair competition, and misappropriation. In defense, Franklin claimed that the fourteen computer programs at issue contained no copyrightable subject matter. Although Franklin admitted copying the computer programs, Franklin contended that Apple's operating system programs were not copyrightable and therefore that no copyright violation occurred. *Id.* at 1244. The United States Court of Appeals for the Third Circuit rejected Franklin's defense and held that a computer program, whether object code or source code, achieves copyrightable status as a "literary work." *Id.* at 1249. *See also* Williams Elecs., Inc. v. Artic Int'l, Inc., 685 F.2d 870, 875 (3d Cir. 1982) (concluding that the 1980 amendment to the Copyright Act clearly establishes the copyrightability of computer programs).

The *Apple Computer* decision firmly established the copyrightability of computer programs and the protection for verbatim copies of the program's source or object code; i.e. the literal manifestations of the computer program. *Id.* at 878. *But see* White-Smith Music Pub. Co. v. Apollo Co., 209 U.S. 1, 17 (1908) (finding the sheet music produced by a pianola roll resulted in no copyright infringement because the pianola roll was not a "copy which appeals to the eye").

Whelan Assocs. Inc. v. Jaslow Dental Laboratory Inc., 797 F.2d 1222 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987), represented the next step in fixing the exact scope of copyright protection for computer software. The *Whelan* decision expanded the *Apple Computer* holding by guaranteeing copyright protection to the "structure, sequence, and organization" of a computer program. *Id.* at 1237-38. As a result, the *Whelan* court first established copyrightability for the nonliteral manifestations of a computer program. *See infra* notes 102-109 and accompanying text (providing a complete analysis of the *Whelan* decision). *See also* SAS Inst., Inc. v. S & H Computer Sys., Inc., 605 F. Supp. 816, 828-31 (M.D. Tenn. 1985) (finding that the copyright of a computer program extends beyond the literal manifestations, even to the structure and organization of the computer program).

eral courts in the United States have acceded that the *literal* manifestations of an original computer program gain full copyright protection.[12] Likewise, most federal jurisdictions also extend the same degree of protection to certain *nonliteral* aspects of computer programs, including the "structure, sequence, and organization" of computer software.[13] Examples of these nonliteral elements include main menu displays, hierarchical screen formats, and status screen prompts. Only recently, however, has a United States district court specifically addressed broadening the scope of copyright law toward these nonliteral elements of computer software, specifically to the user interface of a computer program.[14]

On June 28, 1990, in *Lotus Development Corp. v. Paperback Software Int'l*, the United States Court for the District of Massachusetts decided the question of copyrightability for user interface.[15] Lotus Development Corporation (Lotus) had developed and marketed an extremely successful electronic spreadsheet program, LOTUS 1-2-3.[16]

12. *See, e.g.*, Stern Elecs., Inc. v. Kaufman, 669 F.2d 852, 855 n.3 (2d Cir. 1982) (finding the written computer program a copyrightable literary work); Williams Elecs., Inc. v. Artic Int'l, Inc., 685 F.2d 870, 876-77 (3d Cir. 1982) (establishing the copyrightability of the object code in a computer program); Hubco Data Prods., Corp. v. Management Assistance Inc., 219 U.S.P.Q. 450, 454 (D. Id. 1983) (establishing the copyrightability of the computer program's object code); GCA Corp. v. Chance, 217 U.S.P.Q. 718, 720 (N.D. Cal. 1982) (affirming the copyrightability both of the source and object code of a computer program); Midway Mfg. Co. v. Strohon, 564 F. Supp. 741, 750 (N.D. Ill. 1983) (establishing the copyrightablilty of a computer program's source and object code).

13. *See Whelan*, 797 F.2d at 1222 (concluding that copyright protection for a computer program extends beyond the program's literal source and object codes to the "structure, sequence, and organization" of the program); *see also* Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp., 562 F.2d 1157, 1165-69 (9th Cir. 1977) (establishing the same contention regarding the copyrightablilty of television commercials); Sheldon v. Metro-Goldwyn Pictures Corp., 81 F.2d 49, 54-56 (2d Cir.), *cert. denied*, 298 U.S. 669 (1936) (establishing the same contention regarding the copyrightability of motion pictures); Nichols v. Universal Pictures Corp., 45 F.2d 119, 121-23 (2d Cir.), *cert. denied*, 282 U.S. 902 (1931)(establishing the same contention regarding the copyrightability of motion pictures).

14. *See* Raysman, *"Lotus" Decision: Greater Protection for Computer Programs*, N.Y.L.J., Aug. 14, 1990, at 3 (recognizing the "landmark" *Lotus* decision as providing protection to user interface of computer software under the "idea/expression" theory as opposed to the "look and feel" doctrine).

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

16. *Id.* at 66. The LOTUS 1-2-3 program is an electronic spreadsheet program that enables a computer to present a blank form on the computer screen on which numerical, statistical, and other data may be assimilated, organized, manipulated, or calculated. Although known as a spreadsheet program, LOTUS 1-2-3 also represents an integrated application program, because it performs a number of tasks, including limited word processing and data base management capabilities in addition to extensive graphic functions. *Id.*

Subject to the program's success, Paperback Software International (Paperback) and Mosaic Software (Mosaic) soon developed "clones"[17] of the 1-2-3 program and marketed the products under the name VP-PLANNER and THE TWIN, respectively.[18] Lotus sued both Paperback and Mosaic, claiming that VP-PLANNER and THE TWIN imitated not only the structure, sequence, and organization of the LOTUS 1-2-3 program but also infringed upon the program's user interface copyright.[19] The *Lotus* ruling turned on whether United States copyright law protects the nonliteral user interface of computer software.[20]

This Note considers the copyrightability of computer software user interface under international law as well as under the copyright laws of the United States. Part One addresses international copyright in general and sets forth the various organizations and agreements which comprise the international framework for computer software copyright. Part Two focuses on the United States, describing the history and development of United States copyright law for computer software and the scope of such copyright protection for computer programs. Part Three analyzes the *Lotus* decision, clarifiying the issues of the case, the findings of the court, and the applicable tests of copyrightability for computer software user interface. Finally, Part Four considers the effect of the *Lotus* decision on the international sources of copyright law as well as on copyright law of the United States. Additionally, Part Four describes upcoming decisions regarding the copyrightability of computer software user interface in the United States and the effect of the *Lotus* precedent on copyright law in general.

I. INTERNATIONAL COPYRIGHT AND THE COPYRIGHTABILITY OF USER INTERFACE IN COMPUTER SOFTWARE

The international copyright of computer software depends upon a reciprocal relationship between the country of copyright registration and the country in which a copyright claim originates or an infringement

17. *See* Pearson, *The Last Days of the Clone?— Protecting the 'Look and Feel' of Software*, 3 COMPUTER L. AND PRAC. 103, 103 (1987) (defining and applying the word "clone" as a copy of another software product).

18. *Lotus*, 740 F. Supp. at 68-70.

19. *Id.* at 63.

20. *See generally* Walter, *Defining the Scope of Software Copyright Protection for Maximum Public Benefit*, 14 RUTGERS COMPUTER & TECH. L.J. 1 (1988) (providing a general discussion of the scope of computer software and describing the development of case law regarding the copyrightability of computer software in the United States).

action occurs.[21] This distinctive relationship, or "national treatment,"[22] considerably restricts the scope of copyright protection in the international realm.[23] Under the national treatment doctrine, although a copyright may exist on a certain computer program in one country, the same copyright does not necessarily apply to the program in another international jurisdiction.[24] Consequently, no uniform or standard mechanism exists under international law by which an individual or company may determine the true scope of copyright protection for an original work.[25] Instead, the scope of international copyright protection depends upon a limited number of international agreements and organizations.[26]

A. MEANS OF INTERNATIONAL COPYRIGHT PROTECTION FOR COMPUTER SOFTWARE

Most nations have formed one or more international agreements or "conventions" to regulate the often conflicting national and international copyright systems.[27] These conventions[28] aim to broaden the doc-

21. M. FLINT, A USER'S GUIDE TO COPYRIGHT 65 (2d ed. 1985) [hereinafter FLINT].

22. *See id.* at 65-66 (providing an analytical foundation to the concept or doctrine of "national treatment"). National treatment means that the applicable law is found in the country in which the copyright disputes take place. *Id.*; *see* B. BOORSTYN, COPYRIGHT LAW § 12:1-6 (1983) [hereinafter BOORSTYN] (providing an overview of the effect of national treatment on United States law). Under the International Copyright Act of 1891, the United States accepted "national treatment" and granted United States copyright protection to the authors of foreign countries which afford United States authors reciprocal protection. *Id.* at § 12:1.

23. *See* Comment, *Improving the International Framework*, *supra* note 10, at 1151 (illustrating the major drawbacks of the "national treatment" system of international copyright protection). The national treatment of copyright in international law provides two limitations on copyright holders: (1) an action for infringement depends on the situs of the action and of the original copyright; and (2) international copyright law provides for the uncertain "moral right." *Id.*

24. *See* BOORSTYN, *supra* note 22, at § 12:1-6 (setting out the scope of the doctrine of national treatment).

25. *Id.*; *see also* Comment, *Improving the International Framework*, *supra* note 10, at 1151-52 (explaining how the Berne Convention and the Universal Copyright Convention represent the two primary methods of safeguarding copyright in the international marketplace).

26. *See infra* notes 21-66 and accompanying text (describing the various international agreements and organizations which seek to provide a uniform source of international copyright protection).

27. D. JOHNSTON, COPYRIGHT HANDBOOK 116 (2d ed. 1982).

28. *See* W. STRONG, THE COPYRIGHT BOOK: A PRACTICAL GUIDE 173 (2d ed. 1984) [hereinafter STRONG] (noting that the international copyright conventions discuss all forms of copyright except for sound recordings, which fall under the Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms).

trine of national treatment so that a reciprocal degree of copyright protection extends to all member-nations under the terms of any particular convention.[29] In addition, nations may also subscribe to one or more international organizations which seek to ensure a uniform standard of international copyright.[30]

1. The Berne Convention

The Berne Convention,[31] as the first international agreement to regulate intellectual property,[32] represents the most recognized source of international copyright law. Computer software appears to fall within the scope of article 2 of the Convention.[33] Although the United States only elected to join the Berne Convention in October of 1988,[34] authors in

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29. FLINT, *supra* note 21, at 65-66.

30. *See infra* note 74 (describing the efforts of the European Community and of the member-nations of the General Agreement of Tariffs and Trade to promulgate an international standard of computer software copyright).

31. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item H-1, at 1-22 (Supp. 1972) [hereinafter Berne Convention] (providing a text of the Paris version (1971) of the Berne Convention).

Since the inception of the Berne Convention in 1886, the agreement has undergone several revisions, including the latest in 1971 in Paris. *See Berne Convention for the Protection of Literary and Artistic Works. States Party on January 1, 1986*, 22 COPYRIGHT 6 (1986) (listing dates of revisions and dates on which states have become a member to the Berne Convention). The Berne Convention was created in 1886 in Paris and revised in 1908 in Berlin, in 1914 in Berne, in 1928 in Rome, in 1948 in Brussels, in 1968 in Stockholm, and in 1971 in Paris. *Id.* As of May 10, 1989, the following states had ratified or acceded to the Paris version of the Berne Convention:

> Argentina, Australia, Austria, Bahamas, Barbados, Benin, Brazil, Bulgaria, Burkina Faso, Cameroon, Central African Republic, Chile, Colombia, Congo, Costa Rica, Cote d'Ivoire, Cyprus, Czechoslovakia, Denmark, Egypt, Finland, France, Gabon, Germany, Greece, Guinea, Holy See, Hungary, Iceland, India, Italy, Japan, Liberia, Libya, Luxembourg, Mali, Malta, Mauritania, Mauritius, Mexico, Monaco, Morocco, Netherlands, Niger, Norway, Peru, Philippines, Portugal, Rwanda, Senegal, South Africa, Spain, Sri Lanka, Surinam, Sweden, Thailand, Togo, Trinidad and Tobago, Tunisia, United Kingdom, United States of America, Uruguay, Venezuela, Yugoslavia, Zaire, and Zimbabwe.

UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item H-2, at 1-2 (Supp. 1987-88).

32. *See* R. WHALE, WHALE ON COPYRIGHT 185 (3d ed. 1983) [hereinafter WHALE] (discussing the role of international copyright, international law, and the Berne Convention in the international intellectual property system).

33. *See* Kinderman, *Computer Software and Copyright Conventions*, 3 EUR. INTELL. PROP. REV. 6, 8 (1981) (concluding that the "absence of limits [in Article 2] on expression may be taken as an explicit confirmation of the fact that the machine-readable computer program is a work protected under the Convention").

34. *See Senate Approves Berne Convention Treaty, Yeutter Hails Effect on U.S. Trade Balance*, INT'L TRADE REP., Oct. 26, 1988, at 1430 (discussing the Berne Convention's effect on the United States trade balance); *see also* Comment, *Software Piracy: The United States Needs to Utilize the Protection Provided by the Berne Convention in the Pacific Rim*, 3 EMORY J. INT'L DIS. RES. 135 (1988) (describing the

the United States have nevertheless long enjoyed protection under the Berne Convention via a "back door."[35] The Berne Convention, however, neither specifically mentions computer software nor addresses the scope of copyright protection for computer programs.

2. *The Universal Copyright Convention*

The Universal Copyright Convention[36] (UCC) was initiated by the United States and now represents the second most recognized source of international copyright protection.[37] Adopted in 1952, the UCC originally required only "adequate and effective protection" for works under international copyright.[38] Under the Paris revision of 1971, however, the UCC was expanded to protect the economic interests of "authors and other copyright proprietors in literary, scientific and artistic works, including writings, musical, dramatic and cinematographic works, and paintings, engravings and sculpture."[39] Computer software most likely

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effect of the Berne Convention and other treaties on international computer software protection).

35. BOORSTYN, *supra* note 22, at §12:3. Although the United States only recently joined the Berne Convention, American individuals and businesses alike have long utilized a "back door" approach to the convention. *Id.* By publishing works simultaneously in the United States and in a Berne country, the "back door" approach effectively gave United States nationals ample protection prior to the United States Senate's ratification of the Berne Convention in 1988. *Id.*

36. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item B-1, at 1-14 (Supp. 1972) [hereinafter *UCC*] (providing a text of the Universal Copyright Convention). The UCC was revised in Paris in 1971. *Id.* As of May 15, 1989, the following states had ratified or acceded to the UCC:

> Algeria, Australia, Austria, Bahamas, Bangladesh, Barbados, Brazil, Bulgaria, Cameroon, Colombia, Costa Rica, Czechoslovakia, Denmark, Dominican Republic, El Salvador, Finland, France, Germany, Guinea, Holy See, Hungary, India, Italy, Japan, Kenya, Mexico, Monaco, Morocco, Netherlands, Niger, Norway, Panama, Peru, Poland, Portugal, Republic of Korea, Saint Vincent and the Grenadines, Senegal, Spain, Sri Lanka, Sweden, Trinidad and Tobago, Tunisia, United Kingdom, United States of America, and Yugoslavia.

Id. item B-2, at 1-5 (Supp. 1987-88).

37. *See* STRONG, *supra* note 28, at 174 (explaining that the UCC was enacted by the United States in the hope that it would qualify the United States for membership in the Berne Convention). Theoretically, "the UCC provides that every member nation will give to a work first published in another member nation, or created by a citizen of another member nation, the same protection that it gives works of its own citizens that are first published within its own borders." *Id.* Practically, however, "[i]f you are a U.S. citizen or a citizen of another UCC country, protection is automatic. Once you publish, assuming you publish first in the United States, you must follow the U.S. rules; no country has stricter formalities than the United States, and U.S. notice will protect your rights everywhere." *Id.* at 176.

38. WHALE, *supra* note 32, at 191.

39. *UCC*, *supra* note 36, at art. I.

falls under the "scientific writings" category.[40] Similar to the Berne Convention, however, the UCC does not provide explicit protection for computer software or the user interface of computer programs.[41]

3. *The World Intellectual Property Organization*

The World Intellectual Property Organization (WIPO),[42] by request of the United Nations, formulated a series of proposals which represent the third most recognized source of international copyright protection.[43] In light of problems surrounding the Berne Convention and the UCC,[44] WIPO created a new international copyright treaty proposal designed specifically to protect computer software.[45] Most nations, however, have rejected the attempts by WIPO to formulate a standard for international computer software protection.[46] Therefore, although the proposed WIPO Treaty probably affords protection even for the user inter-

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40. Comment, *International Copyright Law Applied to Computer Programs in the United States and France*, 14 LOY. U. CHI. L.J. 105, 110 (1982).

41. The United States has been a member of the UCC since its inception; however, recent admission into the Berne Convention will not implicate any protections under the UCC. WHALE, *supra* note 32, at 193.

42. As of 1984, the following states were members of the WIPO:
Algeria, Argentina, Australia, Austria, Bahamas, Barbados, Belgium, Benin, Brazil, Bulgaria, Burundi, Byelorussian SSR, Cameroon, Canada, Central African Republic, Chad, Chile, China, Colombia, Congo, Costa Rica, Cote d'Ivoire, Cuba, Czechoslovakia, Democratic People's Republic of Korea, Denmark, Egypt, El Salvador, Fiji, Finland, France, Gabon, Gambia, Germany, Ghana, Greece, Guatemala, Guinea, Haiti, Holy See, Honduras, Hungary, India, Indonesia, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Libya, Liechtenstein, Luxembourg, Malawi, Mali, Malta, Mauritania, Mauritius, Mexico, Monaco, Mongolia, Morocco, Netherlands, New Zealand, Niger, Norway, Pakistan, Panama, Peru, Philippines, Poland, Portugal, Qatar, Republic of Korea, Romania, Rwanda, Saudi Arabia, Senegal, Somalia, South Africa, Soviet Union, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Tanzania, Togo, Tunisia, Turkey, Uganda, Ukrainian SSR, United Arab Emirates, United Kingdom, United States of America, Upper Volta, Uruguay, Vietnam, Yemen, Yugoslavia, Zaire, Zambia, and Zimbabwe.
WIPO, GENERAL INFORMATION 73, Doc. 400(E) (Geneva 1984). *See also* Note, *Future Intellectual Property*, *supra* note 6, at 309-313 (discussing generally the means to granting greater international copyright protection and proposed means in achieving this goal).

43. *See* Note, *World-Wide Protection of Computer Software: An Analysis of the WIPO Draft Proposal*, 2 N.Y.J. INT'L & COMP. L. 278, 294-312 (1981) (analyzing WIPO's draft proposals for creating a new system to protect computer software).

44. *See* Comment, *Improving the International Framework*, *supra* note 10, at 1151-52 (stating that the three major problems of national treatment of copyright protection include the uncertainty of the scope of international law, moral rights, and the length of minimum periods of protection).

45. WIPO INTERNATIONAL UNION FOR THE PROTECTION OF INDUSTRIAL PROPERTY (PARIS UNION), REPORT BY THE COMMITTEE OF EXPERTS ON THE LEGAL PROTECTION OF COMPUTER SOFTWARE, Doc. L.P.C.S./II/6 (1983).

46. Note, *Future Intellectual Property*, *supra* note 6, at 310.

face of computer programs,[47] its world-wide rejection inhibits any realistic application to international copyright law.[48]

4. *Bilateral and Multilateral Agreements*

In addition to international copyright conventions and the proposed WIPO Treaty, bilateral and multilateral treaties provide another means of international copyright protection.[49] Examples of these bilateral, multilateral, and regional agreements include the Buenos Aires Convention,[50] the Caracas Copyright Agreement,[51] the Havana Copyright Convention,[52] the Mexico City Copyright Convention,[53] the Rio

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47. *See* WIPO INTERNATIONAL UNION FOR THE PROTECTION OF INDUSTRIAL PROPERTY (PARIS UNION), DRAFT TREATY FOR THE PROTECTION OF COMPUTER SOFTWARE 3-15, Doc. L.P.C.S./II/3 § 1(i) (1983) [hereinafter *WIPO Treaty*] (stating that the proprietor, or copyright owner, "shall have the right to prevent any person from . . . using the computer program to produce the same *or a substantially similar computer program* or a program description of the computer program or of a substantially similar computer program.") (Emphasis added.)

48. *See* Kolle, *Computer Software Protection—Present Situation and Future Prospects*, 13 COPYRIGHT 70 (1977) (addressing the result of WIPO's drafts for special legislation, such as the proposed WIPO treaty, on the protection of software both at the national and the international levels).

49. BOORSTYN, *supra* note 22, at § 12:6. "The significance of this basis [of international copyright protection] is twofold: bilateral [multilateral, and regional] arrangements are applicable even in the absence of a formal treaty or of membership in one of the international conventions, and such arrangements will govern activities that predate the effective date of membership in an international treaty." *Id.*

50. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item 1, at 1-2 (Supp. 1972) (providing a text of the Buenos Aires Convention (BAC)). As of 1976, the following states had ratified the BAC:

> Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, United States of America, and Uruguay.

Id. item 2, at 1 (Supp. 1975-76). The BAC comprises a Latin- and inter-American copyright agreement. BOORSTYN, *supra* note 22, at §12:4. The United States ratified the BAC on May 1, 1911. *Id.* The BAC provides copyright protection to the original works of member-nations, except phonograph records, so long as copies of the work bear a statement indicating the reservation of the property. *Id.* The BAC, like most regional agreements, does not provide protection for computer software.

51. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item 1, at 1 (Supp. 1972) (providing a text of the Caracas Copyright Agreement). As of 1972, only Bolivia, Ecuador, Peru, and Venezuela had ratified the agreement. *Id.* item 2, at 1.

52. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item 1, at 1-2 (Supp. 1972) (providing a text of the Havana Copyright Convention). As of 1972, Costa Rica, Ecuador, Guatemala, Nicaragua, and Panama had ratified the convention. *Id.* item 2, at 1.

53. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item 1, at 1-2 (Supp. 1972) (providing a text of the Mexico City Copyright Convention). As of 1972, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and the United States of America had ratified the convention. *Id.* item 2, at 1.

de Janeiro Copyright Convention,[54] and the Washington Copyright Convention.[55] When enforcing a copyright under a bilateral or multilateral treaty, the domestic copyright laws of the member-nations become equally compelling as under under one of the international conventions.[56] Therefore, because the bilateral and multilateral copyright treaties depend almost entirely upon the doctrine of national treatment, the treaties provide only limited advantage over the common protections afforded under the broader international copyright agreements and conventions.[57] None of these bilateral, multilateral, or regional copyright agreements, moreover, specifically addresses the copyright of computer software.[58]

5. *Other Forms of International Copyright Protection*

In addition to the more common means of international copyright protection outlined above, certain regional and work-specific agreements provide independent or increased protection for the copyright owner under the international copyright system.[59] Examples of such protection include the European Agreement on the Protection of Television Broadcasts,[60] the European Agreement for the Prevention of Broadcasts Transmitted from Stations Outside National Territories,[61]

54. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item 1, at 1-3 (Supp. 1972) (providing a text of the Rio de Janeiro Copyright Convention). As of 1972, Brazil, Chile, Costa Rica, Ecuador, El Salvador Guatemala, Honduras, Nicaragua, and Panama had ratified the convention. *Id.* item 2, at 1.

55. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item 1, at 1-4 (Supp. 1972) (providing a text of the Washington Copyright Convention). As of 1973, Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, and Paraguay had ratified the convention. *Id.* item 2, at 1 (Supp. 1973).

56. *See generally supra* notes 49-58 (citing examples of bilateral, multilateral, and regional treaties under which the doctrine of national treatment applies).

57. *See supra* notes 31-48 and accompanying text (setting forth the most common sources of international copyright).

58. *See supra* notes 50-55 (referring to texts of bilateral, multilateral and regional treaties to demonstrate that none offer specific protection for computer software).

59. WHALE, *supra* note 32, at 198-211.

60. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item C-1, at 1-4 (Supp. 1970) (providing a text of the European Agreement on the Protection of Television Broadcasts). As of 1983, Belgium, Cyprus, Denmark, France, Germany, Norway, Spain, Sweden, Turkey, and the United Kingdom had ratified or acceded to the agreement. *Id.* item C-6, at 1 (Supp. 1981-83).

61. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item F-1, at 1 (Supp. 1972) (providing a text of the European Agreement for the Prevention of Broadcasts Transmitted from Stations Outside National Territories). As of 1988, Belgium, Cyprus, Denmark, France, Germany, Greece, Ireland, Italy, Liechtenstein, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom had ratified or acceded to the agreement. *Id.* item F-2, at 1 (Supp. 1987-88).

the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations,[62] the Convention for Avoidance of Double Taxation on Copyright Royalties,[63] the Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms,[64] and the Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite.[65] With the exception of the WIPO Treaty,[66] however, no current or proposed work-specific international agreement, treaty, or convention affords special protection to computer software.

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62. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item B-1, at 1 (Supp. 1962) (providing a text of the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations). As of 1988, the following countries had either ratified or acceded to the convention:

> Austria, Barbados, Brazil, Burkina Faso, Chile, Colombia, Congo, Costa Rica, Czechoslovakia, Denmark, Dominican Republic, Ecuador, El Salvador, Fiji, Finland, France, Germany, Guatemala, Ireland, Italy, Luxembourg, Mexico, Monaco, Niger, Norway, Panama, Paraguay, Peru, Philippines, Sweden, United Kingdom, and Uruguay.

Id. item B-2, at 1 (Supp. 1987-88).

63. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item 1, at 1 (Supp. 1972) (providing a text of the Convention for Avoidance of Double Taxation on Copyright Royalties). As of 1988, Czechoslovakia, Egypt, India, Iraq, and Peru had ratified or acceded to the agreement and protocol. *Id.* item 2, at 1 (Supp. 1987-88).

64. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item D-1, at 1 (Supp. 1972) (providing a text of the Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms). As of January 30, 1988, the following countries had either ratified or acceded to the convention:

> Argentina, Australia, Austria, Barbados, Brazil, Burkina Faso, Chile, Costa Rica, Czechoslovakia, Denmark, Ecuador, Egypt, El Salvador, Fiji, Finland, France, Germany, Guatemala, Holy See, Hungary, India, Israel, Italy, Japan, Kenya, Luxembourg, Mexico, Monaco, New Zealand, Norway, Panama, Paraguay, Peru, Republic of Korea, Spain, Sweden, Trinidad and Tobago, United Kingdom, United States of America, Uruguay, Venezuela, and Zaire.

Id. item D-2, at 1 (Supp. 1987-88).

65. *See* UNESCO, COPYRIGHT LAWS AND TREATIES OF THE WORLD vol. III, item E-1, at 1-3 (Supp. 1974) (providing a text of the Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite, or the Brussels Convention on the Protection of Satellite Transmissions). As of 1988, Austria, Germany, Italy, Kenya, Mexico, Morocco, Nicaragua, Panama, Peru, Soviet Union, United States of America, and Yugoslavia had either ratified or acceded to the convention. *Id.* item E-2, at 1 (Supp. 1987-88).

66. *See supra* notes 42-48 and accompanying text (describing the one specific source of international copyright protection for computer software).

B. THE CURRENT AND FUTURE STATUS OF INTERNATIONAL COPYRIGHT PROTECTION FOR COMPUTER SOFTWARE

Internationally, the extension of copyright protection to computer software remains a very recent phenomenon.[67] The level of economic sophistication serves as a prohibitive factor in the development of computer software opportunities in many countries, because a country's technological know-how constitutes a condition precedent to the development of a competent computer industry. Not surprisingly, the nations with the largest computer software industries possess the most developed copyright systems for the protection of the computer program, specifically Japan,[68] Germany,[69] France,[70] Cana-

67. *See* Staines, *The European Commission's Proposal for a Council Directive on the Legal Protection of Computer Programs*, 6 EUR. INTELL. PROP. J. 183, 184 (1989) [hereinafter *Staines*] (arguing that "copyright has kept computer software in the legal equivalent of a technology trap").

68. Japanese law explicitly includes software as a copyrightable work. Hoffman, *Protection for Computer Software: An International Overview: Part 1*, 11 EUR. INTELL. PROP. REV. 337, 341 (1988) [hereinafter *An International Overview*]. Moveover, because of the language used in the legislation, even the nonliteral aspects of a computer program (like the user interface) gain copyrightable status under Japanese law. *Id.*

69. In 1981, a German district court ruled that "no intellectual aesthetic content is ordinarily found in computer programs which could enable them to be included in the category of creative works" for copyrightable status. *An International Overview*, *supra* note 68, at 339. When the decision was overruled by a higher court, however, no clear standard for the scope of German copyright remained. Finally, in 1985, the German Supreme Court adopted a two-part test: (1) the originality requirement, or the "test of personal intellectual creation;" and (2) a comparison test. The comparison test considered whether "the tested work reveals creative originality of such a degree as compared with the results of an average programmer, [and if so,] then the program is an intellectual creation." *Id.* Apparently, for the purposes of computer software copyright, the net effect of the German Supreme Court's test could represent a more expansive application of German copyright law than the copyright law of the United States. *See id.* (noting that "the relatively restrictive copyright standard may provide problems for foreign software vendors").

70. Similar to Germany, until 1985 French federal courts initially rejected copyright for computer programs, citing the "absence of aesthetic character, banality and technological rather than artistic character." *An International Overview*, *supra* note 68, at 340. On March 7, 1986, however, the French Supreme Court ruled that copyright protection for computer software, again like Germany, depended on the originality requirement. Unlike Germany, however, the French Supreme Court did not institute a second "comparison test." *See supra* note 69 (describing the German comparison test). In addition, following the legal or judicial dispute over the copyrightability of computer software in France, the French Senate passed sixty-six new Articles, thereby amending the 1957 Copyright Law, which explicitly provided for the copyrightability of computer software. Not surprisingly, the current French copyright system provides explicit protection for the user interface of a computer program. *Id.* at 341. Under precedent case law in France, moreover, " 'a program could be considered a copy of another program if its structure with its most characteristic elements is duplicated, even if this copy is written in another programming language.' " *Id.* (quoting Bertrand, *French Supreme Court Declares Software and Video Games 'Original*

da,[71] and the United States.[72]

The exact scope of international copyright protection for computer software remains uncertain, especially with regard to the nonliteral manifestations of a computer program. While international copyright conventions implicitly, and the proposed WIPO treaty explicitly, grant copyright protection to computer software, the standard approach to the international copyrightability of computer software is anything but uniform. Presently, the scope of international copyright protection for computer software spans the spectrum, from a complete absence of copyright protection in the Middle East, to expansive protection in the most industrialized nations.[73]

Recent attempts to improve or advance international copyright have also included efforts to expand protection to computer software, including several recent endeavors by the European Community[74] and a more comprehensive standard under a proposed amendment to the General Agreement on Tariffs and Trade (GATT).[75] Only in the United States, however, have federal courts begun to expand the scope of copyright protection not only to computer software but also to the nonliteral elements of the computer program. As a result of the uncertainty of inter-

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Works of Authorship' Under the 1957 Copyright Act, SOFTWARE PROTECTION, Feb. 1986, at 14).

71. In contrast to Japan, Germany, and France, Canada demonstrates the most restrictive application of copyright to computer software among the developmental countries for computer programs, extending protection solely to the source and object code of a computer program. *An International Overview*, *supra* note 68, at 343. Both in International Bus. Mach. Corp. v. Ordinateurs Spirales, Inc., 1 F.C. 190 (1985), 80 C.P.R.2d 187 (T.D. 1984), and Apple Computer, Inc. v. Macintosh, 1 F.C. 173 (1987), 10 C.P.R.3d 1 (T.D. 1986), federal Canadian courts affirmed copyright for computer programs under the Canadian Copyright Act of 1921. *See also* Apple Computer Inc. v. Minitronics of Canada Ltd. and Others, 2 F.C. 265 (1988), 7 C.P.R.3d 104 (Fed. Ct. 1985) (verifying that computer programs both in source and object code fall under the protection of the Canadian Copyright Act of 1921). Legislation regarding broader protections of computer software, however, has faced substantial opposition in Canada. *An International Overview*, *supra* note 68, at 342-43. As a result, neither Canadian courts nor law-makers have demonstrated any desire to expand the scope of copyright protection past the literal manifestations of the computer program. *Id.* at 344.

72. *See infra* notes 76-142 and accompanying text (describing the copyright system of the United States and the scope of protection under that system).

73. *Efforts to Negotiate Bilateral Agreements to Curb Piracy Continuing*, INT'L TRADE REP. (BNA), at 1433 (Oct. 26, 1988).

74. *See* Staines, *supra* note 67, at 183-84. For a detailed analysis of computer software copyright protection in the European Community, *see* Platton, *The Council on the Legal Protection of Computer Programs: An Unsatisfactory Balance of Competing Interests*, 7 AM. U.J. INT'L L. & POL'Y 235 (1992).

75. *Administration Efforts to Improve Foreign Protection of U.S. Rights Review by Panel*, INT'L TRADE REP. (BNA), at 1044 (Aug. 13, 1986); *Ways to Improve Foreign Protection Examined by Meeting on GATT*, INT'L TRADE REP. (BNA), at 522 (April 16, 1986).

national copyright law under the national treatment doctrine, the United States also maintains an important position as the locus of many major computer industry copyrights. The development and the current status of United States copyright law, therefore, serve an essential role in defining the scope of copyright protection for computer software and the user interface thereof under international law. Thus, as emphasized by the doctrine of national treatment, the scope of protection for an international copyright may depend entirely upon the copyright law of the United States.

II. THE COPYRIGHTABILITY OF COMPUTER SOFTWARE IN THE UNITED STATES

Article I of the United States Constitution specifically guarantees an exclusive right of copyright to an author's original work.[76] Yet, similar to other developed countries,[77] no common law procedure exists for acquiring a copyright in the United States.[78] Instead, the copyrightability of any particular "original work of authorship" depends entirely upon the will of Congress to pass laws providing copyright protection and delineating the scope of that protection for an original work.[79] Consequently, the copyrightability of computer software and of user interface hinges upon the federal copyright statutes and their interpretations as annunciated in precedent federal case law.

A. SCOPE OF COMPUTER SOFTWARE COPYRIGHT UNDER FEDERAL STATUTE

Throughout the two-hundred year evolution of copyright law in the United States, Congress has expanded and narrowed the scope of federal copyright protection.[80] Since the Copyright Act of 1909 (the 1909

76. U.S. CONST., art. I, § 8, cl. 8; *see id.* (referencing the power of Congress "[t]o 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").

77. *See An International Overview*, *supra* note 68, at 338-42 (explaining how Germany, France, Japan, and Canada extend copyright protection through legislative means); *but see* Davidson, *Common Law, Uncommon Software*, 47 U. PITT. L. REV. 1037, 1067-70 (1986) (arguing that "the common law process is superior to legislative fiat in solving complex [copyright] problems . . . [like] the complexity of [integrating] a new technology like software into our economy").

78. Wheaton v. Peters, 33 U.S. (8 Pet.) 591 (1834).

79. *See* Banks v. Manchester, Ohio, 128 U.S. 244, 252 (1888) (stating that the authority for and extent of a copyright depends entirely upon the legislation of Congress).

80. The First Congress originally sought to construe an all-inclusive listing of copyrightable works. *See* A. LATMAN, COPYRIGHT FOR THE EIGHTIES 4-6 (2d ed. 1985)

Act), however, Congress has merely defined a non-exclusive list of certain "categories" of copyrightable works and has left interpretation of the statute to the courts.[81] The most recent version of the copyright law, the Copyright Act of 1976 (the 1976 Act), likewise extends the same form of generalized copyright protection to copyrightable "categories" of work,[82] defining a copyrightable work as "original works of authorship fixed in any tangible medium of expression."[83]

(reciting congressional adoption of the old Statute of Anne and the courts' strict construction of the Statute in the Act). As the list grew and the sources of copyrightable works expanded, however, a single listing became impracticable. *See also* Baumgarten, *Copyright in High Technology Products and Sensitive Business Information* 1-4 (Sept. 1982), *reprinted in* GILBURNE, INTELLECTUAL PROPERTY RIGHTS IN HIGH TECHNOLOGY PRODUCTS AND IN SENSITIVE BUSINESS INFORMATION 63 (1982) (addressing the development of United States copyright law).

81. Act of Mar. 4, 1909, ch. 320, § 4, 35 Stat. 1075, 1076 (previously codified at 17 U.S.C. § 4, (reprinted in 17 U.S.C.A. App. § 4 (West Supp. 1991)); recodified 1947; repealed 1976).

82. Act of Oct. 19, 1976, Pub. L. 94-553, 90 Stat. 2541 (codified at 17 U.S.C. §§ 101-118).

83. *See* 17 U.S.C. § 102(a) (1988) (delineating the scope of copyright protection under United States copyright law). The Act stipulates:

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

Id. (Emphasis added.)

To clarify the meaning and scope of "works of authorship," the Act includes a list of seven exemplary categories which satisfy the statutory requirements for a copyrightable work under each category. *See* 17 U.S.C. § 102(a) (1988) (setting forth the seven categories of copyrightable works). The Act provides:

> Works of authorship include the following categories: (1) literary works; (2) musical works, including any accompanying words; (3) dramatic works, including any accompanying music; (4) pantomimes and choreographic works; (5) pictorial, graphic, and sculptural works; (6) motion pictures and other audiovisual works; and (7) sound recordings.

Id.

As illustrated by the legislative history, Congress intended the seven categories as "illustrative and not limitative" and "not necessarily exhaust[ing] the scope of 'original works of authorship' that the bill is intended to protect." H.R. REP. No. 1476, 94th Cong., 2d Sess. 53, *reprinted at* 1976 U.S. CODE CONG. & ADMIN. NEWS 5666, 5664. For decisions illustrating a judicial broadening from these seven categories, *see, e.g.*, National Theme Prods., Inc. v. Jerry B. Beck, Inc., 696 F. Supp. 1348, 1354 (S.D. Cal. 1988) (extending copyright protection to the artistic features of masquerade costumes); West Pub. Co. v. Mead Data Cent., Inc., 799 F.2d 1219, 1223-27 (8th Cir. 1986), *cert. denied*, 479 U.S. 1070 (1987) (extending copyright protection to the arrangement of public-domain legal decisions in law reporters); S. Bell Tel. & Tel. Co. v. Associated Tel. Directory Pubs., 756 F.2d 801, 808-11 (11th Cir. 1985) (extending copyright protection to telephone books); Pacific and S. Co. v. Duncan, 744 F.2d 1490, 1494, *reh'g denied*, 749 F.2d 733 (11th Cir. 1984), *cert. denied*, 471 U.S. 1004 (1985) (extending copyright protection to televised news reports).

Although the words "computer software" are not mentioned in the 1976 Act,[84] most federal courts have determined that Congress had intended to place computer software under the first category of copyrightable material, or in the "literary works" category.[85] Under an exacting interpretation of the 1976 Act, however, the copyrightability and scope of computer software[86] remained unclear until the early 1980's.[87]

In 1978, the National Commission on New Technological Uses of Copyrighted Works (CONTU) attempted to resolve the computer software question by recommending that Congress amend the 1976 Act to expressly include copyrightability for computer programs.[88] Two

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84. *See* H.R. REP. NO. 1476, 94th Cong., 2D SESS. 53, *reprinted at* 1976 U.S. CODE CONG. & ADMIN. NEWS 5659, 5666 (describing the meaning and scope of "work of authorship" under the 1976 Act). The "work of authorship" distinction encompasses two categories: first, scientific discoveries and technological developments and second, novels or plays, photographs, sound recordings, and motion pictures. *Id.* at 51, *reprinted at* 5664. Although not specifically mentioned in the 1976 Act, computer software seemingly falls within the first category of copyrightable works. *See* J. LAUTSCH, AMERICAN STANDARD HANDBOOK OF SOFTWARE BUSINESS LAW § 5.3 (1985) (observing that, prior to the 1976 Act, computer programs were regarded as "books" under United States copyright law).

85. *See* 17 U.S.C. § 101 (1988) (describing the meaning of the term "literary work" under the 1976 Act). The 1976 Act provides:

> "Literary works" are works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects such as books, periodicals, manuscripts, phonorecords, film, tapes, disks, or cards, in which they are embodied.

Id.

For a verbatim affirmance of the congressional intent to include computer software within the "literary works" category, *see also* H.R. REP. NO. 1476, 94th Cong., 2D SESS. 54, *reprinted at* 1976 U.S. CODE CONG. & ADMIN. NEWS 5659, 5667 (stating that the term "literary works" includes computer programs); *id.* at 51, *reprinted at* 5664 (establishing that computer programs had been considered copyrightable from the inception of the computer program); *id.* at 116, *reprinted at* 5731 (concluding that the 1976 Act establishes and governs the copyrightability of computer programs).

86. *See* 17 U.S.C. § 102(b) (1988) (providing the official statutory explanation on the scope of copyright under the 1976 Act). Section 102(b) of the 1976 Act states:

> 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.

Id.; *see also* H.R. REP. NO. 1476, 94th Cong., 2D SESS. 57, *reprinted at* 1976 U.S. CODE CONG. & ADMIN. NEWS 5670 (describing how section 102(b) protects the expression of the programmer as embodied in the software product but not the actual processes or methods implemented in order to achieve the desired result in the program); *id.* at 54, *reprinted at* 5667 (establishing that a copyright protects the programmer's expression of original ideas but not the ideas alone).

87. *See* Raskind, *The Uncertain Case for Special Legislation Protecting Computer Software*, 47 U. PITT. L. REV. 1131, 1136 n.13 (1986) [hereinafter Raskind] (citing congressional failure or inability to resolve the treatment of computer software under the 1976 Act).

88. Even before the completion of the 1976 Act, Congress had realized the technical problems surrounding the copyright of computer software. As a result, in order to

years later, Congress adopted the CONTU recommendations almost verbatim in the Computer Software Copyright Act of 1980 (the 1980 Act).[89] This Act promulgated the definition of a computer program as a "set of statements or instructions to be used directly or indirectly in a computer in order to bring a certain result."[90]

Since the promulgation of the 1980 Act, the post-CONTU federal copyright statutes have not addressed the copyrightability of user interface for computer software.[91] Federal case law, however, includes persuasive arguments both for and against the extension of federal copyright law to the *nonliteral* manifestations of computer software.[92]

B. Scope of Computer Software Copyright under Federal Case Law

After *Apple Computer, Inc. v. Franklin Computer, Corp.*[93] established copyrightability for the program code of computer programs (the literal elements of a computer program), questions arose regarding the copyrightability of the nonliteral aspects of computer software.[94] The first cases involved the copyrightability of a computer program's screen

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more adequately address the issues regarding high technology copyright, Congress authorized the President to create the National Commission on New Technological Uses of Copyrighted Works (CONTU) in December of 1974. *See* Act of Dec. 31, 1974, Pub. L. 93-573, tit. II, 88 Stat. 1873 (1974) (charging that the commission should recommend new laws or procedures to ensure the protection of copyrighted works on automatic systems capable of information storage, processing, transfer, and retrieval). In July of 1978, CONTU released its report and recommendations. National Commission on New Technological Uses of Copyrighted Works, Final Report and Recommendations (1978), *reprinted in* 5 Copyright, Congress and Technology: The Public Record (N. Henry, ed. 1980) [hereinafter *CONTU Report*].

The CONTU Report concluded that the success of a competitive market in computer software necessitated the availability of adequate copyright protection. *See CONTU Report*, *supra*, at 20-21. Yet, the Commission avoided any recommendations regarding the copyrightability of the nonliteral aspects of computer software. For an analysis of the personal views of the CONTU commissioners regarding the copyrightability of nonliteral manifestations of computer software, *see* Note, *Idea, Process, or Protected Expression?: Determining the Scope of Copyright Protection of the Structure of Computer Programs*, 88 Mich. L. Rev. 866, 889-90 (1990) [hereinafter *Determining the Scope of Copyright Protection*] (noting that Melville Nimmer, Vice-Chairperson of CONTU favored, and Commissioner Arthur Miller and Executive Director Arthur Levine opposed, copyrightability for the nonliteral manifestations of computer software).

89. 17 U.S.C. § 101 (1988).

90. *Id.*

91. *See* Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 50 (D. Mass. 1990).

92. *Id.* at 55.

93. *See* Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240, 1249-51 (3d Cir. 1983) *cert. dismissed*, 464 U.S. 1033 (1984).

94. *See* Raskind, *supra* note 87, at 1158-59.

displays as "audiovisual works."[95] These initial cases, however, failed to address the broader issue of whether a computer program's original copyright protection extends to all aspects of the computer program, including the user interface, or solely to the program code. If copyright protection in fact extends to the user interface of computer software, the second issue would involve the scope of that protection. The following cases outline the development of federal precedent case law regarding these two issues.

1. Synercom Tech., Inc. v. University Computing Co.

In *Synercom Technology Inc. v. University Computing Co.*,[96] the federal court for the northern district of Texas first addressed the issue of copyright for the nonliteral manifestations of a computer program. The dispute originated in 1969, when Synercom Technology, Inc. (Synercom) developed new input formats for IBM's Framed Structure Analysis Program (FRAM) and, after modification, produced and copyrighted a more advanced version of the program called STRAN.[97] In 1974, Engineering Dynamics, Inc. (EDI) developed a compatible STRAN program called SACS II.[98] University Computing Company (University) joined EDI in 1976, after University's contract to provide hardware to Synercom expired. Synercom subsequently filed a copyright infringement suit against EDI and University, claiming that the SACS II program improperly copied STRAN's input formats and manuals.[99]

The *Synercom* court addressed the copyright infringement claim by considering the copyrightability of input formats under an idea/expression analysis.[100] Rejecting the mere "format" of a computer program as the proper subject matter of copyright protection, the *Synercom*

95. *See, e.g.*, Williams Elecs., Inc. v. Artic Int'l, Inc., 685 F.2d 870, 74 (3rd Cir. 1982); Stern Elecs., Inc. v. Kaufman, 669 F.2d 852, 855 (2d Cir. 1982); Midway Mfg. Co. v. Strohan, 564 F. Supp. 741, 746 (N.D. Ill. 1983) (finding in each of these cases that a computer program's screen display for a video game is separately copyrightable as an audiovisual work).

96. 462 F. Supp. 1003 (N.D. Texas 1978).

97. *Id.* at 1005-07. Like the FRAM program, STRAN solved engineering problems incident to structural analyses. With the new input formats, however, the new STRAN version allowed for more user friendly access. *Id.* at 1006. To ensure full protection of the STRAN program, Synercom copyrighted the new input formats as well as the complete STRAN program. *Id.* at 1006-07.

98. *Id.* at 1008.

99. *Id.* at 1008-09.

100. *Id.* at 1011-12. For an overview and analysis of the idea/expression analysis, *see infra* notes 173-80 and accompanying text (describing the *Baker v. Seldan* approach to copyrightability for ideas and/or expressions).

court concluded that the "order and sequence" of a computer program precluded copyright protection under United States law.[101] *Synercom* thus represented the first case to expressly reject copyright protection of the user interface of computer software.

2. Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc.

In August of 1986, in *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*,[102] a Pennsylvania district court considered the copyrightability of the nonliteral elements of a computer program. Whelan Associates, Inc. (Whelan) owned the copyright to a dental program called DENTALAB, designed to aid in the administration of dental prosthetics laboratories.[103] Three years after the completion of DENTALAB, written in a computer language called EDL, Rand Jaslow developed a similar program called DENTCOM,[104] which was written in BASIC.[105] Whelan sued Jaslow claiming that DENTCOM had infringed upon certain copyrightable, yet nonliteral, elements of the DENTALAB program.[106]

The *Whelan* court relied primarily upon the *Arnstein v. Porter*[107] substantial similarity test, instead of *Synercom*'s idea/expression distinction, to distinguish the DENTALAB from the DENTCOM pro-

101. *Id.* at 1013-14. Judge Higgenbotham did state that copyright protection extends to "cases of literary or artistic works, and works of similar character, in which the form, arrangement or combination of ideas represents the product of labor and skilled effort *separate and apart from that entailed in the development of the intellectual conception involved.*" *Id.* at 1014 (quoting Long v. Jordan, 29 F. Supp. 287, 288 (N.D. Cal. 1939)). Finding that the execution format of a computer program seemingly "merges" with the idea of the program, however, Judge Higgenbotham rejected the copyright of a "format." *Id.* The court nevertheless concluded: "[i]t 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." *Id.* (Emphasis in original.)

102. 797 F.2d 1222 (3d. Cir. 1986).

103. *Id.* at 1225-26. DENTALAB, written in a computer language known as Event Driven Language (EDL), was compatible only with the IBM Series One computers. *Id.* at 1126.

104. *Id.* at 1225-26. The concept of DENTALAB represented a joint venture of two authors, including Rand Jaslow's ideas and Elaine Whelan's EDL programming ability. *Id.*

105. *Id.* at 1226. The BASIC version was designed to work specifically with the newer IBM PC, and was incompatible with the IBM Series One computers. *Id.*

106. *Id.* at 1227. As a BASIC program, DENTCOM contained an entirely different source and object code than DENTALAB, which as written in EDL. Whelan sued not for the literal copying of the program, however, but for the copying of the organization of the DENTLAB program by the author of DENTCOM. *Id.*

107. 154 F.2d 464 (2d Cir. 1946).

grams as well as to evaluate the copyright infringement claim.[108] Although *Whelan* recognized the use of two different computer languages (i.e., EDL and BASIC), the court determined that the "structure, sequence, and organization" of the DENTALAB program represented copyrightable expression, a copyright which DENTCOM had violated.[109] By affirming this copyright infringement action, *Whelan* first established copyrightability for the nonliteral aspects of a computer program.

3. Broderbund Software, Inc. v. Unison World, Inc.

In October of 1986, in *Broderbund Software, Inc. v. Unison World, Inc.*,[110] a California district court addressed the dual issues of copyright for nonliteral manifestations in computer software as well as the copyrightability of audiovisual displays in computer programs. In 1984, Broderbund Software (Broderbund) began marketing THE PRINT

108. *Whelan*, 797 F.2d at 1232-33. The *Whelan* court outlined the various analyses by which substantial similarity has been adjudged. *Id.* Citing the most applied test from Arnstein v. Porter, 154 F.2d 464 (2d Cir. 1946), the *Whelan* court fully described the application of the two-prong *Arnstein* substantial similarity test. *Id.* The two-part *Arnstein* test first applies an "extrinsic" test, determining whether a substantial similarity exists between the two works in question to conclude whether the alleged infringer applied a copyrighted work. *Id.* at 1232. Second, if the first test results in an affirmative finding, the *Arnstein* test applies an "intrinsic" test which considers, based on an ordinary or lay observer's perspective, whether the alleged infringer made an unlawful copy of the copyrighted work. *Id.* The court recognized, however, that some substantial similarity analyses involve solely the first part of the *Arnstein* test, because the complex nature of computer programs call for experts in the judicial decision-making process. *Id.* at 1232-33. As a result, the *Whelan* court adopted a single substantial similarity inquiry, thus allowing both lay and expert testimony for judicial consideration. *Id.* at 1233. For earlier applications of the modified *Arnstein* tests of substantial similarity as used by the *Whelan* court, *see* E. F. Johnson Co. v. Uniden Corp., 623 F., Supp. 1485, 1493 (D. Minn. 1985) (noting the abandonment of the lay observer test); Hubco Data Prods. Corp. v. Management Assistance Inc., 2 Copyright L. Rep. (CCH) ¶ 25,529 (D. Idaho Feb. 3, 1983) (relying on expert testimony); Midway Mfg. Co. v. Strohon, 564 F. Supp. 741, 752-53 (N.D. Ill. 1983) (relying on expert testimony also).

109. *Whelan*, 154 F.2d at 1233-42. In the final analysis, the *Whelan* court applied an idea/expression analysis to determine the copyrightability of the nonliteral elements of the dental program. *Id.* The court applied the modified *Arnstein* test solely to its determination of substantial similarity. *Id.* at 1232-33. Under the idea/expression distinction, *Whelan* found that DENTCOM had improperly copied the file structure, screen displays, and certain subroutines of the DENTALAB program. *Id.* at 1242-48. The *Whelan* court, therefore, recognized the copyrightability of the "structure, sequence, and organization" of computer software. *Id.* at 1248.

It is widely accepted that the *Whelan* opinion, specifically the court's reference to the "structure, sequence, and organization" of a computer program, has been widely held as one of the most influential cases regarding copyright for computer software.

110. 648 F. Supp. 1127 (N.D. Cal. 1986).

SHOP, a computer software printing program.[111] Soon after selling 500,000 copies of the program, Unison World Inc. (Unison) approached Broderbund regarding the creation of an IBM version of the popular program.[112] An agreement, however, was never reached.[113] Unison eventually released a very similar program called THE PRINTMASTER, and Broderbund subsequently sued Unison for infringement under two theories of copyright.[114]

Broderbund argued that the screen displays in THE PRINT SHOP gained copyright protection under the "pictorial or graphic works" section of the 1976 Act.[115] The *Broderbund* court agreed, finding substantial aesthetic value in the screen displays as a form of expression, and holding that both the textual and graphical screen representations of THE PRINT SHOP were copyrightable under a single copyright as a literary work.[116] Additionally, the court affirmed Broderbund's copyright infringement claim regarding Unison's sequence, structure, and organization of THE PRINT SHOP program.[117] For the first time in

111. *Id.* at 1130. THE PRINT SHOP program, designed for the APPLE II computer, produced customized greeting cards, signs, banners, and posters. *Id.*

112. *Id.* at 1130-31.

113. *Id.* When negotiations broke down, however, Unison programmers had already completed initial development of the IBM version. *Id.* at 1130-31.

114. *Id.* at 1131. With the addition of several "advanced" features, and without the permission of Broderbund, Unison released the IBM version under the name THE PRINTMASTER. *Id.* Broderbund subsequently sued Unison for copyright infringement of the audiovisual displays as well as the sequence, structure, and organization of THE PRINT SHOP program. *Id.* at 1134.

115. *Id.* at 1133 (citing 17 U.S.C. § 101 (1977)). Unison countered that the graphic screens of a computer program fall outside the scope of the 1976 Act. *Id.* at 1134.

116. *Id.* at 1133-34. The *Broderbund* court applied an analysis similar to the useful, functional article component of the idea/expression dichotomy as applied in *Synercom*—determining whether the screen displays of THE PRINT SHOP constituted artistic or utilitarian work. *Id.*

117. *Id.* at 1138. The *Broderbund* court cited a two-part analysis in determining the existence of copyright infringement. *Id.* at 1135-36. Copyright infringement may be established by (1) proof of access and (2) proof of substantial similarity. *Id.* Under the "access" test, a court determines whether the alleged infringer possessed a means of access to the copyrighted work. *Id.* at 1136. The *Broderbund* court stated that mere lack of access to the source or object code, or the literal elements of a computer program, nevertheless failed to preclude a lack of access. *Id.* Under the "substantial similarity" component of the *Broderbund* two-part test, the court then applied the two-part *Arnstein* analysis, using both the "extrinsic" and "intrinsic" considerations. *Id.* at 1136-37. The court specifically rejected the "modified *Arnstein* test," or the integrated substantial similarity test, as applied in *Whelan. Id.* at 1136.

After setting forth the standards, however, the *Broderbund* court avoided any copyright analysis because of the direct evidence of Unison's copying of the Broderbund product. *Id.* at 1135. In fact, Unison admitted copying THE PRINT SHOP in creating THE PRINTMASTER. *Id. See also* Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240, 1245 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984)

United States copyright history, therefore, a federal district court had approved as copyrightable the screen display of a computer program.

4. Digital Comms. Assocs., Inc. v. Softklone Distrib. Corp.

In 1987, a Georgia district court, in *Digital Communications Associates, Inc. v. Softklone Distributing Corp.*,[118] considered a case similar to *Broderbund*. In 1983, Microstuff, Inc., later acquired by Digital Communications Associations, Inc. (Digital), created and marketed CROSSTALK XVI,[119] an asynchroneous data communications system.[120] Realizing the success of CROSSTALK XVI,[121] Foretech Development Corporation (Foretech) developed MIRROR, a clone of the successful CROSSTALK XVI. Based upon the substantial similarity of the interface menus in the programs,[122] as well as the main menu structure, Digital sued Foretech for copyright infringement of the CROSSTALK XVI program.[123]

The *Softklone* court completely rejected the *Broderbund* decision, concluding that the "copyright protection of a computer program does not extend to screen displays generated by the program."[124] *Softklone* nevertheless affirmed the infringement action based on the substantial similarity[125] of the two main menu screens[126] by finding a valid copy-

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(describing how Franklin admitted copying the program codes of the APPLE II series of computers); Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 68-70 (detailing how Paperback admitted copying the user interface of LOTUS 1-2-3).

118. 659 F. Supp. 449 (N.D. Ga. 1987).

119. *Id.* at 452-53. The most distinctive feature of CROSSTALK XVI involves its "status screen" screen display, or main menu. *Id.* The main menu involves several distinctive elements, including a "window" and "command line." *Id.*

120. *Id.* at 452. An "asynchroneous data communications system" enables a computer to communicate with other computers via a modem. *Id.*

121. *Id.* at 453. CROSSTALK XVI became extremely successful, representing the benchmark of IBM modem programs.

122. *See id.* (describing the substantial similarity between the two programs at issue). Although utilizing original programming code and documentation, the MIRROR computer program included a main menu almost identical to the screen display of CROSSTALK XVI. *Id.*

123. *Id.* at 453-54. Digital possessed three separate copyrights to the CROSSTALK XVI program, including a copyright to: (1) the user manual; (2) the computer program; and (3) the main menu screen. *Id.*

124. *Id.* at 455. The court reasoned:

> [A] computer program's copyright protection does not extend to the program's screen displays and that copying of a program's screen displays, without evidence of copying the program's source code, object code, sequence, organization or structure, does not state a claim of infringement.

Id. at 456.

125. *See id.* at 456-64 (presenting a novel approach to the copyright question by analyzing the separate copyright of a main menu display as a form under the idea/expression distinction and as a "compilation"). This dual analysis in determining the copyrightability for the nonliteral elements of a computer program remains quite

right for CROSSTALK XVI's menu display.[127] *Softklone*, however, failed to resolve the question regarding the copyrightability of user interface within computer software, because neither the *Broderbund* nor *Softklone* courts specifically addressed copyright for the nonliteral manifestations of computer software.

C. The Legal Tests for the Copyrightability of User Interface in Computer Software

After the Copyright Act of 1909, Congress delegated interpretative authority to the federal courts in determining the scope of United States copyright protection.[128] Under this charge, the federal courts have created various analytical techniques, or judicial "tests," to interpret the statutory meaning of the copyright laws.[129] The idea/expression distinction of *Synercom*, the *Arnstein v. Porter* test of *Whelan*, the substantial similarity tests of *Broderbund*, and the unique analysis of *Softklone* all illustrate the variety of judicial means used to resolve the copyright question.[130] Clearly, the judicial interpretation of the copyright laws in the United States remains anything but uniform.

In *Offshore Logistics Inc. v. Tallentire*,[131] Justice O'Connor outlined four basic considerations in the judicial interpretation of any statute.[132] According to Justice O'Connor, these four factors should demonstrate the basis of copyright law as construed under the 1976 and 1980 Acts.[133] They include: (1) the "provisions of the whole law";[134] (2) the

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unique and was dismissed out-of-hand by the *Lotus* court. *See infra* notes 163-80 and accompanying text (describing the legal approach of the *Lotus* court in determining the copyrightability of user interface in computer software).

126. *See id.* at 465 (discussing the similarity between the two screens).

127. *Id.* The court noted how "the status screen, even if found to be a 'form,' clearly expresses and conveys information and, therefore, is copyrightable." *Id.* at 462.

128. *See supra* notes 76-92 and accompanying text (providing a synopsis of United States copyright law).

129. *See supra* notes 93-127 and accompanying text (discussing the variety of legal tests applied in determining the scope of United States copyright law).

130. *Id.*

131. 477 U.S. 207 (1986).

132. *Id.* at 221.

133. *Id.*

134. *Id.* The first factor of the O'Connor test involves "the provisions of the whole law" analysis. *Id.* (quoting United States v. Heirs of Boisdore, 8 U.S. (1 How.) 113, 122 (1849)). A federal court would find little real assistance in ascertaining the copyrightability of user interface in a computer program under the "provisions of the whole law" analysis, as the *Lotus* decision represents the first case to directly address this issue. *See* Edelman, *Judge Rules Rival Copied Portion of Lotus' 123*, The Boston Globe, June 29, 1990, at 21 (noting that *Lotus* was the first case to deal with the copyrightability of computer interface programs); *see also Offshore*, 477 U.S. at 221 (citing Mastro Plastics Corp. v. NLRB, 350 U.S. 270, 285 (1956)) (declaring that "[i]n expounding a statute, we must not be guided by a single sentence or member of a

sentence, but look to the provisions of the whole law.") (quoting United States v. Heirs of Boisdore, 8 U.S. (1 How.) 113, 122 (1849)). Moreover, as *Apple Computer* and *Whelan* both demonstrate, all literal and some specific, nonliteral manifestations of a computer program gain copyright protection. *See supra* notes 12-14 and accompanying text (describing case law approving the copyright of literal manifestations of computer software and of the nonliteral structure, sequence, and organization of a computer program). With regard to user interface, however, the copyright statutes provide no clear direction, except perhaps by comparing the scope of copyright for computer software to other types of "literary works." *See infra* notes 139-41 (discussing the scope of copyright protection afforded to other types of "literary works").

The scope of copyright for musical, dramatic, or motion picture works, for example, involves more than mere duplication of the text, that is, more than just an infringement of the literal work. *See* M. NIMMER, NIMMER ON COPYRIGHT § 13.01[B], 13-8 (1983) (explaining that copyright infringement also includes the doctrine of substantial similarity). The substantial similarity doctrine represents the basic ingredient of a copyright infringement action, that is, are the two works in question "substantially similar" to the ordinary observer. *See* BOORSTYN, *supra* note 22, at § 10:14, at 291-93 (signifying the doctrine of substantial similarity as the sine qua non of all infringement actions); *see also* Just In-Materials Designs, Ltd. v. First Choice Fabrics, Inc., 8 U.S.P.Q.2d 1090, 1091 (S.D.N.Y. 1988) (applying the ordinary observer test to a case of substantial similarity between fabric designs); *see generally* Dorsen, *Satiric Appropriation and the Law of Libel, Trademark, and Copyright: Remedies Without Wrongs*, 65 B.U.L. REV. 923, 954 (1985) (addressing the scope of the doctrine of substantial similarity in copyright infringement). Indeed, copyright infringement also occurs if one work demonstrates a substantial similarity to another work's original expression of setting, characters, or plot. For affirmations that copyright infringement of nonliteral expression occurs if another work duplicates the expression of an original work of authorship through substantial similarity, *see* Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930), *cert. denied*, 282 U.S. 902 (1931) (emphasizing that copyright "cannot be limited literally to the text, else a plagiarist would escape by immaterial variations"); Sheldon v. Metro-Goldwyn Pictures Corp., 81 F.2d 49, 55 (2d Cir.), *cert. denied*, 298 U.S. 669 (1936) (finding that "a play may be pirated without using the dialogue"); Detective Comics, Inc. v. Bruns Publications, Inc., 111 F.2d 432, 433 (2d Cir. 1940) (concluding that the comic book "Wonderwoman" infringed upon the copyright in the comic series "Superman"); Bradbury v. Columbia Broadcasting Sys., Inc., 287 F.2d 478, 482-84 (9th Cir.), *cert. dismissed*, 368 U.S. 801 (1961) (discovering twenty-two nonliteral similarities, and thus copyright infringement, by THE FIREMEN with regard to FAHRENHEIT 451); Roth Greeting Cards v. United Card Co., 429 F.2d 1106, 1109-11 (9th Cir. 1970) (indicating copyright infringement as a result of the substantial similarity between certain nonliteral expressive elements embodied in playing cards); Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp., 562 F.2d 1157, 1162-69 (9th Cir. 1977) (finding copyright infringement based on substantially similar characteristics in the locale, characters, and plot of a commercial to a children's television series); Twentieth Century-Fox Film Corp. v. MCA, Inc., 715 F.2d 1327, 1329 (9th Cir. 1983) (declaring possible copyright infringement in the similarities between the motion picture "Star Wars" and the motion picture and derivative television series, "Battlestar Galactica"); Horgan v. Macmillan, Inc., 789 F.2d 157, 163 (2d Cir. 1986) (maintaining a credible copyright dispute regarding the choreography of The Nutcracker ballet and a book of substantially similar photographs of the ballet); Stewart v. Abend, 110 S. Ct. 1750, 1769 (1990) (concluding that a motion picture may infringe a book by using substantially similar settings, characters, plots, and sequences of events). Hence, in comparing the scope of copyrightability for "literary works" to the scope of copyrightability for computer software, a clear parallel exists between the copyright of a theatrical setting, character, or plot and a computer program's structure, sequence, and organization. *See* Whelan Assocs., Inc. v. Jaslow

"will of Congress";[135] (3) the "object and policy";[136] and (4) the "im-

Dental Laboratory, Inc., 797 F.2d 1222, 1242-48 (relating the substantial similarity doctrine to computer software). On the other hand, all courts have not accepted this premise. *See* NEC Corp. v. Intel Corp., 10 U.S.P.Q.2d 1177, 1178-80 (N.D. Cal. 1989) (rejecting the substantial similarity argument for the copy of a microprocessor because of the limited range of possible expression); Frybarger v. Int'l Bus. Mach. Corp., 812 F.2d 525, 529-30 (9th Cir. 1987) (rejecting the substantial similarity argument for the copyrightability of two video games because of the limited range of possible expression).

135. *Offshore*, 477 U.S. at 221. The second factor of the O'Connor test considers the intent of the statute as demonstrated by the "will of Congress"; that is, the legislative history of the Act. *Id.* In determining the scope of copyright for computer software, however, this aspect seems improbable under the Copyright Act of 1976 because the Act does not mention computer software. *See supra* notes 80-127 and accompanying text (discussing the scope of computer software copyright protection under federal statute and federal case law). Moreover, as a result of Congress' essentially verbatim adoption of the CONTU Report in the Computer Software Act of 1980, little evidence of actual congressional intent exists. *See supra* notes 80-92 and accompanying text (discussing the history of CONTU and the basis of the 1980 Act).

Faced with this complete absence of legislative history for computer software copyright, some courts have adopted the minutes of CONTU as the applicable legislative history. *See, e.g.*, Micro-Sparc, Inc. v. Amtype Corp., 592 F. Supp. 33, 35 n.7 (D. Mass. 1984) (applying the CONTU Report as authority for legislative history); Midway Mfg. Co. v. Strohon, 564 F. Supp. 741, 750 n.6 (N.D. Ill. 1983) (using the CONTU Report as authority for legislative history); Apple Computer, Inc. v. Formula Int'l, Inc., 725 F.2d 521, 524-25 (9th Cir. 1984) (citing the CONTU Report as authority for legislative history); Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240, 1251 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984) (deeming the CONTU Report as authority for legislative history). Although CONTU considered a variety of issues surrounding the copyrightability of computer software, neither the final report nor the committee history addressed the copyrightability of user interface. *Whelan*, 797 F.2d at 1241. In addition, the most recent federal decisions on computer software copyright have completely rejected the use of CONTU as applicable legislative history. *See Lotus*, 740 F. Supp. at 54 (declaring that "courts must not treat the CONTU Report as legislative history"); *Whelan*, 797 F.2d at 1240-42 (finding no evidence that the CONTU Report represents the will of Congress).

136. *Offshore*, 477 U.S. at 221. The third part of the O'Connor test regards the "object and policy" of the statute. *Id.* The object and policy behind United States copyright law is the ultimate goal of stimulating artistic creativity for the general public good. *See* Harper & Row Pubs., Inc. v. Nation Enters., 471 U.S. 539, 546 (1985) (warning that copyright seeks not to reward authors and inventors but to serve the public welfare by encouraging new and innovative ideas); Sony Corp. of America v. Universal City Studios, Inc., 464 U.S. 417, 432, *reh'g denied*, 465 U.S. 1112 (1984) (recognizing that the ultimate aim of copyright entails the stimulation of artistic creativity for the general public good) (citing Fox Film Corp. v. Doyal, 286 U.S. 123, 127 (1932)); Mazer v. Stein, 347 U.S. 201, 219, *reh'g denied*, 347 U.S. 949 (1954) (recognizing that the encouragement of authors and inventors to quest for personal gain constitutes the best means to advance the public welfare); *see also* Twentieth Century Music Corp. v. Aiken, 422 U.S. 151, 156 (1975) (declaring that "[t]he 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 general public good"); Fox Film Corp. v. Doyal, 286 U.S. 123, 127 (1932) (concluding that "[t]he sole interest of the United States and the primary object in conferring the monopoly [of copyright] lie in the general benefits derived by the public from the labors of authors"). At the same time, by granting an author the monopoly of copyright protec-

portance of uniformity."[137] The O'Connor test, however, does not encompass the copyrightability of user interface in computer software be-

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tion, the copyright laws also seek to encourage authors to generate new ideas, and similarly to feel free to share those ideas with the public. *See* Sony Corp. v. Universal City Studios, Inc., 464 U.S. 417, 429, *reh'g denied*, 465 U.S. 1112 (1984) (stating that United States copyright law "is intended to motivate the creative activity of authors and inventors by the provision of a special reward, and to allow the public access to the products of their genius after the limited period of exclusive control has expired"). To facilitate this cooperation between the author and the public, Congress protects the work of the author, and the author simultaneously gains a means by which he or she may reap a monetary or existential reward. Copyright thus advances, and likewise balances, these two important "objects and policies": the benefit of the public welfare and the reward to the author or inventor.

In the judicial interpretation of the United States copyright laws, courts have counterbalanced these two aspects of copyright. This balancing obligation was initially defined by the Supreme Court in Baker v. Seldan, 101 U.S. 99 (1879). In *Baker*, the court determined that the text of a book explaining a special method of accounting constituted copyrightable expression, but that the actual accounting method equated an idea and thus maintained no copyrightable status. *Id.* at 105-06. This idea/expression dichotomy relied on the distinction between a noncopyrightable idea and copyrightable expression. *See* Comment, Manufacturers Technology Inc. v. Cams, Inc.—*The Legal Fiction Created by a Single Copyright Registration of a Computer Program and its Display Screens*, 65 NOTRE DAME L. REV. 536, 547-50 (1990) (discussing the difficulty by which courts have applied the nebulous idea/expression distinction). The author of the Comment states:

> The idea/expression dichotomy is best understood by reviewing Professor Nimmer's example of Shakesphere's 'Romeo and Juliet.' In that work, the 'idea' is a romance 'between members of two hostile families.' This idea is not protected by copyright. However, the story line, dialogue, setting and characterization are all expressions of the idea and are protected by copyright.

Id. at 543 n.54 (quoting M. Nimmer, 3 NIMMER ON COPYRIGHT § 13.03[A] (1989)).

This idea/expression dichotomy illustrates the core issue in ascertaining whether the nonliteral manifestations of a computer software program, such as the user interface, gain copyrightable status. *See CONTU Report*, *supra* note 88, at 54, 57 (recognizing that the expressive elements of computer software programs gain copyrightable status but not the ideas, processes, and methods embodied in the programs). CONTU cited the importance of the idea/expression distinction and the difficulty in such decisions. *Id.* at 37-46. *See also Lotus*, 740 F. Supp. at 68 (applying the idea/expression distinction to the question of copyright for user interface, as opposed to the more common "look and feel" doctrine).

137. *Offshore*, 477 U.S. at 221. The fourth aspect of the O'Connor test describes the importance of judicial uniformity in statutory interpretation. *Id.*; *see Lotus*, 740 F. Supp. at 18 (applying only the first three of O'Connor's four part test of statutory interpretation). Prior to *Lotus*, no other federal court had specifically addressed the question of copyright for the user interface of computer software. With regard to copyright for the broader issues regarding nonliteral manifestations, the decisions have been mixed. *Compare* Synercom Tech., Inc. v. Univ. Computing Co., 462 F. Supp. 1003, 1012-14 (N.D. Tex. 1978) (rejecting copyright for the "order and sequence" of a computer program) *with* Broderbund Software, Inc. v. Unison World, Inc., 648 F. Supp. 1127, 1131-34 (N.D. Cal. 1986) (approving copyright for the screen formats of a computer program) *and* Digital Comms. Assocs., Inc. v. Softklone Distrib. Corp., 659 F. Supp. 449, 454-57 (N.D. Ga. 1987) (rejecting copyright for the status screen under a computer program copyright but approving copyrightability of the subject matter under the screen display copyright).

cause the test requires precedent upon which to establish the relevance of statutory authority.

Prior to the *Lotus* decision, the "look and feel" test represented the theory which described the predominate copyright analysis for cases of computer software copyright infringement.[138] This "look and feel" determination is analagous to a similar concept pertaining to the nonliteral aspects of musical, dramatic, or motion picture works, or the "total concept and feel" test.[139] Under this determination, a court considers whether one musical, dramatic, or motion picture work has infringed upon the total concept and feel of another work by comparing setting, characters, plot, and other essential components of the specific work in question.[140] Significantly, ample case law exists by which a court may decide the total concept and feel of two or more similar musical, dramatic, or motion picture works.[141] Only limited federal precedent exists, however, to adjudge the "look and feel" doctrine. As a result, the *Lotus* court designed a new, yet comprehensive, test to determine when the elements of one computer program have infringed upon the copyrightable elements of another.[142]

III. *LOTUS DEV. CORP. v. PAPERBACK SOFTWARE INT'L*

In *Lotus*, Judge Robert E. Keeton considered a variety of copyright tests to determine the scope of copyright protection for the user inter-

138. *See Whelan*, 797 F.2d at 1246-47 (determining that copyright protection extends to the audiovisual displays of a computer program, or overall "look and feel" of the work); Telemarketing Resources v. Symantec Corp., 12 U.S.P.Q.2d 1991, 1993 (N.D. Cal. 1989) (extending copyright protection to user interface as embodied in pull-down menus, but not determining substantial similarity between the two programs).

139. 3 M. NIMMER & D. NIMMER, NIMMER ON COPYRIGHT § 13.03[A][1] (1989). *See* Roth Greeting Cards v. United Card Co., 429 F.2d 1106, 1110 (9th Cir. 1970) (basing substantial similarity on the "total concept and feel" of the work); Sid & Marty Krofft Television v. McDonald's Corp., 562 F.2d 1157, 1167 (9th Cir. 1977) (including the "total concept and feel" analysis as a component of the substantial similarity standard).

140. *See* National Theme Prods., Inc. v. Jerry B. Beck, Inc., 696 F. Supp. 1348, 1352-56 (S.D. Cal. 1988) (establishing copyright infringement under the total concept and feel test based on costume design); Barris/Fraser Enters. v. Goodson-Todman Enters., Ltd., 5 U.S.P.Q.2d 1887, 1888 (S.D.N.Y. 1988) (finding copyright infringement of a game show under the "total concept and feel" test based on original selection, organization, and presentation as well as the format, appearance, structure, or essence); Chuck Blore & Don Richman, Inc. v. 20/20 Advertising, Inc., 674 F. Supp. 671, 679-80 (D. Minn. 1987) (recognizing the copyright infringement of a television commercial based on the rapid-edit and close-up techniques).

141. *See supra* notes 139-41 (describing the cases which have applied the "total concept and feel" test to copyright infringement claims of musical, dramatic, or motion picture works).

142. *See infra* notes 163-80 and accompanying text (describing the *Lotus* test, or the modified *Baker* test).

face in computer software.[143] In the end, however, Judge Keeton applied a three-part idea/expression copyright test based upon the Supreme Court case of *Baker v. Seldan*.[144] Under this unique test, the *Lotus* court ruled that copyright protection does in fact extend to the user interface of computer software.[145]

A. THE FACTS

In 1978, a first-year Harvard Business School student named Daniel Bricklin invented the first electronic spreadsheet program called VISICALC.[146] While VISICALC[147] initially reaped great commercial success,[148] the program (originally designed solely for the APPLE II computer) remained severely limited both in function and flexibility.[149] In 1981, when Bricklin developed a new version of VISICALC for the IBM PERSONAL COMPUTER (PC), the program still failed to fully exploit all the capabilities of the IBM PC.[150]

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143. 740 F. Supp. 37 (D. Mass. 1990). Composing a comprehensive opinion, Judge Keeton's decision provides extensive background on the history of United States copyright law, the development of copyright protection for computer software, the scope of computer software copyright, the history and success of Lotus and the LOTUS 1-2-3 program, and a detailed analysis regarding every aspect of the Lotus claim of copyright infringement against Paperback's VP-PLANNER. To adequately study Judge Keeton's significantly detailed opinion, this Note addresses each of these considerations in turn.

144. 101 U.S. 99 (1879).

145. *See infra* notes 160-97 and accompanying text (explaining the rationale and analysis of the *Lotus* court's decision).

146. *See The Smash Hit of Software*, TIME, Mar. 2, 1981, at 68 (explaining the history of VISICALC); *Software's Greatest Hits*, FORTUNE, June 29, 1981, at 86 (discussing the success of VISICALC).

147. *See Lotus*, 740 F. Supp. at 65-68 (providing a history and description of the evolution of the United States electronic spreadsheet industry). As the first electronic spreadsheet program ever invented, VISICALC employed a number of processes which subsequent electronic spreadsheets have also utilized. *Id.* at 65. All electronic spreadsheets, for example, employ the rotated "L" screen display with either letters or numbers designating the rows and columns of the spreadsheet; the slash key ("/") to invoke the command choices; the "two-line moving-cursor menu" to access commands; and the placement of the command choices either above or below the spreadsheet form. *Id.* One significant exception includes Microsoft's EXCEL for Apple's MACINTOSH computer which utilizes pull-down menus. *Id.*; *see also* Note, *Single Copyright Registration for Computer Programs: Outdated Perceptions Byte the Dust*, 54 BROOKLYN L. REV. 965, 979-81 nn.62-73 (1988) (considering and comparing LOTUS 1-2-3 to VP-PLANNER and THE TWIN).

148. *See How Programmers Get Rich*, TIME, Dec. 13, 1982, at 56 (describing how, in only three years, over 400,000 copies of VISICALC were sold at $495 a piece).

149. *See Lotus*, 740 F. Supp. at 65 (discussing the limitations of the VISICALC program as designed for the APPLE II computer); *see also* J. GRUSHCOW, VISICALC EXTENSIONS FOR THE APPLE II AND APPLE IIE v-vi (1984) (describing the applications of VISICALC for the APPLE II and APPLE IIe computers).

150. *Lotus*, 740 F. Supp. at 66.

Realizing the need for a more powerful and flexible electronic spreadsheet program for the PC, Mitchell Kapor and Jonathan Sachs in 1982 created and authored the original version of LOTUS 1-2-3.[151] The original program utilized many of the ideas from VISICALC[152] but organized and processed them in an entirely different way.[153] The LOTUS 1-2-3 spreadsheet program soon became the benchmark of all IBM PC spreadsheet programs.[154] As with most successful products, other software developers attempted to benefit from the success of the LOTUS 1-2-3 spreadsheet program.[155] Two of these developers subsequently released 1-2-3 clones: Paperback Software International released VP-PLANNER and Mosaic Software released THE TWIN.[156] Neither VP-PLANNER nor THE TWIN copied the program code of the original 1-2-3 product, but both spreadsheet programs functioned in exactly the same manner as LOTUS 1-2-3.[157]

Subsequently, Lotus sued both Paperback and Mosaic, claiming copyright infringement of LOTUS 1-2-3.[158] Significantly, Lotus asserted that VP-PLANNER and THE TWIN violated the copyright of the program's user interface (i.e., the nonliteral elements of the computer program) rather than the copyright of the actual LOTUS 1-2-3 program (i.e., the literal program code).[159]

B. THE HOLDING

The *Lotus* court followed a structured analysis in considering Lotus' copyright infringement claims against Paperback, focusing initially upon the similarities and differences between the VP-PLANNER and LOTUS 1-2-3 spreadsheet programs.[160] In the final analysis, however,

151. *See* P. Petre, *The Man Who Keeps the Bloom on Lotus*, FORTUNE, June 10, 1985, at 136 [hereinafter Petre] (describing the creation and success of the LOTUS 1-2-3 program).

152. *Id.* at 138.

153. *See Lotus*, 740 F. Supp. at 67 (differentiating between VISICALC's use of letter command prompts with LOTUS 1-2-3's use of full-word prompts).

154. *See* Petre, *supra* note 151, at 140 (reporting that LOTUS 1-2-3 accounts for some sixty percent of the computer industry's spreadsheet industry).

155. *See* Bane, *No Letup in Spreadsheet Battles*, Chic. Trib., Nov. 18, 1990, at C4 [hereinafter Bane] (discussing the rise of Lotus' competition in the IBM spreadsheet market, especially with Paperback, Microsoft, and Borland International).

156. *See* Petre, *supra* note 151, at 140 (noting the release of two 1-2-3 clones, VP-PLANNER by Paperback and THE TWIN by Mosiac).

157. *See* VP-PLANNER MANUAL 1.11 (1985) (explaining to the purchaser the ease with which VP-PLANNER works, due to its "feature-for-feature" likeness to LOTUS 1-2-3).

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

159. *Id.*

160. *Id.* at 65-68. In *Lotus*, the court first considered the copyright of an electronic

a single issue remained: whether the user interface of a computer program gains copyrightable status under the copyright law.[161] Rejecting a series of precedent copyright tests to resolve this issue, the *Lotus* court chose instead to form a test uniquely designed to consider the particularities of computer software.[162]

1. The Modified Baker *Test*

The *Lotus* test for the copyrightability of user interface in computer software (the modified *Baker* test) entails two primary levels of analysis.[163] Three questions comprise the first level: (1) whether the original

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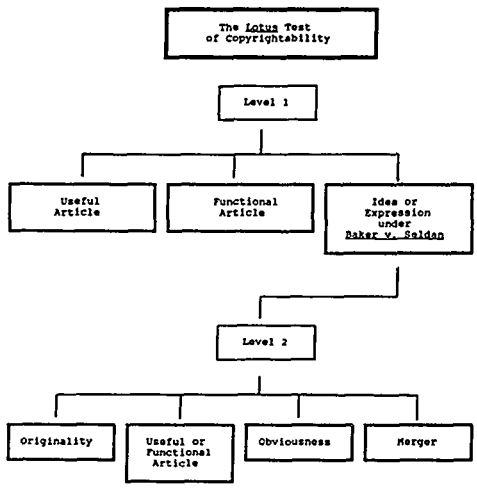
spreadsheet program with regard to the historical scope of copyright protection for computer software. *Id.* at 65. The court concluded that the concept of an electronic spreadsheet involves an obvious idea and thus precludes copyrightability. *Id.* Second, by finding that more than one way exists to create an original method of expressing the electronic spreadsheet concept, the court established the copyrightability of the electronic spreadsheet program. *Id.* at 67-68. Finally, the court turned to the possibility of copyright infringement of the nonliteral aspects of an electronic spreadsheet program; specifically, the copyright infringement claim of the user interface of the LOTUS 1-2-3 program by VP-PLANNER. *Id.* at 68.

161. *See id.* at 65 (stating the issue as "whether Lotus 1-2-3 does go beyond those details essential to any expression of the idea, and includes substantial elements of expression, distinctive and original, which are thus copyrightable").

162. *Id.* at 65-75.

163. The methodology of the *Lotus* court's test of copyright for the user interface of computer software entails the largest portion of the opinion. Although encompassing the factors of the *Synercom*, *Whelan*, *Broderbund*, and *Softklone* tests of copyright, *Lotus* rejects any preexisting copyright test for user interface. *Id.* at 61-62. This section outlines the multi-factored test and identifies the most important aspects.

In general, a schematic of the *Lotus* test of copyright would appear as follows:



work of authorship (that is, the original computer program) represents a noncopyrightable useful article;[164] (2) whether the work represents a noncopyrightable functional article;[165] and, most importantly, (3) whether the work constitutes a noncopyrightable idea or copyrightable expression under the *Baker v. Seldan* idea/expression distinction.[166]

Citing the uncertain meaning of "useful," "functional," and "useful, functional article,"[167] the *Lotus* court found both technical and statu-

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164. *Lotus*, 740 F. Supp. at 55-58. Previous cases have used the "useful or functional article" method of copyright analysis in delinating the scope of copyright protection. *See* Mazer v. Stein, 347 U.S. 201, 217-19 (1954) (precluding copyright protection for the useful, functional article); Brandir Int'l, Inc. v. Cascade Pacific Lumber Co., 834 F.2d 1142, 1146 (2d Cir. 1987) (finding a bicycle rack a useful, functional article, yet noting that "a copyrighted work . . . does not lose its protected status merely because it is subsequently put to functional use"); NEC Corp. v. Intel Corp., 645 F. Supp. 590, 595 (N.D. Cal. 1986) (holding that microprocessors do not lose copyright protection when distributed to the public even when copyright notification is absent from the product). *See also infra* note 167 (discussing the "useful" and/or "functional" article distinction).

165. *Lotus*, 740 F. Supp. at 58. *See also infra* note 167 (discussing the "useful" and/or "functional" article distinction).

166. *Lotus*, 740 F. Supp. at 58-60. For more information on the idea/expression distinction, also referred to as the process-expression, method-expression, and useful-expressive distinction, *see Determining the Scope of Copyright Protection*, *supra* note 88, at 866 (arguing that the legislative history to the Copyright Act of 1976 envisioned a predominant role for the idea/expression dichotomy).

167. *Lotus*, 740 F. Supp. at 54-58. The first two components of the first level of the *Lotus* test represent the same concept: that is, whether a particular original work of authorship represents a noncopyrightable "useful" or "functional" article. *Id.*

The *Lotus* court considered different approaches in interpreting the various meanings of "useful," "functional," "article," and "useful article" or "functional article" by addressing each of Paperback's arguments and defenses with regard to the useful-functional article distinction. In the first supposition, Paperback argued:

> A 'useful article' is not copyrightable; a 'computer program' is an 'article,' and a good 'computer program' is 'useful'; therefore, a good 'computer program' is not copyrightable.

Id. at 56.

Lotus established that the Computer Software Act of 1980 clearly deemed this first supposition invalid. In supposition two, the court then theorized that, following supposition one, Paperback would also argue:

> A 'useful article' is not copyrightable; a 'screen display' is an 'article,' and a good 'screen display' is 'useful'; therefore, a good 'screen display' is not copyrightable.

Id. at 57.

The court determined, however, that the usage of "article" under supposition two was beyond the statutory meaning. Finally, in supposition three, the court set forth the most likely argument to follow supposition two:

> A 'useful article' is not copyrightable; a 'user interface' is an 'article,' and a good 'user interface' is 'useful'; therefore, a good 'user interface' is not copyrightable.

Id.

Based upon the same reasoning as in supposition two, however, the *Lotus* court found the description of "user interface" as entirely outside the scope of the statutory meaning of "useful" or "functional article." *Id.* In other words, *Lotus* refused Paperback's implicit premise that anything and everything useful represents a useful article. The court thus concluded:

tory limitations to the concept of the useful, functional article.[168] The court noted that in some cases defendants in copyright infringement suits[169] had attempted to abuse and exploit the distinction,[170] and thus rejected the concept in considering the copyrightability of user interface.[171] Instead, the court relied entirely upon the third question of the first level of analysis, or the idea/expression dichotomy.[172]

> It may be quite true, with respect to "useful articles" — indeed I believe it to be so — that their utilitarian aspects are not copyrightable, and that things that merely utter work, such as the cam of a drill, are not copyrightable. It is not true, however, that every aspect of a user interface that is "useful" is therefore not copyrightable.

Id.

168. *Id.* at 54-58. The 1976 Act defines a useful, functional article as, "an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information." 17 U.S.C. § 101 (1988). Examples of a useful, functional article include the double-entry method of a T-accounts accounting system, the "H" pattern of a standard 4-speed transmission, the assignment of letters and numbers on a QWERTY keyboard, and the configuration of controls on a musical instrument. *Lotus*, 740 F. Supp. at 55. Under the 1980 Act, moreover, Congress specifically rejected copyright protection for the useful, functional article. *Id.* at 54. The *Lotus* court inferred that Congress had rejected, by its approval of the CONTU Report in the 1980 Act, any possibility of an entire computer program serving as a useful, functional article. *Id.* at 53-54. *See CONTU Report*, *supra* note 88, at 58-60 (rejecting the useful, functional article distinction in the copyrightability of computer software); *but see id.* at 57-58 (Hersey, C., dissenting) (describing how Commissioner Hersey supported the concept of a useful, functional and thus noncopyrightable computer program).

169. *See* Whelan Assocs. v. Jaslow Dental Laboratory, 797 F.2d 1222, 1238 (3d Cir. 1986) (demonstrating little difficulty in establishing the utilitarian purpose of a dental program). In *Whelan*, the Pennsylvania district court questioned any court's ability to ajudge a work of literature or visual representation as either a copyrightable or noncopyrightable useful, functional article. *Id. Whelan* cited as examples the impossibility of ascertaining the usefulness or function of a novel, poem, sculpture, or painting. *Id.*

170. *Lotus*, 740 F. Supp. at 55. Initially, the *Lotus* court applied the useful, functional article distinction to the copyrightability of user interface. *Id.* at 57-58. Finding the analysis lacking, the court rejected the doctine's premises. *Id.* at 58. Paperback had attempted to convince the court that "[a]nything that is useful is a 'useful article'; nothing about a 'useful article' is ever copyrightable; because 1-2-3 is useful, and is an article, it is not copyrightable." *Id.* at 56. The *Lotus* court completely rejected this argument, noting that mere usefulness or functionality—whether embodied in a dictionary, map, or computer program—fails automatic disqualification under the useful, functional article distinction: "the statute does not bar copyrightability merely because the originality of the expression becomes associated, in the marketplace, with the usefulness of the work to a degree and in dimensions not previously achieved by other products on the market." *Id.* at 58 (citing Brandir Int'l, Inc. v. Cascade Pac. Lumber Co., 834 F.2d 1142, 1147 (2d Cir. 1987)).

171. *Lotus*, 740 F. Supp. at 58. Finding the seemingly unlimited interpretations of the useful, functional article classification unacceptable, the *Lotus* court concluded that "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.*" *Id.* at 58. (Emphasis added.)

172. *Id.* at 58-62. The idea/expression distinction is the focus of the *Lotus* test of copyright for the nonliteral manifestations of computer software. Based on authority

Baker v. Seldan[173] first articulated the rule that copyright exists to protect expression, but not ideas.[174] The exact boundary between an idea and an original expression of an idea nevertheless remains elusive.[175] Based on *Baker v. Seldan* and its progeny, the *Lotus* court formulated a second level of analysis to ascertain more fully the scope of the idea/expression distinction. Under this second level, the court applied a four-part test, considering: (1) originality;[176] (2) usefulness or

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from the Copyright Act of 1976, the Computer Software Copyright Act of 1980, precedent case law, and even the committee discussions of CONTU, the *Lotus* court formulated an idea/expression test specifically designed to adjudge the copyrightability of user interface in computer software. *Id.*

173. 101 U.S. 99 (1879). In *Baker*, Seldan had received a copyright on the book, "Seldan's Condensed Ledger, or Bookkeeping Simplified," which explained a new system of accounting. *Id.* at 101. The book also contained a number of blank forms which were relevant to the new accounting procedure. The copyright dispute arose over the sale of Baker's accounting books using the same accounting method and the same blank forms. Although both Baker and Seldan agreed that the system of accounting was not copyrightable, Seldan argued that the blank forms were included in the copyrightable text of the book and Baker's use of the forms equated copyright infringement. *Id.* The Supreme Court, however, disagreed. Finding the system of accounting a noncopyrightable idea, the Court rationalized that components of that system would merely compose an extension of the idea and not represent copyrightable expression. *Id.* at 107.

174. *Id.* at 103-04. The idea/expression distinction reflects the purpose of the copyright law—to benefit the public welfare. Ideas and *scenes a faire* preclude copyrightable work because such a status would grant a virtual monopoly to the copyright holder. *See* Landsberg v. Scrabble Crossword Game Players, Inc., 736 F.2d 485, 489 (9th Cir.), *cert. denied*, 469 U.S. 1037 (1984) (warning of the monopoly on the "commonplace ideas behind the *scenes a faire* if granted copyright"); *see also* Atari, Inc. v. N. Am. Philips Consumer Elecs. Corp., 672 F.2d 607, 616 (7th Cir.), *cert. denied*, 459 U.S. 880 (1982) (describing *scenes a faire* as "incidents, characters, or settings which are as a practical matter indispensable . . . in the treatment of a given topic"); Hoehling v. Universal City Studios, Inc., 618 F.2d 972, 979 (2d Cir.), *cert. denied*, 449 U.S. 841 (1980) (stating that "it is virtually impossible to write about a particular historical era or fictional theme without employing certain 'stock' or standard literary devices, we have held that *scenes a faire* are not copyrightable as a matter of law").

175. *See* Nichols v. Univeral Picture Corp., 45 F.2d 119, 121 (2d Cir. 1930), *cert. denied*, 282 U.S. 902 (1931) (recognizing, in a copyright infringement case, that nobody has been able to set the exact boundary between the idea and the expression of the idea); Peter Pan Fabrics, Inc. v. Martin Weiner Corp., 274 F.2d 487, 489 (2d Cir. 1960) (explaining that the test for copyright infringement is necessarily vague due to the subjectivity involved when a court decides when an idea has become an actual expression).

176. *Lotus*, 740 F. Supp. at 58. The "originality" of the expression of an idea depends solely upon whether the form of expression originated with the author. 17 U.S.C. § 102(b) (1988). Only the " 'original' work of authorship" gains copyright protection via the expression and not the idea. *Id.* Original works entail, however, more than the mere novel or unique: under the statutory meaning, an original work includes any work independently created by an author even to the slightest degree. *See* Stuff v. La Budde Feed & Grain Co., 42 F. Supp. 493, 495 (E.D. Wis. 1941) (stating that "original" means that the author applied "skill, labor, or judgment"); Dorsey v. Old Surety Life Ins. Co., 98 F.2d 872, 873-74 (10th Cir. 1938) (finding that when an author adds to previously uncopyrighted materials, those portions which are the result of his own labor

functionality;[177] (3) obviousness;[178] and (4) the doctrine of merger[179] for the work or works in question.[180]

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may be copyrightable); *see also* Amplex Mfg. Co. v. A.B.C. Plastic Fabrications, Inc., 184 F. Supp. 285, 287 (E.D. Pa. 1960) (considering originality in the slightest degree sufficient to constitute a copyrightable work).

177. *Lotus*, 740 F. Supp. at 58. The "usefulness" or "functionality" of a means of expression depends on the number of additional ways in which the same method of expression may occur. This consideration, of course, is the useful, functional article distinction. *See supra* notes 164-68 (describing fully the useful, functional article distinction). As noted earlier, a strictly utilitarian work gains no copyright protection. Whelan Assocs. v. Jaslow Dental Laboratory, 797 F.2d 1222, 1238-39 (3d Cir. 1986). However, if the expression represents a work of significant creativity and originality, even if constituting a useful or functional article, the availability of copyright persists. *Lotus*, 740 F. Supp. at 58.

178. *Lotus*, 740 F. Supp. at 58-59. The "obviousness" factor of defined expression represents the prohibition of copyright protection for a statement of the obvious. *See* E. H. Tate Co. v. Jiffy Enter., Inc., 16 F.R.D. 571, 573 (E.D. Pa. 1954) (ruling that an instruction, "apply hook to wall," constituted a statement of the obvious and failed to qualify as copyrightable expression). The obviousness of a work directly relates to the idea/expression distinction, in that an obvious work constitutes a noncopyrightable idea. *Lotus*, 740 F. Supp. at 59. As the *Lotus* court noted, "[w]hen a particular expression goes no farther than the obvious, it is inseparable from the idea itself." *Id.* at 58-59.

179. *Lotus*, 740 F. Supp. at 58-59. The "merger" concept prohibits the copyright of expression when there are only a limited number of procedural options. *See* Morrissey v. Procter & Gamble Co., 379 F.2d 675, 678-79 (1st Cir. 1967) (stating that the copyright of expression which seeks to describe a subject matter of limited forms of presentation improperly seizes that form of expression from public use). *See e.g.*, Concrete Mach. Co. v. Classic Lawn Ornaments, Inc., 843 F.2d 600, 606 (1st Cir. 1988) (explaining that "[w]hen there is essentially only one way to express an idea, the idea and its expression are inseparable and copyright does not bar to copying that expression"); Herbert Rosenthal Jewelry Corp. v. Kalpakian, 446 F.2d 738, 742 (9th Cir. 1971) (deciding that the idea of a jewel-encrusted life-like bee pin is inseparable from expression and not copyrightable because "protecting the 'expression' in such circumstances would confer a monopoly of the 'idea' upon the copyright owner."). *But see* Atari, Inc. v. N. Am. Philips Consumer Elecs. Corp., 672 F.2d 607, 616 (7th Cir.), *cert. denied*, 459 U.S. 880 (1982) (noting that *scenes a faire*, such as incidents, characters, or settings, are not copyrightable) (citing Alexander v. Haley, 460 F. Supp. 40, 45 (S.D.N.Y. 1985)); Landsberg v. Scrabble Crossword Game Players, Inc., 736 F.2d 485, 489 (9th Cir.), *cert. denied*, 469 U.S. 1037 (1984) (recognizing that copyright for *scenes a faire* "would give the first author a monopoly on the commonplace ideas"). The merger doctrine, therefore, prohibits the copyright of works in which the work and the idea are inseparable. *See Baker v. Seldan*, 101 U.S. 99, 101-02 (1879) (holding that the new system of accounting "merged" with the blank forms and thus rendered the forms noncopyrightable). Without the merger doctrine, copyright would prohibit all possibility of future use of any specific idea. Realizing the danger of this monopoly and thus recognizing the importance of merger, the *Lotus* court warned that courts "cannot recognize copyright as a game of chess in which the public can be checkmated." *Lotus*, 740 F. Supp. at 59 (quoting Morrissey v. Procter & Gamble Co., 379 F.2d 675, 679 (1st Cir. 1967)).

180. *Lotus*, 740 F. Supp. at 58-59. Judge Keeton used these four factors of the second level of analysis in his consideraton of the idea/expression distinction in arriving at a definitive solution to the question of copyright for the nonliteral manifestations of computer software. Judge Keeton, however, also cites yet another approach to the idea/expression diachotomy. *Id.* at 59-62. In the three-part "elements of the legal test

The *Lotus* court applied this modification of the *Baker v. Seldan* test (a "modified *Baker* test") to establish copyrightability for the user interface of computer software. It analyzed VISICALC versus LOTUS 1-2-3 to establish the standard for user interface copyright, and then it compared LOTUS 1-2-3 with VP-PLANNER to decide the copyright infringement issue.

2. *Copyright Test: VISICALC v. LOTUS 1-2-3*

To satisy the "originality" prong, the *Lotus* court found that both VISICALC and LOTUS 1-2-3 utilize sufficiently different means of "structure, appearance, and method of operation" to express the electronic spreadsheet program idea.[181] The court noted that the authors of 1-2-3 had implemented substantial improvements to their version of the electronic spreadsheet as compared to the original VISICALC program.[182] Furthermore, the court found that LOTUS 1-2-3's unique features sufficiently distinguished it from the VISICALC program.[183] As

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for copyrightability" analysis, a more theoretical approach to the idea/expression distinction, Judge Keeton explains that a judicial decision-maker must first formulate a definition of "idea" which distinguishes between the generalized and specific aspects of ideas and expressions. *Id.* Second, the decision-maker must differentiate between the essential and the nonessential components of an author's expression to identify whether the means of presentation force a limitation on a finite range of methods to communicate the idea. *Id.* Third, after discerning the nonessential components of an author's expression, the decision-maker must ascertain whether those elements of expression compose a substantial part of the copyrightable work. *Id.* Judge Keeton's three-pronged "elements of the legal test for copyrightability" analysis thus implicates: (1) general versus specific means of expression; (2) essential versus nonessential details of expression; and (3) the substantiality of the work's nonessential components. *Id.* Within the *Lotus* decision, which is inundated with tests and analyses, Judge Keeton applies this "special test" in an attempt to clarify the uncertainty surrounding the idea/expression distinction. *Id.*

181. *Lotus*, 740 F. Supp. at 65. For example, LOTUS 1-2-3 utilizes a more user-friendly multi-level command tree main menu structure than VISICALC, provides for function keys, and includes macro capabilities. *Id.* at 67.

182. *Id.* The substantial improvements on the VISICALC program by LOTUS 1-2-3 parallels the same type of improvements made by Microsoft's EXCEL on the 1-2-3 program. *See infra* note 184 (describing the EXCEL program).

183. *Lotus*, 740 F. Supp. at 65-68. The court emphasized the variety of original mechanisms in the LOTUS 1-2-3 program by noting:

> 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. at 67.

an example, *Lotus* cited the EXCEL program, a spreadsheet program different from both the VISICALC and LOTUS 1-2-3 programs.[184]

Under the "usefulness" or "functionality" prong, the *Lotus* court noted that although electronic spreadsheet programs such as LOTUS 1-2-3 and VISICALC use common features, they are distinguished by their respective methods of operation.[185] The court recognized that the application of common programming components, like the "+" and "−" signs for addition and subtraction, represented useful, functional articles as opposed to the truly unique features of the 1-2-3 program.[186] Consequently, LOTUS 1-2-3's use of VISICALC's useful, functional aspects did not result in copyright infringement.[187]

Similarly, as the court discounted application of the "obviousness" factor, the *Lotus* court rejected any violation of the doctrine of "merger."[188] Because screen displays, menu designs, and other program formats may be expressed in a number of ways,[189] the use of common terms which may be obvious, or merge with the idea relating to a particular command term, does not preclude a copyright for the entire command structure.[190] Therefore, because the authors of LOTUS 1-2-3 utilized only nondistinctive aspects of VISICALC in their program, the court concluded that merger had not occured and, therefore, that LOTUS 1-2-3 had not infringed upon the copyrightable elements of the VISICALC program.[191]

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184. *Id.* at 69. Several years after the success of LOTUS 1-2-3, Microsoft Corp. developed a new and unique spreadsheet program called EXCEL, a spreadsheet program entirely different from either VISICALC or LOTUS 1-2-3. *See* Bane, *supra* note 155, at C4 (explaining how the graphic user interface for EXCEL depended entirely upon a mouse for input and command execution, as distinguished with all other electronic spreadsheet programs).

185. *Lotus*, 740 F. Supp. at 66-67. As the original electronic spreadsheet program, VISICALC was of course the first to apply the rotated "L" screen design, the two-line moving cursor menu, as well as the use of "+" key for addition, the "−" key for subtraction, the "*" for multiplication, and the "/" key for division in an electronic spreadsheet. *Id.*

186. *Id.* at 66-67.

187. *Id.* at 67.

188. *See id.* (stating that the usefulness or functionality of the rotated "L" screen design or the alphanumeric key configuration preclude application either of the "obviousness" or "merger" factors).

189. *See supra* notes 184 (describing several of the ways by which the same idea of an electronic spreadsheet program may be expressed).

190. *Lotus*, 740 F. Supp. at 67.

191. *Id.* at 67-68. In applying the final elements of the modified *Baker* test, the *Lotus* court established the copyrightability of user interface if two factors were met. First, the court considered whether the aspect in question constitutes a distinctive detail of the computer program. *Id.* Second, the court considered whether the aspect involved the only means to express the idea. *Id.* If the answer to both questions were in the

By determining the legality of LOTUS 1-2-3 vis-a-vis the copyrightable aspects of the VISICALC spreadsheet program, the *Lotus* court established the copyrightability of user interface in computer software.[192] Once established, the court then turned to Lotus' infringement claim against Paperback's VP-PLANNER.

3. Copyright Test: LOTUS 1-2-3 v. VP-PLANNER

The *Lotus* court, using the modified *Baker* test, avoided a lengthy analysis of whether or not VP-PLANNER infringed upon LOTUS 1-2-3. This was possible because Paperback admitted copying the LOTUS 1-2-3 user interface in the VP-PLANNER spreadsheet program.[193] Citing both the manual for VP-PLANNER[194] and testimony from the

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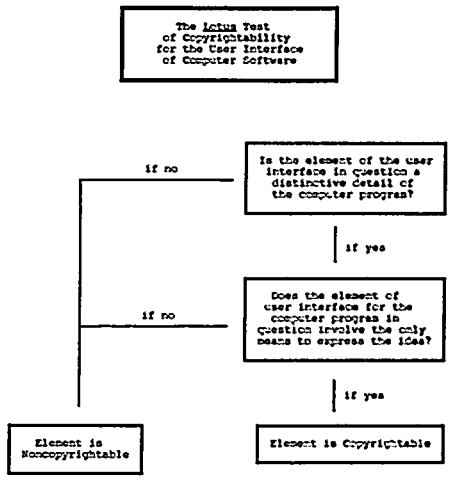
affirmative, the nonliteral element of the computer program gained full copyrightable status. *Id.*

A schematic of the *Lotus* test of copyright for the user interface of computer software would appear as follows:



192. *See id.* at 67 (declaring that "[i]f particular characteristics not distinctive individually have been brought together in a way that makes the 'whole' a distinctive expression of an idea — one of many possible ways of expressing it — then the 'whole' may be copyrightable").

193. *Id.* at 68-70.

194. *Id.* at 69-70. In relevant part, the manual states:

> VP-Planner is designed to work like Lotus 1-2-3, keystroke for keystroke. . . . VP-Planner's worksheet is a feature-for-feature workalike for 1-2-3. It does macros. It has the same command tree. It allows the same kind of calculations, the same kind of numerical information. Everything 1-2-3 does, VP-Planner does.

Id. at 69 (quoting VP-PLANNER MANUAL 1-11 at xi, 1.11 (1985)).

original developer of the program,[195] the court found that Lotus Development Corporation had met its requisite burden of proof.[196] The *Lotus* court thus affirmed the copyrightability of user interface by concluding that VP-PLANNER had undisputably infringed upon significant elements of the LOTUS 1-2-3 program.[197]

C. OTHER ISSUES

While the main issue of the *Lotus* decision involved the copyrightability of user interface in computer software, Paperback had presented two defenses to Lotus' infringement claim, asserting that (1) Lotus had failed to invoke subject matter jurisdiction over the copyright claim because of a failure to properly register the LOTUS 1-2-3 copyright[198]

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195. *Id.* at 69. In a court affidavit, Dr. James Stephenson, the original developer of VP-PLANNER, admitted:

> [M]aking the changes required for macro compatibility meant that we had to revise existing elements of the [VP-Planner] spreadsheet interface, including the hierarchical menu structure; ensure that keystroke sequences would bring about the same operational result in both programs; add certain functional elements found in Lotus 1-2-3 which VP-Planner did not yet support; and discard certain features which, although beneficial, were inconsistent with the macro compatibility requirement. . . .

Id.

196. *See id.* at 68 (noting that infringement must be set forth as both overwhelming and pervasive); Midway Mfg. Co. v. Bandai-America, Inc., 546 F. Supp. 125, 141 n.11, 149 (D.N.J. 1982), *aff'd*, 775 F.2d 70 (3d Cir. 1985), *cert. denied*, 475 U.S. 1047 (1986) (declaring that a finding of "overwhelming and pervasive" copying supports a motion for summary judgement in favor of the plaintiff).

197. *Id.* at 70.

198. *Id.* at 79-82. An author must register a copyright before he or she may pursue a copyright infringement action. 17 U.S.C. § 411 (1988). *See also* Quincy Cablesystems, Inc. v. Sully's Bar, Inc., 650 F. Supp. 838, 850 (D. Mass. 1986) (stating that copyright registration constitutes a jurisdictional condition precedent to the filing of a copyright infringement action). Paperback asserted that the copyright infringement suit was founded upon "screen displays" rather than user interface. *Lotus*, 740 F. Supp. at 79. Paperback argued that Lotus registered the literal code of LOTUS 1-2-3 as a literary work, but did not register the screen displays as a separate audiovisual work, and therefore the jurisdictional prerequisites were not met. *Id.* at 79.

The *Lotus* court rejected the separate copyright for screen display argument, repudiating the claim that a screen display gains copyright protection. *Id.* at 79-81 (citing Digital Communications Assoc., Inc. v. Softklone Distrib. Corp., 659 F. Supp. 449, 456 (N.D. Ga. 1987)) (deciding that "copyright protection does not extend to the program's screen displays, and that copying of a program's screen displays, without evidence of copying of the program's source code, object code, sequence, organization or structure, does not state a claim of infringement"). Only a screen display which represents a greater aspect of copyright, such as "sequence, organization or structure" would enable an infringement action. *Lotus*, 740 F. Supp. at 80 (citing Softklone, 659 F. Supp. at 455-56) (declaring that "copyright protection does not extend to screen displays generated by the program"). *Lotus* nevertheless emphasized that its ruling regarding the copyrightability of nonliteral manifestations extended not merely to screen displays or user interface but to the entire structure, sequence, and organization of the program. *Id.* The court concluded that Lotus' certificates of copyright registration for

and that (2) laches and equitable estoppel served as a bar to the copyright infringement action.[199] Both of Paperback's attempts to thwart

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the entire work of LOTUS 1-2-3 sufficiently extended copyright protection to screen displays as well as the other nonliteral aspects of the computer program. *Id.*

The *Lotus* court moreover rejected the issue of dual registration, that is, registering the computer program as a literary work and the screen displays as audiovisual works. The court recognized that, although the copyright office registers different works in different ways, some works fall under more than one category of copyrightable works. *Id.* at 80-81; *see* COMPENDIUM OF COPYRIGHT OFFICE PRACTICES § 604 (1984) (describing how the copyright office requires the submission of different forms according to the type of copyrightable work); *see also id.* at § 604 and § 708 (describing how an author completes the registration certificate for the class most appropriate for the type of work registered and that registration suffices for the entire work). Because computer programmers have historically registered computer software under the literary work category, the court found dual registration overly duplicative as set forth by Congress in 1988. *See id.* at § 702.01 (declaring that computer programs should be registered as "nondramatic literary works"); *see also* Registration of Computer Screen Displays, 53 Fed. Reg. 21,817 (1988) (to be codified at 37 C.F.R. § 202) (stating that the copyright application for a single computer program may be registered on a single form); M. Kramer Mfg. Co. v. Andrews, 783 F.2d 421, 442 (4th Cir. 1986) (finding that a single registration suffices because, even if registered solely under the audiovisual category, such registration protects not only the screen displays but also the program code).

Prior to 1987, Lotus had tried to register the LOTUS 1-2-3 program and screen displays separately, but the attempt was rejected by the copyright office. *Lotus*, 740 F. Supp. at 81. Based on the above findings, the *Lotus* court thus found proper jurisdiction by Lotus for all aspects of the infringement suit against Paperback. *Id.* at 82.

199. Citing the doctrines of laches and equitable estoppel, Paperback asserted that Lotus' fourteen and one-half month delay after the release of VP-PLANNER, before commencing the litigation, barred a copyright infringement suit. *Id.* at 82. Because both doctrines constitute affirmative defenses, however, Paperback maintained the burden of proving either or both doctrines by a preponderance of the evidence. *Id.*

Laches requires the defendant to show that the plaintiff inexcusably and unreasonably delayed the bringing of an action, and that the delay unduly prejudiced the defendant. *See* Costello v. United States, 365 U.S. 265, 282 (1961) (noting that laches places the burden on the petitioner to show both "(1) lack of diligence by the party against whom the defense is asserted, and (2) prejudice to the party asserting the defense"); *see also* Gardner v. Panama R. R., 342 U.S. 29, 31 (1951) (considering the equities of the parties); Puerto Rican-Am. Ins. Co. v. Benjamin Shipping Co., 829 F.2d 281, 283 (1st Cir. 1987) (also considering the equities of the parties). The *Lotus* court determined that Lotus had neither unduly delayed action against Paperback Software nor prejudiced the proceedings. *Lotus*, 740 F. Supp. at 82. Although Lotus waited over fourteen months to file an infringement action, the court deemed the delay an act of prudent business judgment to ascertain the company's legal position. *See id.* (describing how Paperback Software released VP-PLANNER on October 30, 1985 but Lotus waited until January 12, 1987 to bring an infringement action); *see also* Roulo v. Russ Berrie & Co., Inc., 886 F.2d 931, 942 (7th Cir. 1989), *cert. denied*, 493 U.S. 1075 (1990) (describing how one company waited twenty-one months before filing an infringement suit in order to determine the merits of the case).

Equitable estoppel prevents a cause of action where the deeds of one party reasonably lead another party to rely upon those actions to his or her detriment. *See* Precious Metals Assocs., Inc. v. Commodity Futures Trading Comm'n, 620 F.2d 900, 908 (1st Cir. 1980) (stating that the doctrine of equitable estoppel exists to protect the rights of those who reasonably rely upon the actions of others). In this second claim for equitable relief, Paperback contended that Lotus' failure to object to VP-PLANNER in a

the copyright infringement suit nevertheless failed because the court rejected both equitable defenses.

IV. THE EFFECT OF *LOTUS DEV. CORP. v. PAPERBACK SOFTWARE INT'L* ON THE COPYRIGHTABILITY FOR COMPUTER SOFTWARE USER INTERFACE IN THE UNITED STATES AS WELL AS IN THE INTERNATIONAL REALM

Two bodies of opinion effectively encompass and demonstrate the merits and/or deficiencies of the landmark *Lotus* decision.[200] On one side, the "copyright minimalists" strive to limit or even eliminate entirely the copyrightability of computer software.[201] The minimalists argue that a broad interpretation of copyright law serves to stifle competition in the computer software marketplace.[202] The "copyright maximalists," on the other hand, laud the importance and strict enforcement of the copyright laws.[203] Rejecting any substantial effect on competition within the computer software industry, the maximalists strive to secure broad copyrightability for computer software in order to provide equitable protection for all authors' original work, whatever the form.[204]

The debate between the goals of the copyright maximalists and minimalists in the United States reflects the international conflicts in determining the scope of copyright for computer software.[205] Internationally,

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timely manner estopped Lotus from pursuing a copyright infringement claim against Paperback Software's continued marketing of VP-PLANNER. *Lotus*, 740 F. Supp. at 82. The court likewise rejected the equitable estoppel claim, finding no evidence of Paperback Software's reliance upon any action or nonaction of Lotus. *Id.* at 83.

200. *See* Davis, *Airing Both Sides of the "Look and Feel" Debate*, COMPUTERWORLD, Aug. 13, 1990, at 21 (discussing the fairness versus the compatibility arguments in the debate over the scope of copyright protection for computer software).

201. *See* Burke, *"Hacker Extraordinaire" Protests Interface Monopolies*, PC WEEK, July 23, 1990, at 136 (citing the opposition of Richard Stallman and the Free Software Foundation to the *Lotus* decision and the broad extension of copyright protection in general).

202. *See* Richman, *Programming Freedom is New Group's Objective*, The Washington Times, Nov. 21, 1990, at C2 (noting the growing debate and disagreement over the *Lotus* decision and the general scope of computer software copyright law in the United States).

203. *See* Huber, *Madonna Ain't Software*, FORBES, Sept. 3, 1990, at 104 (agreeing that the federal courts should rule against software imitators, stating how " 'Swheetheart'[sic] is Bogart, even when growled by some third-rate comedian").

204. *See Nanobytes*, BYTE, Sept. 1990, at 20 (citing Ashton-Tate's emphatic approval of the *Lotus* decision which significantly expanded the scope of copyright law in the United States).

205. For an overview of the issues surrounding the copyrightability of computer software and the computer software industry, *see* Wiegner and Heins, *Can Las Vegas*

this debate emphasizes the disparity between the technology "haves" and "have-nots."[206] Most of the industrialized nations presently adhere to some sort of international agreement, convention, or treaty pertaining to the copyrightability of computer software.[207] Nevertheless, any significant move to expand the scope of international copyright, especially for the nonliteral aspects of computer programs such as "user interface," would guarantee an international dispute between the technologically advanced and less advanced nations.[208]

A. THE IDEA/EXPRESSION DISTINCTION VERSUS "THE BRIGHT LINE TEST"

The primary test of copyrightability in the United States is the *Baker v. Seldan* the idea/expression dichotomy.[209] The Copyright Act of 1976 codified application of the distinction into judicial copyright analyses.[210] Hence, without the express authority of Congress, United States federal courts may not ignore or replace the analysis of the

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sue Atlantic City?, FORBES, Mar. 6, 1989, at 130 (demonstrating the dominance of United States companies in the international computer software marketplace). As of 1988, United States companies controlled sixty percent of the $55 billion international computer software market. *Id.*

206. For an overview of the issues surrounding the international protection of high-technology and the development of foreign markets, *see generally* D. SILVERSTEIN, PATENT PROTECTION AND TECHNOLOGY TRANSFER IN LESS-DEVELOPED COUNTRIES: A REAPPRAISAL OF THE LEGAL FRAMEWORK FOR PRODUCING AND TRANSMITTING KNOWLEDGE (1986) (describing the technology deficit among the less-developed countries).

207. *See* STRONG, THE COPYRIGHT BOOK: A PRACTICAL GUIDE 173 (2d ed. 1984) (outlining the most common international means to copyright protection for the industrialized nations); *see also supra* notes 31-55 and accompanying text (describing the various means to international copyright protection and the countries which belong to the respective agreements, conventions, and treaties).

208. Because of United States, European, and Japanese dominance in high technology, specifically in the computer software industry, some foreign countries have refused to broaden the scope of copyright for computer software. *See Six Parties Comment on Seventeen Countries in Second Round Under Special 301 Provision*, Int'l Trade Rep., (BNA) No. 9, at 300 (Feb. 28, 1990) (discussing foreign countries with the most egregious intellectual property practices); *Hills Removes Taiwan, Korea, Saudi Arabia, From Priority List, Five Countries Remain*, Int'l Trade Rep., (BNA) No. 44, at 1436 (Nov. 8, 1989) (noting egregious foreign practices in intellectual property).

209. *See supra* notes 173-75 and accompanying text (describing the *Baker v. Seldan* test); *see also supra* notes 93-127 (portraying the approach of the *Synercom, Whelan, Broderbund*, and *Softklone* courts to the test). For the approach of the *Lotus* court to the *Baker v. Seldan* test, or the "modified *Baker* test," *see supra* notes 163-80 (describing how the idea/expression distinction applied by the *Lotus* court resulted not only from consideration of precedent judicial decision-making but also through an effort to interpret the important subtleties of United States copyright law).

210. *See supra* notes 82-87 and accompanying text (setting forth the requirements and rationale of the Copyright Act of 1976).

idea/expression dichotomy.[211] On the other hand, the idea/expression distinction is subject to a wide disparity of interpretation and therein arises the conflict between the copyright maximalists and the copyright minimalists.[212]

The *Lotus* decision demonstrates a typical "maximalist" view of copyright law in the United States.[213] Addressing the policy issues of the case, the *Lotus* court specifically rejected a bright-line rule of copyright as bad public policy.[214] Suggesting that the success of the United States software industry is a direct result of judicial interpretation of the copyright law, *Lotus* deemed any bright-line rule incompatible with the statutorily mandated idea/expression distinction.[215] The court therefore, concluded that only an evolving and interpretative view of the copyright law would protect and inspire creativity,[216] for "[i]t 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."[217] According to these copyright maximalists, judicial interpretation inspires creativity within the computer software industry and thus precludes any role for a bright-line rule of copyright.

Paperback's position, on the other hand, exemplifies the "minimalist" view of copyright protection for computer software.[218] Theoretically, Paperback argued that a bright-line rule of copyright would inspire

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211. *Lotus*, 740 F. Supp. at 77-78. In *Lotus*, Judge Keeton recognized that Congress expressed the intention of encouraging creativity and innovation in computer software through the copyright laws, despite the possible effects on standardization. *Id.* at 78; *but see Copyright Law Revision: Hearings on S. 597 Before the Subcommittee on Patents, Trademarks, and Copyrights of the Senate Committee on the Judiciary*, 90th Cong., 1st Sess. 589 (1967) (testimony of Professor Anthony Oettinger) (arguing that the extension of copyright to computer programs may have disastrous effects on standardization).

212. *See supra* notes 93-127 (describing four federal courts' differing approaches to the same *Baker v. Seldan* idea/expression distinction).

213. *See supra* notes 163-97 and accompanying text (describing the rationale and analysis behind the *Lotus* decision).

214. *Lotus*, 740 F. Supp. at 73.

215. *Id.*

216. *Id.* at 75.

217. *Id.* (citing Plaintiff's Post-Trial Brief at 87-89); *but see* M. GEMIGNANI, LAW AND THE COMPUTER 117 (1981) (referencing the healthy state of the United States computer software industry prior to the Copyright Act of 1980, and stating: "Some argue that copyright or patent protection is necessary for the growth of the software industry. But this industry is growing by leaps and bounds without it.").

218. *See supra* notes 156-59 (setting forth the position of Paperback with regard to the copyright issues involved in the *Lotus* decision).

standardization which would subsequently encourage creativity.[219] Realistically, however, Paperback's assertions only illustrated a desire to exploit the noncopyrightable elements of LOTUS 1-2-3,[220] assertions merely based upon a "standardization" argument.[221] A strict standardization argument, moreover, requires a clear and defined means by which to ascertain the "standard" in the market.[222] Prior to the *Lotus* decision, no judicial test existed by which this determination could be made.[223] The *Lotus* court nevertheless rejected Paperback's standardization argument,[224] thereby recognizing the failure of the bright-line rule of copyright.[225]

Not surprisingly, both the copyright maximalists as well as the minimalists find support for their prospective positions internationally.[226] Unfortunately, the division of views has taken place strictly along the lines of technological and, therefore, economic development.[227] As opposed to the developed maximalist nations, the lesser developed mini-

219. *Lotus*, 740 F. Supp. at 77-78. The standardization argument upon which Paperback relied depends upon the status of a product as the leader or "benchmark" in the market, for example, LOTUS 1-2-3 as the benchmark of electronic spreadsheet programs for the IBM PC. Describing LOTUS 1-2-3 as a benchmark among spreadsheet programs, Paperback argued that any other electronic spreadsheet must be one hundred percent compatible with LOTUS 1-2-3 in order to fairly compete in the electronic spreadsheet marketplace. *Id.* at 78; *see also infra* notes 244-48 and accompanying text (defining the contrasting positions of creativity versus standardization in the computer software industry).

220. *Id.*

221. *See also* Apple Computer, Inc. v. Microsoft Corp., 709 F. Supp. 925, 929-30 (1989) (describing how Microsoft Corporation and the Hewlett-Packard Company presented the standardization argument regarding their copying of the user interface of Apple's MACKINTOSH line of computers).

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

223. *See supra* notes 93-127 and accompanying text (describing the various approaches in determining the scope of computer software copyright).

224. *Id.* Had a bright-line rule existed to determine the standard of copyright for user interface prior to *Lotus* (i.e. the scope of copyright for the LOTUS 1-2-3 program), Paperback would have utilized one hundred percent of those noncopyrightable elements of LOTUS 1-2-3 in VP-PLANNER. *Id.*

225. For another example of the failure of the "standardization inspires creativity" argument, *see Digital Comms. Assocs., Inc. v. Softklone Distrib. Corp.*, 659 F. Supp. 449, 453 (N.D. Ga. 1987) (describing how Foretech sought legal counsel regarding the exact scope of copyright protection for CROSSTALK XVI and thenafter how all noncopyrightable elements were subsequently utilized in the functional clone copy, or the MIRROR program).

226. *See* 3 S. LADAS, PATENTS, TRADEMARKS, AND RELATED RIGHTS: NATIONAL AND INTERNATIONAL PROTECTION §§ 1031-33, at 1888-97 (1975) (contrasting the view of the lesser developed nations versus the developed nations towards technical rights).

227. *See International Trade Impact of Intellectual Property Issues Examined at BNA Conference*, Int'l Trade Rep., (BNA) No. 30, at 969 (July 29, 1987) (describing foreign intellectual property protection as ranging from a total absence of laws, to bad laws, to non-enforcement of the laws).

malist nations argue for a bright-line test of international copyright,[228] not only because the minimalist nations feel threatened by the more developed nations but also because they resent the giant technology gap.[229] Striving to achieve a market for computer software through limited copyright protection, the lesser developed countries suggest that original works, or any part thereof, should be readily accessible without fear of infringement.[230]

The maximalists nations, in contrast, reject the class-based arguments favoring a bright-line standard of copyright, notably for the very same reasons as the minimalists.[231] Emphasizing how the current means of international copyright protection focus on stimulating economic growth and cultural development,[232] the developed maximalist nations consider broad copyright protection the means by which the developing nations may gain new routes of international trade and therefore new routes of economic development.[233] The maximalists maintain: if copying of computer programs were legal in any venue, the larger computer software firm could easily rob an individual author of his or her work.[234] A market for computer software would thus never

228. *Id.*

229. *See* A. GAUHAR, THE RICH AND THE POOR: DEVELOPMENT, NEGOTIATIONS AND COOPERATION — AN ASSESSMENT 44-46 (1983) (considering the means to inspire greater economic development among the lesser developed nations).

230. Lecture by J. Kaufman, Adjunct Professor at the Washington College of Law, The American University, in Washington, D.C. (Aug. 28, 1991). The theory of the lesser developed nations is as follows:

> Because we are poor, we cannot purchase the software from the computer industries of the developed nations. If we are allowed to copy the software freely, to study the programs, and to develop a viable computer software industry in our own county, then we may eventually be able to *purchase* the products upon the open market. But for the ability to copy the computer software, we will never be able to participate in the international computer software marketplace.

Id. (Emphasis added.) The problem with this argument is obvious — the college student could make the same argument, as could a new computer programmer in the industry, as could an "underdeveloped" computer software manufacturer. Where would the ability to copy the software in order to achieve technological sophistication end?

231. *See* A. CLAPES, SOFTWARE, COPYRIGHT, & COMPETITION 202-203 (1989) (supporting broad copyright protection to encourage innovations and advancement).

232. *See* Note, *Future Intellectual Property*, *supra* note 6, at 317-23 (arguing that broad international copyright laws would inspire, not inhibit, the computer software industry both in developing nations as well as in the industrialized nations).

233. *See id.* at 317-18 (declaring that "[d]eveloping nations as well as the industrialized nations would benefit by the retention and expansion of the international copyright system" as well as "foster[ing] international cooperation in bringing about cultural and economic exchanges").

234. *See Lotus*, 740 F. Supp. at 77-78 (decrying the advantages of judicial interpretation for copyright vis-a-vis the many disadvantages of a bright-line rule of copyrightability).

arise in a developing nation where the individual author maintained no means of copyright protection.[235]

The continuing debate between the copyright minimalists of the developing nations and the developed maximalist nations touches many areas of public and economic policy.[236] In sum, however, the danger of lax or nonexistent copyright protection cuts both nationally and internationally against the creator of an original work of authorship.[237] Whether for the user interface of computer software, a work of fiction, or law journal article, copyright serves an essential and necessary role in protecting any author's work in any venue.[238]

B. CREATIVITY VERSUS STANDARDIZATION

The most persuasive public policy arguments for expanding or denying copyrightability for computer software in general, or user interface specifically, involves the issues surrounding the compatibility and standardization of computer software.[239]

Following the introduction of VISICALC in 1978,[240] the rotated "L" screen design of the VISICALC program immediately became a "standard" for all spreadsheet application programs;[241] yet, the screen display precluded copyrightability because the design represented one of a very limited number of ways to express the electronic spreadsheet idea.[242] In contrast with program standardization, "compatibility" involves an entirely separate concept within the computer software indus-

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235. *Id.*

236. GEMIGNANI, *supra* note 217, at 115-16 (describing the effect of copyright laws on developing economies).

237. Note, *Future Intellectual Property*, *supra* note 6, at 321-23.

238. *See id.* at 323 (determining the most beneficial route to international development through copyright). The author of this Note concludes that:

> The observance of international copyright law depends largely on general awareness, good faith and mutual understanding among all concerned. Copyright should not be viewed merely as a relationship between the creator and the user. It has to be seen in the large context of international cooperation and of the urgent need to fill the development gap between the North and South.

Id. (citing Hasan, *Copyright and Development*, 16 COPYRIGHT BULL. (UNESCO) No. ½, Quarterly Rev., 1982, at 10).

239. *Compare* Note, *Future Intellectual Property*, *supra* note 6, at 321-23 (arguing that standardization precludes per se creativity), *with* GEMIGNANI, *supra* note 217, at 117-18 (noticing that standardization may indeed invoke creativity); *see also supra* notes 219-25 (setting out the reasoning and rationale of the standardization argument).

240. *See supra* notes 146-54 and accompanying text (describing the development process of LOTUS 1-2-3 and the program's reliance on the VISICALC program).

241. *See Lotus*, 740 F. Supp. at 66 (describing how the rotated "L" design precluded copyrightability under the "idea" component of the idea/expression distinction).

242. *Id.*

try.[243] Compatibility refers not to the user's ability to manipulate data within a computer program, but instead describes the form of the data which the user may manipulate.[244] The copyright maximalists argue that compatibility may exist independent of general or uniform computer program standardization (for example, LOTUS 1-2-3 may utilize data from VISICALC);[245] yet, the minimalists contend that compatibility requires standardization (for example, VP-PLANNER or THE TWIN must function exactly in the same manner as LOTUS 1-2-3).[246]

In the debate between the copyright maximalists and minimalists over computer program standardization versus compatibility, the predominate issue regards the most efficient means by which to encourage creativity in the computer software marketplace.[247] The copyright maximalists claim that copyright protection inspires creativity by forcing computer programmers to approach existing markets in new and better ways.[248] Through a creative evolution in computer software, each new program would affect significant improvements to the "standard" program on the market.[249] The copyright minimalists reject the maximalists' "evolution of creativity" concept.[250] Instead, the minimalists argue that creativity results only from adapting and implementing new ideas to existing computer programs.[251]

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243. WEBSTER'S NEW WORLD DICTIONARY OF COMPUTER TERMS 58 (3d ed. 1988) (defining the term "compatibility"). Webster defines compatibility as:

> (1) A property of some computer that allows programs written for one computer to run on another (compatible) computer, even though it is a different model. (2) The ability of different devices, such as a computer and a printer, to work together. (3) The ability of one program to use data from another program, such as a spreadsheet in a report.

Id.

244. *Id.* Data that can be used in more than one spreadsheet program is thus "compatible" with all of those programs. *Id.*

245. *See Lotus*, 740 F. Supp. at 77 (describing the standardization and compatibility arguments as presented by Paperback (the "minimalist" position) and the *Lotus* court (the "maximalist" position)).

246. *Id.*

247. *See id.* (contrasting the argument that standardization and/or compatibility inspires creativity in the computer software marketplace).

248. *Id.*

249. *Id.* The development of the electronic spreadsheet idea from VISICALC to LOTUS 1-2-3 to Microsoft's EXCEL serves as the best example of program development. *Id.*

250. *Id.*

251. *Id.* Sir Isaac Newton emphasized the importance of utilizing other's ideas when he declared, "If I have seen further it is by standing on ye shoulders of Giants." *Newton*, *supra* note 1, at 31. In *Lotus*, moreover, the court recognized the importance of the OTSOG principle (*On The Shoulders Of Giants*, or "OTSOG"). *Lotus*, 740 F. Supp. at 77-79; *see also* R. MERTON, ON THE SHOULDERS OF GIANTS: A SHANDEAN POSTSCRIPT 270 (1965) (modernizing Newton's famous statement into "on the shoulders of giants" and shortening the concept to the symbolic "OTSOG" principle). The

The copyright laws of the United States preclude any policy goals which require or even encourage the standardization of computer software or any other form of copyrightable subject matter.[252] As a result, the minimalist argument that "standardization requires compatibility in order to foster creativity" falls short of the history and development of both computers and computer software products in the United States.[253] For personal computers, for example, the APPLE II inspired the IBM PC which inspired the MACINTOSH which inspired the IBM PC/2 which inspired the NeXT computer.[254] Likewise, in the spreadsheet industry, VISICALC inspired LOTUS 1-2-3 which inspired EXCEL.[255] While many of these products served as a "temporary standard," significantly more advanced products subsequently replace the standard with a new and generally better product.[256] Indeed, had the minimalist concept of standardization prevailed during the early development of personal computers, we might still consider ASTEROIDS the video game of choice.[257]

C. Recent and Upcoming Decisions

On June 28, 1990, in *Lotus Development Corp. v. Paperback Software International*, a Massachusetts federal district court estab-

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Lotus court even paralleled the OTSOG concept to the first or original author and inventor: "There is no new thing under the sun. Men may say of something, 'Ah, this is new!'—but it existed long ago before our time." *Lotus*, 740 F. Supp. at 77 (citing *Ecclesiastes* 1: 9-10). In *Lotus*, the court recognized that Paperback had pursued the typical minimalist position, contending that industry standardization sometimes requires the copying of certain aspects of computer programs. *See id.* at 78-79 (describing Paperback's reliance, in part, on the OTSOG principle). Paperback had claimed that LOTUS 1-2-3 represented a de facto industry standard for all electronic spreadsheets and that Paperback, in developing VP-PLANNER, had no choice but to follow the standard. *Id.* In response to these arguments, *Lotus* declared that Paperback sought to "flip copyright on its head." *Id.* at 79. The court stated that the more innovative a product, the more protection the copyright laws should afford. *Id.* In addition, *Lotus* also recognized the limits of the OTSOG principle, concluding that the "shoulders of giants" extends only to the ideas, and not to the expression of a work of authorship. *Id.* at 78.

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

253. *See* A Computer Perspective: Background to the Computer Age 149-59 (2d ed. 1990) (describing the development of the computer in the United States); H. Wulforst, Breakthrough to the Computer Age 161-77 (1982) (considering the development of the computer industry in the United States); F. Cooper III, Law and the Software Manufacturer 34-43 (1988) (reciting the evolution of copyright protection for computer software in the United States).

254. J. Young, Steve Jobs: The Journey is the Reward 409-28 (1988).

255. *Lotus*, 740 F. Supp. at 77.

256. *Id.*

257. *See* Atari, Inc. v. Amusement World, Inc., 547 F. Supp. 222, 224 (1981) (describing a copyright infringement suit by the makers of "Asteroids" against another video game, "Meteors"). Atari introduced "Asteroids" in October of 1978, and by

lished the copyrightability of user interface in computer software.[258] The last chapter of this story, however, took place on October 17, 1990 when Lotus agreed to an out-of-court settlement both with Paperback and Mosaic.[259] Under the terms of the settlement agreement, Paperback agreed to remove VP-PLANNER from the market as well as to pay Lotus $500,000 in damages.[260] Most significantly, Paperback agreed not to appeal, and Mosaic likewise decided to abide by the ruling.[261]

The judicial precedent for the copyrightability of user interface in computer software, however, remains anything but final.[262] In *Lotus Development Corp. v. Boreland International, Inc.*[263] and *Lotus Development Corp. v. Santa Cruz Operation, Inc.*,[264] Lotus sued yet two other computer software companies for infringing upon the user interface of the LOTUS 1-2-3 program.[265] In June of 1991, Lotus prevailed

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1981 the game had become the largest-selling video game in the United States. *Id.* at 224. Compared with the Nintendo and Sega games of the 1990's, however, Asteroids represents a mere "Model-T" of video games. Consider the limited function of the original game:

> The player commands a spaceship, represented by a small symbol that appears in the center of the screen. During the course of the game, symbols representing various sized rocks drift across the screen, and, at certain intervals, symbols representing enemy spaceships enter and move around the screen and attempt to shoot the player's spaceship. Four control buttons allow the player to rotate his ship clockwise or counterclockwise, to move the ship forward, and to fire a weapon. A variety of appropriate sounds accompany the firing of weapons and the destruction of the rocks and spaceships.

Id.

258. *See supra* notes 193-97 (setting forth the final opinion of the *Lotus* court over the copyrightability of user interface within computer software).

259. *Lotus and Paperback Software Reach Out-of-Court Settlement*, BUSINESS WIRE, Oct. 17, 1990, at 1.

260. *Id.* Mosaic also agreed to discontinue marketing of THE TWIN. *Id.*

261. *Id.*

262. *See* Antton, *Copyright Protection and Innovation: The Impact of Lotus Development v. Paperback Software*, THE COMPUTER LAWYER, August 1990, at 1 (describing the remaining questions of user interface copyright after the *Lotus* decision); Abramson, *Why Lotus-Paperback Uses the Wrong Test and What the New Software Protection Legislation Should Look Like*, THE COMPUTER LAWYER, August 1990, at 6 (discussing questions that remain unanswered after *Lotus*); Petraske, *An Infringement Test for Comprehensive Similarity In Software Cases*, THE COMPUTER LAWYER, August 1990, at 12 (discussing unanswered questions following *Lotus*); Reed, *Airing Both Sides of the "Look-and-Feel" Debate*, COMPUTERWORLD, Aug. 13, 1990, at 21 (also addressing unanswered questions).

263. *Lotus Dev. Corp. v. Borland Int'l Inc.*, The Boston Globe, July 3, 1990, at 41 (D. Mass. July 2, 1990).

264. *Lotus Dev. Corp. v. Santa Cruz Operation, Inc.*, The Boston Globe, July 3, 1990, at 41 (D. Mass. July 2, 1990).

265. *See* Simon, *Lotus Sues 2 More for Copyright Violations*, The Boston Globe, July 3, 1990, at 41 (describing Lotus's suits against tow other infringers upon the LOTUS 1-2-3 copyright). On July 2, 1990, Lotus sued Boreland Int'l Inc. (Borland) and

in its suit against Santa Cruz Operation, Inc. (SCO) when SCO agreed to cease production of SCO PROFESSIONAL, a UNIX-based clone of LOTUS 1-2-3.[266] The dispute between Lotus and Boreland International, Inc., however, continues.[267] In *SAPC, Incorporated v. Lotus Development Corp.*,[268] on the other hand, The Lotus Corporation found itself the defendant in a copyright suit for infringing upon the VISICALC copyright in LOTUS 1-2-3.[269] The claim failed because Lotus owned the rights to the VISICALC program.[270]

Apple Computer, Inc. v. Microsoft Corp.,[271] however, perhaps represents the most important recent development among the cases considering the scope of copyrightability for computer software. The case involves the ongoing litigation in the dispute between Apple Computer Incorporated (Apple) and the Microsoft Corporation (Microsoft).[272] The genesis of the copyright dispute in *Microsoft* arose after Apple developed and began marketing the MACINTOSH line of computers in the early 1980's.[273] Distinctive for a unique graphic user interface,[274]

Santa Cruz Operations Inc. (SCO) for copyright violation. *Id.* Borland, maker of QUATTRO, and SCO, maker of SCO PROFESSIONAL, market products similar to the LOTUS 1-2-3 program. *Id.* The QUATTRO products are the third most popular PC spreadsheets, and SCO PROFESSIONAL is the most popular spreadsheet for the UNIX operating system. *Id.*

266. *See* Keefe, *Lotus Bags Third Copyright Win*, COMPUTERWORLD, June 24, 1991, at 16 (describing the out-of-court settlement whereby SCO agreed to stop the manufacture, distribution, and license of SCO PROFESSIONAL and Lotus offered SCO customers a $200 price break on 1-2-3 for UNIX System V); Pacarille, *Lotus Settles with SCO, but Continues Battle with Borland*, INFOWORLD, June 24, 1991, at 152 (citing Lotus' out-of-court settlement with SCO); Siegmann, *Lotus Wins Third Copyright Battle*, San Francisco Chronicle, June 18, 1991, at CI (also addressing the SCO out-of-court settlement).

267. *See* Rosenberg, *Lotus, Borland Trade Jabs In Copyright Case*, The Boston Globe, Oct. 2, 1991, at 62 (describing the infringement against Borland by Lotus). Significantly, Judge Keeton, the same judge from the *Lotus* case, is presiding over the Borland dispute. *Id.*

268. 921 F.2d 360 (1990).

269. *Id.* at 361.

270. *Id.* at 362-63. The copyright infringement suit against Lotus failed because Lotus owned the rights to the VISICALC program pursuant to the purchase of Software Arts, the original owner to the VISICALC copyright. *Id.* at 364.

271. No. 88-20149 (N.D. Cal. filed 1989).

272. Apple Computer v. Microsoft Corp., 759 F. Supp. 1444, 1447 (N.D. Cal. 1991) (order denying motion for summary judgment in part) [hereinafter *Microsoft*].

273. *Id.*

274. *Id.* "Apple made one of the major commercial breakthroughs of the 1980's. The graphic user interface generated by the Macintosh system software consists of windows, icons, pull-down menus, and other images or visual displays projected on the computer screen." *Id.* Based on a graphic user interface design for the APPLE II series, the user interface of the MACINTOSH relies on graphic pictures (or "icons") for all system operating procedures. *Id.* Programs may be accessed (or "run"), deleted,

the MACINTOSH became an immediate success.[275] Although the computer contained many functional improvements (such as graphic capability and speed), the MACINTOSH operating system software or "user interface" comprised the fundamental link of the computer's success.[276] Microsoft subsequently developed a similar operating system for IBM and IBM-compatible computers called WINDOWS.[277] In response to Apple's objections,[278] Microsoft entered into a software licensing agreement with Apple on November 22, 1985 (1985 Agreement) whereby Apple granted Microsoft a "non-exclusive, royalty-free, non-transferrable license" to use the MACINTOSH user interface within certain Microsoft products.[279] When Microsoft granted the Hewlett-Packard Company (Hewlett-Packard) a license to use the WINDOWS program in the NEWWAVE application program,[280] Apple balked over the license arrangement and filed suit for copyright infringement of the MACINTOSH operating system by Microsoft[281] and Hewlett-Packard.[282]

At summary judgment proceedings,[283] two California federal district court judges considered the similarities between the MACINTOSH

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renamed, or moved from one location to another on the machine's main menu screen (or "desktop"). *Id.*

275. *Id.* The court recognized the significance of the MACINTOSH operating system software:

> The Macintosh user interface [footnote omitted] proved so intuitive that users were able fairly quickly to learn how to manipulate the screen displays and mouse and thus accomplish what had theretofore been the daunting task of learning to operate a computer. This breakthrough vaulted Apple to the top of the personal computer industry.

Id.

276. *Id.*

277. *Id.* In 1985, Microsoft created WINDOWS VERSION 1.0 (WINDOWS 1.0), a MACINTOSH-style graphic user interface for IBM and IBM-compatible computers. *Id.*

278. *Id.* Apple considered WINDOWS 1.0 a facial violation of the copyright for the MACINTOSH operating system. *Id.*

279. *Id.* In return, Microsoft agreed to improve existing software products for the MACINTOSH and to develop new products to make the MACINTOSH a more attractive alternative to the IBM PC. *Id.*

280. *Id.* Hewlett-Packard sought to use WINDOWS 1.0 in a new application program called NEWWAVE. *Id.*

281. *Id.* In addition to the arrangement between Microsoft and Hewlett-Packard, Apple contested the release of WINDOWS VERSION 2.03 (WINDOWS 2.03), a program almost identical to MACINTOSH's user interface. *Id.* Microsoft claimed that WINDOWS 2.03 fell under the license provisions of the 1985 Agreement as an enhancement of the earlier WINDOWS VERSIONS 1.0 program. *Id.* Apple rejected Microsoft's claim and pursued the infringement action. *Id.*

282. *Id.* at 1447-48.

283. *See* Apple Computer v. Microsoft Corp., 709 F. Supp. 925, 927 (N.D. Cal. 1989) (order granting motion for summary judgment in part and denying motion for summary judgment in part) (deeming a license agreement insufficient as a complete

"visual displays" and those of the WINDOWS and NEWWAVE programs.[284] As of the August 14, 1991 interim proceeding, however, the district court had not yet rendered an opinion as to the validity and/or scope of Apple's copyrights in the visual displays of the MACINTOSH operating system.[285] In earlier proceedings, Judge Schwarzer had suggested that the operating system precluded copyrightability,[286] yet Judge Walker expressed disfavor with Schwarzer's analysis in a subsequent consideration of the case.[287] Judge Walker nevertheless hesitated from embracing a ruling similar to *Lotus* on the scope of copyrightability for the user interface in computer software.[288]

Microsoft comes close, however, to establishing the copyrightability of the "visual displays" in the MACINTOSH operating system.[289] When, for example, Microsoft and Hewlett-Packard claimed that the MACINTOSH visual displays constituted derivative works of earlier programs by the Xerox Corporation,[290] the *Microsoft* court rejected any fraud upon the Copyright Office by Apple.[291] The court further deemed the MACINTOSH operating system an "original work" and

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defense to an infringement action based upon subsequent revisions of the subject-matter of the license); Apple Computer v. Microsoft Corp., 717 F. Supp. 1428, 1431 (N.D. Cal. 1989) (order granting motion for summary judgment in part) (recognizing that the license agreement fails to specify user interface as synonymous with visual displays).

284. *Microsoft*, 759 F. Supp. at 1448-49. At the earlier summary judgment proceedings, Judge Schwarzer had considered the similarities and differences in the MACINTOSH, WINDOWS, and NEWWAVE operating systems by referencing the "visual displays." *Id.* Judge Schwarzer applied this approach because the 1985 Agreement used the specific term, "visual display." *Id.* at 1448 n.4.

285. Apple Computer, Inc. v. Microsoft Corp., 20 U.S.P.Q.2d 1236 (N.D. Cal. 1991) (order granting motion for summary judgment in part and denying motion for summary judgment in part).

286. *Microsoft*, 759 F. Supp. at 1449. In the *Microsoft* opinion, the court notes that: "Implicit in Judge Schwarzer's approach to the case is a rejection of Apple's fundamental contention that the 'total concept and feel' of the Macintosh graphic user interface is protectible expression." *Id.* The court further recognized that "Judge Schwarzer's approach appears to have been to exclude licensed visual displays prior to applying the substantial similarity of idea and expression tests." *Id.*

287. *Id.*

288. *Id.*

289. *Id.* at 1454-55.

290. *Id.* Apple conceded that Xerox's SMALLTALK and STAR programs strongly influenced the development and design of the MACINTOSH operating system software. *Id.* at 1454.

291. *Id.* The *Microsoft* court recognized that: "All works are derived to a certain degree from pre-existing works. A derivative work within the meaning of the copyright law, however, is one which substantially borrows the expression of ideas from an existing work." *Id.* Finding no evidence of substantial infringement, the court denied the defense, concluding: "although there is evidence that Apple's designers borrowed ideas from Xerox's Smalltalk and Star programs, there is no substantiation for the allegation." *Id.*

thus copyrightable.[292] Nevertheless, *Microsoft* stopped short of establishing the copyrightability of the visual displays, instead rendering the issue the proper basis of subsequent adjudication.[293] Significantly, the decision of this "subsequent adjudication" may possibly determine the life span of *Lotus Development Corp. v. Paperback Software International* in the federal copyright jurisprudence of the United States.[294]

CONCLUSION

In writing "[i]f I have seen further it is by standing on ye shoulders of Giants," Sir Isaac Newton expressed his understanding that the future improvement of any work remains possible only by furthering upon the work of others.[295] In the case of a work of authorship, an indefinite distinction exists between "improving" upon another's work and the "copying" of that work. Inherent in this distinction is the constitutional right of copyright. This right, moreover, also embodies another, albeit less theoretical, conflict between the betterment of the public welfare through free access to copyrightable works and the au-

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292. *Id.* at 1455. The *Microsoft* court reiterated the basis of the originality requirement for a copyrightable work: "The standard of originality required for copyrightability is minimal. [citation omitted]. To fulfill the originality requirement, a work need only be independently created by the author and embody a very modest amount of intellectual labor; novelty or uniqueness is not essential." *Id.* As a result, the court determined that the MACINTOSH operating system met this standard. *Id.*

293. *Id.* The *Microsoft* court suggested:

> Accordingly, HP's affirmative defense regarding fraud on the Copyright Office and both HP and Microsoft's affirmative defenses of lack of originality are dismissed from the case. HP and Microsoft's defenses to infringement, scope of protection, merger, and *scenes a faire* doctrines remain in issue and would be appropriately discussed in connection with an adjudication regarding substantial similarity.

Id. at 1455-56.

294. Although Judge Walker seems to favor adjudicating the issue of copyrightability for "visual displays," the question remains whether the district court will consider the copyright question in subsequent proceedings. In the final analysis on the copyright issue, the *Microsoft* court concluded:

> Although the court did invite motions addressing the issue of "scope of protection" of Apple's copyrights and the merger doctrine has been applied in other circuits to preclude copyrightability of a particular work, the court must follow the law of the Ninth Circuit. Since the court did not invite motions regarding the issue of substantial similarity, a resolution whether the works in suit are not substantially similar because of the merger of the idea and expression in Apple's visual displays is premature at this time.

Id.

As of the deadline for the submission of this Note, the federal district court for the northern district of California had not rendered the final decision in the *Apple Computer v. Microsoft Corp.* case.

295. Newton, *supra* note 1, at 31.

thor's right to a limited monopoly over the reproduction, distribution, adaptation, performance, and display of those original works.

In balancing these dual conflicts under the copyright laws — an author's right to a limited monopoly vis-a-vis the benefit to the general public and the more amorphous distinction between improving upon an author's work and the copying of that work—the United States federal courts have formulated a myriad of tests to ascertain the boundaries of each interest. The copyrightability of user interface in computer software perhaps easily illuminates these conflicts because of the obvious distinction between the noncopyrightable idea (such as an electronic spreadsheet) and the copyrightable expression (such as the command-tree of any individual computer program). Recognizing this distinction, the court in *Lotus Development Corp. v. Paperback Software International* adopted a test which looks to the telltale concepts of idea and expression to differentiate the scope of copyright protection for computer software. By application of the United States Supreme Court case of *Baker v. Seldan*, *Lotus* concluded that, while the idea of an electronic spreadsheet program precludes copyrightability, a specific means of expressing the idea within a computer program (such as VISICALC, LOTUS 1-2-3, or EXCEL) achieves a sufficiently unique and thus copyrightable status. By defining the dichotomy between the noncopyrightable idea versus copyrightable expression within the elements of a computer program, *Lotus* efficiently balanced the two constitutional policy interests of copyright, as well as silenced the conflicting ideals of fair use, by establishing the copyrightability of user interface within computer software.[296]

296. In applying the elements of the *Baker v. Seldan* idea/expression dichotomy as modified by *Lotus* in the "modified *Baker* test," *Lotus* established the copyrightability of the nonliteral elements of a computer program if a court can answer two questions in the affirmative. First, a court must consider whether the aspect in question constitutes a distinctive detail of the computer program. Second, the court must determine whether the aspect involves the only means to express the idea. If the answer to both questions are in the affirmative, the nonliteral element of the computer program is copyrightable. *Lotus*, 740 F. Supp. at 67-68; *see also* supra note 191 (setting out a schematic of the *Lotus* test of copyrightability for the user interface of computer software).