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TOWARDS A CONSISTENT TEST FOR SUBSTANTIAL SIMILARITY REGARDING INFRINGEMENT OF COPYRIGHTED ASPECTS OF COMPUTER PROGRAMS

I. INTRODUCTION

Over the last half century, computer technology has infiltrated almost every facet of modern life, effecting everything from communication¹ to banking.² Demand for time-saving and money-saving computer products has never been greater, as evidenced by sales of computer software³ in excess of \$65 billion in 1989.⁴

With this much money at stake, it is no wonder that computer technology developers pursue copyright protection for their products and even more zealously pursue recourse from infringers on those copyrights in our courts. However, the rapid advancement of computer technology seems in some

1. 21 million American households have cordless phones. *See Sanders, Reach Out and Tape Someone*, TIME, Jan. 1990 at 55; One fourth of American homes have a cordless phone. *See Cordless Phones: What Price for Freedom*, CONSUMER REPORTS, Nov. 1989 at 680. Growth of cellular phones in the United States by the end of 1989 is projected at 3.2 million phones and subscribers. *See Lopez, Phone Fixation: Once High-Tech Toys, Cellular Telephones are Becoming Staples*, Wall St. J., Aug. 11, 1989, at 1, col. 1. By 1993, there will be an estimated seven million facsimile units in use. *See Lightweight Options*, Detroit Free Press, Dec. 8, 1989, at F3, col. 1, 4; Of the nation's 2.5 million facsimile machines, 300,000 are owned by the legal profession. *See Courts Taking the Lead in Use of Fax Machines*, BUSINESS LEADER, Jan.-Feb. 1989 at 18; Fax machines were used by the climbers on a 1988 expedition to the summit of Mount Everest to send progress reports via a cellular phone. Chicago Tribune, Aug. 12, 1990, §10 (Magazine), at 36. Soldiers during operation Desert Shield used fax machines to vote in their hometown elections. Los Angeles Times, Nov. 6, 1990, at A4, col. 1.

2. In 1987, there were an estimated 60,000 automated teller machines (ATMs) open across the United States. Helldorfer, Fennell, Hirschberg, Daw & Tillotson, *Banks & Banking*, 42 BUS. LAW. 1002 (1987).

3. The term "software" refers to "system, utility or application programs expressed in computer-readable language (permanently stored in read-only memory for ("ROM") which cannot be modified by the user)." QUE'S COMPUTER USER'S DICTIONARY 478 (2d ed. 1991).

4. Anthes, *U.S. Software Position at Risk; Senate Hears Testimony That Taxes, Export Policies Affect U.S. Market Share*, COMPUTERWORLD, Nov. 25, 1991 at 74. The U.S. software industry accounted for more than 60% of that figure, or approximately \$36 billion. *Id.*

instances to have outpaced the courts' ability to consistently apply traditional copyright doctrines, many of which were created in the 19th century.⁵

One area where this problem has become particularly blatant is the test for substantial similarity under the "copying" element of infringement.⁶ Under the traditional "ordinary observer" test first enunciated in 1860,⁷ factfinders were asked to determine whether similarity existed between two works by their impetuous, intuitive reaction - without the use of, and often without the need for, expert testimony regarding the similarities and differences between the subject matter. However, modern factfinders in computer-related cases, faced with detailed factual issues and technical evidence that their 19th century counterparts could not have imagined, may be fundamentally unable to understand the evidence being presented without the aid of expert help.

Some modern courts presented with technical computer program cases have refused to stray from the traditional test and have applied the old rule to facts which may have outgrown it.⁸ Other courts have modified⁹ or in some cases abandoned¹⁰ the traditional standard, creating and adopting tests that appear to be more applicable to the complex, enigmatic computer-related cases being litigated in the courts today.

This slow evolutionary process of the law has produced a conflict in the circuit courts regarding the appropriate test for determining whether an allegedly infringing work is so "substantially similar"¹¹ to a copyrighted expression of a computer program as to be considered infringing. This Note will first discuss the complex nature of computer technology and the scope

5. See Note, *Copyrighting "Look and Feel": Manufacturers Technologies v. Cams*, 3 HARV. J.L. & TECH. 195 (1991). "Some new technologies fit easily into the pre-existing framework. Immediately upon development, attorneys and courts comfortably place the technology into a familiar category. Rights are certain, transactions efficient, and technological progress continues unhindered. Such has not been the case with computer software, which, from the first, has resisted neat categorization." *Id.* at 195 (footnote omitted).

6. For a discussion of the elements of a copyright infringement cause of action, see *infra* Section III and accompanying notes.

7. See *infra* note 65 and accompanying text.

8. See *infra* Section IV, subsection A and accompanying notes.

9. See *infra* Section IV, subsection B and accompanying notes.

10. See *infra* Section IV, subsection C and accompanying notes.

11. For a discussion of the "substantial similarity" test for the copying element of a copyright infringement cause of action, see *infra* Section IV and accompanying notes.

of copyright protection currently available for computer programs. Section III will identify the elements of a copyright infringement cause of action and highlight the critical role of the test for substantial similarity. Section IV will set out the current three-way conflict in the circuit courts regarding the appropriate test for substantial similarity in computer program infringement cases and will examine the origins, underlying justifications and practical ramifications of each test. Finally, this Note will conclude that where the subject matter of a copyright dispute is particularly complex, such as computer programs, an "integrated" approach to the substantial similarity test, where the trier of fact is allowed access to all relevant evidence regardless of origin, is best.

II. BACKGROUND

To fully appreciate the technical nature of this area of the law and the detailed understanding and analysis required of factfinders in this regard, a foundation must be laid concerning how a computer operates and what copyright law principles are primarily at issue in computer program copyright cases.

A. THE BASICS OF COMPUTER TECHNOLOGY

A computer "system"¹² consists of two basic areas of technology: 1) "hardware," which comprises the physical and mechanical components of a computer,¹³ and 2) "software," which is a broad term generally used to describe computer programs¹⁴ designed to perform a certain task or group of tasks.¹⁵ A computer programmer writes a program in one of several

12. "A complete computer installation - including peripherals, such as disk drives, a monitor, and a printer - in which all the components are designed to work with each other." *QUE'S COMPUTER USER'S DICTIONARY* 123 (2d ed. 1991).

13. "The electronic components, boards, peripherals, and equipment that make up a computer system - distinguished from the programs (software) which tell the components what to do." *Id.* at 252.

Classic examples of "hardware" in a computer system would be the display screens, keyboards, printers, disk drives (hard or floppy), central processing units, microprocessing "chips," modems, "mice" and all the cables and wires connecting two of these things or their like.

14. Section 101 of the Copyright Act defines a "computer program" as "a set of statements or instructions to be used directly or indirectly to bring about a certain result." 17 U.S.C. § 101 (1982).

15. In lay terms, the software used in a computer system tells the hardware what to do, and the hardware does it. For a more technical definition, *see supra* note 3.

"languages"¹⁶ which constitute the literal "source code" of a given computer program. Source code language can be written, read and spoken by highly trained humans, but cannot be read directly in this format by computers, which only read "object code."¹⁷ Although a skilled programmer can write programs in object code, because of the great difficulty and time involved most programmers utilize a "compiler"¹⁸ in the computer to translate the source code to computer-readable object code. The source code and the object code constitute the "literal"¹⁹ aspects of a computer program.

While the program coding may seem to the layperson as a tremendous undertaking, in reality it is only a small part of the total process of creating a successful, profitable program.²⁰ Since most computer users are unsophisticated,²¹ the majority of a program creator's time, effort and money is spent developing a "user friendly"²² interface for the

16. There are many source code languages from which a programmer can chose, such as BASIC, FORTRAN, COBOL, PASCAL and EDL. This Note ignores as irrelevant the distinction between "high level" and "assembly" languages. See Note, 96 HARV. L. REV. 1723, 1725 (1983). Regardless, both distinctions of codes have been held to be examples of "source code." See *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1243 (3d Cir. 1983), cert. dismissed, 464 U.S. 1033, 104 S. Ct. 690 (1984).

Programs written in different source code languages can produce the same output.

17. "Object code" is a series of binary instructions consisting of seemingly endless combinations of "1"s and "0"s.

18. "A program that [translates] the statements written in a human-readable programming language (source code) and translates the statements into a machine-readable executable program (object code). QUE'S COMPUTER USER'S DICTIONARY 118 (2d ed. 1991).

19. See *infra* Section I, subsection B, part 3 and accompanying notes.

It is generally understood that the literal "code" aspects of a computer program, if original, are copyrightable as "literary works" under 17 U.S.C. § 101(a)(1) (1982). See *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 45 (D. Mass. 1990); *Stern Elecs., Inc. v. Kaufman*, 669 F.2d 852, 855 n.3 (2d Cir. 1982).

20. *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222, 1231 (3d Cir. 1986).

21. See Note, *A Thousand Clones: The Scope of Copyright Protection in the "Look and Feel" of Computer Programs - Digital Communications Associates, Inc. v. Softklone Distributing Corp.*, 659 F. Supp. 449 (N.D. Ga. 1987), 63 WASH. L. REV. 195, 220 (1988).

22. "A program designed so that persons who lack extensive computer experience or training can use the system without becoming confused or frustrated. A user-friendly program usually includes the following elements: menus are used instead of forcing the user to memorize commands; on-screen help is available at the touch of a key; program functions are mapped to the keyboard in a logical order and do not contradict established conventions; error messages contain an explanation of what went wrong and what to do to solve the problem; intermediate and advanced features are hidden from view so they do not clutter the screen and confuse those who are learning the program; commands that could erase or destroy data display confirmation messages that warn the user of the command's drastic consequences and provide a way to escape without initiating the operation; and clear, concise documentation including [sic] tutorials and reference information." QUE'S COMPUTER USER'S DICTIONARY 523-24 (2d ed. 1991).

program.²³ It is no wonder that protection of the “nonliteral”²⁴ aspects of a computer program, such as visual display screen output,²⁵ has been so adamantly pursued by product manufacturers in the courts.

B. BASIC COPYRIGHT PRINCIPLES AFFECTING THE PROTECTION OF COMPUTER TECHNOLOGY

1. *Statutory Protection*

The Constitution provides the basis for modern copyright law,²⁶ which has evolved from the limited protection of the original Copyright Act of 1790²⁷ to the broad protection found in the modern Copyright Act.²⁸ At its bottom, copyright law was established to strike a balance between two competing and equally compelling interests; rewarding ingenuity and innovation with “exclusive Right” protection while at the same time not quelling that same ingenuity and innovation with overly-broad protection.²⁹

23. *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222, 1231 (3d Cir. 1986) (stating that the ‘look and feel’ of a computer software product often involves much more creativity and is often of greater commercial value than the program code that implements the product).

24. *See Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 46 (D. Mass. 1990) (defining “nonliteral” aspects of computer programs to include the overall organization of the program, the structure of the programs command system, and the presentation of the information on the screen). *See also infra* Section II, subsection B, part 1 and accompanying notes.

25. It is generally accepted that output from video display screens, if original, is copyrightable as an audiovisual work under 17 U.S.C. § 101(a)(6) (1982). *See infra* note 41 and accompanying text.

26. The Constitution provides that: “Congress shall have Power to ... promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” U.S. CONST. art. I, § 8, cl. 8.

27. The Copyright Act of May 31, 1790 only granted protection to “any map, chart, book or books already in print,” and only for a term of 14 years. *See* Copyright Act of 1790, ch. 15, 1 Stat. 124 (1790).

28. *See* 17 U.S.C. § 102 (1982). The Copyright Act of 1976 lists, nonexclusively, many categories works that qualify for copyright protection modernly, and grants a protective term of the life of the author(s) plus 50 years after his or her death. *Id.* *See also Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 48 (D. Mass. 1990) (stating that “listed works under section 102 were not intended to be illustrative and limiting and do not necessarily exhaust the scope of works the bill intended to protect”).

29. *See Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222, 1235 n.27 (3d Cir. 1986) (courts must take care to reach a balance between two extremes equally prejudicial; the one rewarding innovators for their ingenuity and labour, and the other retarding progress and improvements).

As the Court in *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37 (D. Mass. 1990) stated:

2. *The Idea / Expression Dichotomy*

The Supreme Court made clear in *Baker v. Selden*³⁰ that copyright protection can only be extended to the expression of an idea, and not the idea itself.³¹ This axiom was codified in the section 102(b) of the current Copyright Act.³² While the language of this rule may seem clear and simplistic, its application to a given set of facts is often difficult,³³ and a "catch-all" rule germane to all situations is not practical.³⁴

Copyright monopolies are not granted for the purpose of rewarding authors. Rather, Congress has granted copyright monopolies to serve the public welfare by encouraging authors (broadly defined) to generate new ideas and disclose them to the public, being free to do so in any uniquely expressed way they may choose. [Citation omitted]... The immediate effect of our copyright law is to secure a fair return for an 'author's' creative labor. But the ultimate aim is, by this incentive, to stimulate artistic creativity for the general public good. [Citation omitted].

Id. at 52-53.

Due to the overwhelming volume of computer related copyright questions surfacing in the later half of this century, Congress in 1974 created the National Commission on New Technological Uses of Copyrighted Works (CONTU) to research and evaluate the copyright protection of computer programs. The National Commission on New Technological Uses of Copyrighted Works, Final Report 1 (1979). CONTU was created to help develop a national policy for "protecting the rights of copyright owners and ensuring public access to copyrighted works when they are used in computer or machine duplication systems, bearing in mind public and consumer interest." *Id.* at 3. The CONTU Final Report led to, among other things, the creation and adoption of the Computer Software Copyright Act of 1980. Pub. L. No. 96-517, § 10(a), 94 Stat. 3028 (1980) (codified at 17 U.S.C. § 101 (1982)). A major contribution of the Computer Software Copyright Act of 1980 is that it amended the copyright laws to include a definition of "computer program." See *supra* note 14 and accompanying text.

30. 101 U.S. 99 (1879).

31. *Id.* at 102-03.

It is interesting to note that at least one court has held that "the relationship between idea and expression applies to the issue of infringement rather than copy-rightability." *Telemarketing Resources v. Symantec Corp.*, No. C88-20352 RPA (N.D. Cal. Sept. 6, 1989) (1989 WESTLAW 200350, 2 n.2, Allfeds directory) (citing *NEC Corp. v. Intel Corp.*, 10 U.S.P.Q. 2d. 1177, 1179 (N.D. Cal. 1989)).

32. "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." 17 U.S.C. § 102(b) (1982).

33. See *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 42 (where Judge Keeton akin the practical application of this rule to "Answering [a] riddle ..."). See also *Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp.*, 562 F.2d 1157, 1163 n.6 (9th Cir. 1977) (criticizing the idea/expression distinction, but admitting that "no better formulation [balancing the competing interests of copyright law] has been devised").

34. As Judge Learned Hand said aptly in *Peter Pan Fabrics v. Martin Weiner Corp.*, 274 F.2d 487 (2d Cir. 1960), "The test for infringement of a copyright is of necessity vague Obviously, no principle can be stated as to when an imitator has gone beyond copying the 'idea,' and has borrowed its 'expression.' Decisions must therefore inevitably be *ad hoc*." *Id.* at 489 (emphasis in original).

3. *Protection of Literal and Non-Literal Aspects of Computer Programs*

While the law almost uniformly extends copyright protection to the "literal"³⁵ or code aspects of computer programs,³⁶

The courts have extended the idea/expression dichotomy to form three interrelated factually-based doctrines. The first, known as the "merger doctrine," applies where a single idea can only be expressed in a very limited number of ways. There it is said that the expression "merges" with the idea and is therefore not granted protection under copyright laws. *Herbert Rosenthal Jewelry Corp. v. Kalpakian*, 446 F.2d 738, 742 (9th Cir. 1971) (the classic case where idea of jewel-encrusted "bee" stick pin was found to be indistinguishable from the expression of that idea). *See also* *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127, 1131 (N.D. Cal. 1986) (if an idea is indistinguishable from its expression, the idea is "merged" into the expression and the expression cannot be protected under the copyright laws). *See also* *Digital Comms. Assocs. v. Softklone Distrib. Corp.*, 659 F. Supp. 449, 458 (N.D. Cal. 1987) (The "accepted test" for merger in the computer area is: if there is only one way to express the idea, 'idea' and 'expression' merge and there is no copyrightable material).

The second related doctrine is the "blank form" doctrine. Blank forms that do not convey information are not copyrightable. *See Baker v. Selden*, 101 U.S. 99, 104 (1879). However, if a blank form by its arrangement and organization conveys some information, *Digital Comms. Assocs. v. Softklone Distrib. Corp.*, 659 F. Supp. 449, 461 (N.D. Ga. 1987), or is sufficiently innovative that the arrangement of information is itself informative, *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1250 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1003, 104 S. Ct. 690 (1984), then it is an expression to be protected by the copyright laws. "The litmus seems to be whether the material proffered for copyright undertakes to express." *Synercom Tech., Inc. v. University Computing Co.*, 462 F. Supp. 1003, 1011 (N.D. Tex. 1978).

The third doctrine is the prohibition from copyright protection of utilitarian or "functional" aspects of works. Utilitarian aspects of copyrighted works are those aspects which do not undertake to express, but rather are designed solely for their use. Copyright protection extends only to the artistic aspects, and not the mechanical or utilitarian features, of a protected work. *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127, 1133 (N.D. Cal. 1986). Since the purpose of a utilitarian work is the work's idea, everything that is not necessary to that purpose or function is part of the expression of the idea. *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 52 (D. Mass. 1990). If the expressive element of an object cannot be separated from its utility, it is not a copyrightable aspect of that object. *See Fabrica, Inc. v. El Dorado Corp.*, 697 F.2d 890, 893-94 (9th Cir. 1987) (since no expressive element of display folders could exist independently of the utility of the folders themselves, no protection was allowed). Conversely, expressive aspects of utilitarian works may be copyrighted. *See also* *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1251-52 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1003, 104 S. Ct. 690 (1984) (computer operating systems, though designed for their mechanical utilitarian use, are not wholly unilateral and qualify for protection as expressive).

This doctrine is codified in Section 101 of the present Copyright Act. *See* 17 U.S.C. §101 (1982).

35. *See supra* note 19 and accompanying text.

36. *See Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37 (D. Mass. 1990) ("[A]s a general proposition, [the] literal manifestations of a computer program - including both source code and object code - if original, are copyrightable"); *Stern Electronics, Inc. v. Kaufman*, 669 F.2d 852, 855 n.3 (2d Cir. 1982) ("Written computer programs are copyrightable as literary works."); *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222, 1233 (3d Cir. 1986) ("It is well, though recently, established that copyright protection extends to a program's source and object codes.").

there confusion remains as to whether and what "nonliteral"³⁷ aspects of programs qualify for copyright protection, and whether that protection exists separate from the underlying program.³⁸

Two major theories of protection exist regarding nonliteral aspects of computer programs:³⁹ 1) the nonliteral aspects are integral elements of the computer program and are therefore protected by registering the underlying literal codes ("copyright extension theory"), and 2) the nonliteral aspects are separate original works and expressions and therefore qualify for independent protection regardless of the underlying codes ("independent copyright theory").⁴⁰ Courts have often blurred, bent and overlapped these two theories to fit a given situation. While generally accepting the independent copyright theory,⁴¹

37. See *supra* note 24 and accompanying text.

38. This is an area where much of the litigation concerning computer technology has been had. While not the focus of this Note, due to the amount of litigation, commentary and the complexity in this area, a brief discussion is necessary.

39. Prior to 1988, the Copyright Office allowed separate copyright registration of "literary" code and the visual display screens generated by that code. However, in 1988 the Copyright Office announced that it would only accept a single registration per separate program, and that the registration would protect all aspects of the program because "computer program code and screen displays are integrally related and ordinarily form a single work." Copyright Office, Notice of Registration Decision: Registration and Deposit of Computer Screen Displays, 53 Fed. Reg. 21,817-19 (1988). This formal policy stance of the Copyright Office, while a novel attempt to relieve some of the confusion in this area, seems to have had little impact on the actual analysis in the courts, for as shown, *see infra* note 4 and accompanying text, the decisions on this issue both pre- and post-1988 have been inconsistent. See also *Manufacturers Tech., Inc. v. Cams, Inc.*, 706 F.Supp. 984, 990-91 (D. Conn. 1989) ("[This] recent decision of the Copyright Office ... [is] simply a reaffirmation of its long-standing policy, ... [addressing] that confusion may have arisen from its [previous] concurrent acceptance of separate registrations of screen displays.").

40. The rationale behind "separate screen" copyrighting is that many different computer programs can produce the same resulting display screen output. *Stern Elecs., Inc. v. Kaufman*, 669 F.2d 852, 855 (2d Cir. 1982).

41. The majority of cases addressing this theory have concerned videogame audiovisual displays, and all have generally held that the nonliteral aspects of video and audio displays are protected separately from the underlying literal computer program code as original audiovisual works under 17 U.S.C. § 102(a). See *Stern Elecs., Inc. v. Kaufman*, 669 F.2d 852, 853-57 (2d Cir. 1982) (video game, defined as a computer programmed to create on a television screen images that can in some respect be controlled by the user, is copyrightable as audiovisual works); *Atari, Inc. v. Amusement World, Inc.*, 547 F. Supp. 222, 226 (D. Md. 1981) (visual presentation of the game "Asteroids" is the plaintiff's work, and is copyrightable as an audiovisual work); *M. Kramer Mfg. Co., Inc. v. Andrews*, 783 F.2d 421, 435-36 (4th Cir. 1986) (copyrightability of video games as audiovisual works cannot be disputed); *Midway Mfg. Co. v. Bandai-Am., Inc.*, 546 F. Supp. 125, 139 (D. N.J. 1982) (unquestionable that video games in general are entitled to copyright protection as audiovisual works); *Atari, Inc. v. North Am. Phillips Consumer Elec. Corp.*, 672 F.2d 607, 617 (7th Cir. 1982), *cert. denied*, 103 S. Ct. 176 (1982) (the game, the idea of the game, itself is not protected

opinions analyzing the viability of the copyright extension theory have been very narrow and have often been in express conflict with each other.⁴²

It has recently been urged that the “total concept, look and feel”⁴³ of a computer program’s user interface should be a copyrightable nonliteral feature of a computer program.⁴⁴ This new theory of protection has been the subject of much com-

but the shape and characteristics of the display and the shapes, sizes, colors, sequences, arrangements and sounds that provide something new or additional over the idea are protected).

The fact that many programs can produce the same resulting output suggests basic problems with even the Copyright Act definition of “computer program” itself. *See supra* note 14 and accompanying text.

42. *See Synercom Tech., Inc. v. University Computing Co.*, 462 F. Supp. 1003, 1013-14 (N.D. Tex. 1978) (rejecting the copyright extension theory to the “sequence and ordering of data” on the screen); *Digital Comms. Assocs. v. Softklone Distrib. Corp.*, 659 F. Supp. 449, 455-56 (N.D. Ga. 1987) (expressly rejecting *Broderbund* and holding that the copyright protection of a computer program does not extend to screen displays generated by the program). *Cf. SAS Inst., Inc. v. S & H Computer Sys.*, 605 F. Supp. 816, 829-30 (M.D. Tenn. 1985) (holding that the organization and structural details of a computer program designed to perform statistical analysis were expression of the program’s idea, and were therefore protected); *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222, 1237-40 (3d Cir. 1986) (expressly declining to follow the unsound reasoning of *Synercom* and adopting the *SAS Inst.* line of logic); *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127, 1134 (N.D. Cal. 1986) (expressly extending *Whelan* and holding that the structure, sequence and layout of the audiovisual display of the computer program were expressions of artistic and aesthetic elements, and were therefore protected by the underlying copyrighted program code); *Telemarketing Resources v. Symantec Corp.*, No. C88-20352 RPA (N.D. Cal. Sept. 6, 1989) (1989 WESTLAW 200350, 2-3, Allfeds directory) (expressly extending *Whelan* and *Broderbund* and holding that “[c]opyright protection applies to the user interface, or overall structure and organization of a computer program, including its audiovisual displays, or screen ‘look and feel’”); *Johnson Controls, Inc. v. Phoenix Control Sys.*, 886 F.2d 1173, 1175 (9th Cir. 1989) (avoiding expressly addressing the conflict emerging on this issue, the Court by implication extended the copyright extension theory); *Lotus Dev. Corp. v. Paperback Software Int’l*, 740 F. Supp. 37, 80-82 (D.Mass. 1990) (after pointing out the conflict between case law, Copyright Office registration procedure and current copyright statutes, the Court implicitly followed the *Whelan* line and held that the protection offered by registering the underlying literal code extends to all nonliteral elements of expression contained in that program). *Cf. Manufacturers Tech., Inc. v. Cams, Inc.*, 706 F. Supp. 984, 990-93 (D.Conn. 1989). After identifying and discussing the deficiencies of the two existing “schools of thought,” the Court ultimately created and adopted a new “legal fiction” by which it could extend the holding of *Softklone*: “[T]reat the single registration of the computer program as accomplishing two interrelated yet distinct registrations; one of the program itself and one of the screen displays or user interface of that program, to the extent that each contains copyrightable subject matter This approach conforms with the realities of Copyright Office registration procedures.” *Id.* at 993.

43. “Look and feel” describes the manner in which the computer program interacts with the user, i.e., how its use is facilitated by the environment created by the computer program.

44. Protection of this feature has been argued to attach under either the “copyright extension” or the “independent copyright” theory.

mentary⁴⁵ and a few courts have addressed it in the context of computer display outputs.⁴⁶ However, this theory is often confused with a test for "substantial similarity" under the "copying" element of infringement that bears the same name.⁴⁷ At least one court has taken steps to alleviate this confusion by expressly rejecting the theory that a computer program's "look and feel" is covered by copyright law.⁴⁸

45. Moreno, *"Look and Feel" as a Copyrightable Element*, 51 LA. L. REV. 177, 182-86 (1990) (suggesting that "look and feel" concept has been applied both as a theory of copyrightability and as a test of substantial similarity, and that the burden of proof on the issue of infringement should be shifted to the defendant); Comment, *Protecting the "Look and Feel" of Computer Software*, 1 HIGH TECH. L.J. 411, 445 (1986) (suggesting that the courts should dissect the "look and feel" of computer software into its component parts and identify which elements deserve copyright protection); Note, *Protecting the Look and Feel of Computer Programs*, 10 CARDOZO L. REV. 561, 591 (1988) (concluding the relationship between the underlying written code used to create a program and a program's resulting operation has proven too complex for current copyright laws).

46. See *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 63 (D. Mass. 1990) (rejecting a program's "look and feel" as a separately copyrightable expression); *Telemarketing Resources v. Symantec Corp.*, No. C88-20352 RPA (N.D. Cal. Sept. 6, 1989) (1989 WESTLAW 200350, 2-3, Allfeds directory) (court finds that no reasonable jury would find the opening display screens of two works had substantially similar "look and feel"); *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127, 1137 (N.D. Cal. 1986) (the "total concept and feel" of two computer programs was found to be "virtually identical").

47. The notion of "look and feel" as a test for substantial similarity first arose in cases involving very visual literary works such as greeting cards, see *Roth Greeting Cards v. United Card Co.*, 429 F.2d 1106, 1110 (9th Cir. 1970) (coining the phrase "total concept and feel" concerning two similar cards).

In addition to its use in computer program cases, the "look and feel" concept has been extended to cover similarities between music, see *Black v. Gosdin*, 740 F. Supp. 1288, 1292-94 (M.D. Tenn. 1990) (two country music songs about broken-hearted lovers did not have the same "total concept and feel"), literary plots, themes and characters, see *Burgess v. Chase-Riboud*, 765 F. Supp. 223, 239-43 (E.D. Penn. 1991) (plaintiff's play about Thomas Jefferson's alleged love affair with a slave had the same "look and feel" as defendant's novel); *Branch v. Ogilvy & Mather, Inc.*, 765 F. Supp. 819, 823 (S.D.N.Y. 1990) (two cookbooks had the same "total feel and concept"), television characters, see *Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp.*, 562 F.2d 1157, 1167 (9th Cir. 1977) (McDonald's restaurant commercial captured the "total concept and feel" of plaintiff's Pufnstuf television show), and other visually distinctive objects, see *Pasillas v. McDonald's Corp.*, 927 F.2d 440, 442-43 (9th Cir. 1991) (McDonald's "man in the moon" mask used in television commercial, while admittedly sharing the same idea, did not have the "total concept and feel" as the plaintiff's copyrighted Halloween mask).

For discussion of "total concept, look and feel" as a test for substantial similarity under the copying element of an infringement cause of action, see *infra* section III and accompanying notes.

48. See *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 62-63 (D. Mass. 1990) (where the court stated that total concept, look and feel concept is not used to determine copyrightability, but rather assuming copyrightability, it is used in applying the substantial similarity test to determine whether forbidden copying has occurred). "Look and feel" is a conclusion, not a test." *Id.*

III. THE ELEMENTS OF COPYRIGHT INFRINGEMENT

In order to maintain an infringement claim, the plaintiff must prove valid ownership of a copyright⁴⁹ and “copying” of the protected material by the defendant.⁵⁰ Since direct evidence of copying is rarely available,⁵¹ it must often be proven inferentially by showing that the defendant had access⁵² to the allegedly infringed copyrighted work and that the allegedly infringing work is “substantially similar.”⁵³ Summary judgment

49. In order to establish ownership of a copyright, the plaintiff must establish (1) originality in the author of the copyrighted work; (2) copyrightability of the subject matter of the work; (3) proper citizenship of the author; (4) compliance with the applicable statutory formalities; and (5) (if the plaintiff is not the author) a transfer of rights or other relationship between the author and the plaintiff so as to constitute the plaintiff as a valid copyright claimant. *Digital Comms. Assocs. v. Softklone Distrib. Corp.*, 659 F. Supp. 449, 453 (N.D. Ga. 1987) (citing *NIMMER, 3 NIMMER ON COPYRIGHT § 13.01[A]* (1986)).

Registration of a copyright constitutes prima facie evidence of the validity of the copyright works covered thereby, and shifts to the defendant the burden of producing evidence showing that the registered works are not copyrightable. *Manufacturers Technologies, Inc. v. Cams, Inc.*, 706 F. Supp. 984, 991 (D.Conn. 1989) (citing *M. NIMMER & D. NIMMER, 3 NIMMER ON COPYRIGHT §§12.11[A], [B]* at 12-80.3-12-80.4 (1988)). In most computer-related cases, ownership of a valid copyright by the plaintiff is not challenged, unless a dispute exists concerning whether certain aspects of a computer program contain copyrightable subject matter.

50. *Apple Computer, Inc. v. Microsoft Corp.*, 759 F. Supp. 1444, 1453 (N.D. Cal. 1991). See also *Data East USA, Inc. v. Epyx*, 862 F.2d 294, 206 (9th Cir. 1988); *Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp.*, 562 F.2d 1157, 1162 (9th Cir. 1977); *Atari, Inc. v. North Am. Philips Consumer Elec. Corp.*, 672 F.2d 607, 614 (7th Cir. 1982), cert. denied, 103 S. Ct. 176 (1982). See also *NIMMER, 3 THE LAW OF COPYRIGHT § 13.01* (1990).

51. See *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127, 1135 (N.D. Cal. 1986) (stating that “The present case is exceptional in this regard. Plaintiffs produced sufficient direct evidence of copying to establish infringement”); *Digital Comms. Assocs. v. Softklone Distrib. Corp.*, 659 F. Supp. 449, 465 (N.D. Ga. 1987) (“[C]opying is ordinarily impossible to prove by direct evidence”); *Apple Computer, Inc. v. Microsoft Corp.*, 759 F. Supp. 1444, 1453 (N.D. Cal. 1991) (stating that “[D]irect evidence of copying is rare”).

52. “Access” has been defined in very divergent ways, including “actual viewing” of the copyrighted work, see *Bradbury v. Columbia Broadcasting Sys., Inc.*, 287 F.2d 478, 479 (9th Cir. 1961), “opportunity to view,” see *Smith v. Little, Brown & Co.*, 245 F. Supp. 451, 458 (S.D.N.Y. 1965), *aff'd*, 360 F.2d 928 (2d Cir. 1966), “opportunity to copy,” see *Musto v. Meyer*, 434 F. Supp. 32, 34 (S.D.N.Y. 1977), “reasonable opportunity to copy,” see *Miller Brewing Co. v. Carling O’Keefe Breweries of Canada, Ltd.*, 452 F. Supp. 429, 438 (1978), and a “reasonable possibility” of the opportunity to view.” *Testa v. Janssen*, 429 F. Supp. 198, 202-03 (W.D. Pa. 1980).

53. *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222, 1231-32 (3d Cir. 1986). See also *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127, 1135 (N.D. Cal. 1986) (“Because direct evidence of copying is rarely available, copying may be established by proof of access and substantial similarity.”); *Johnson Controls, Inc. v. Phoenix Control Sys.*, 886 F.2d 1173, 1176 (9th Cir. 1989) (“Copying can be shown by circumstantial evidence of access to the copyrighted work, and substantial similarity between the copyrighted work and the infringer’s work”); *Apple Computer, Inc. v. Microsoft Corp.*, 759 F. Supp. 1444, 1453 (N.D. Cal. 1991) (“[C]opying may be established by circumstantial evidence of access and substantial similarity of ideas and the expression between the copyrighted work and the alleged infringing work”).

on this issue may be granted where the copying is so "overwhelming and pervasive"⁵⁴ or "striking"⁵⁵ as to preclude any assertion of independent creation of the allegedly infringing work.⁵⁶

Access in most computer program cases is usually undisputed.⁵⁷ Hence, the dispositive issue is often whether aspects of the allegedly infringing program are substantially similar to those of the copyrighted work.⁵⁸ Consistent application of a uniform test for substantial similarity is crucial to produce

The question of substantial similarity is generally a question of fact, and the piracy of even a quantitatively small fragment may be qualitatively substantial. *SAS Inst., Inc. v. S & H Computer Sys.*, 605 F. Supp. 816, 829-30 (M.D. Tenn. 1985).

In addition, "a laundry list of specific differences ... will not preclude the finding of infringement where the works are substantially similar in other respects. [Citation omitted]." *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 70 (D. Mass. 1990).

54. *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 68 (D. Mass. 1990) (where the court held "the copying in this case is so 'overwhelming and pervasive' as to preclude, as a matter of law, any assertion of independent creation ..."). See also *Midway Mfg. Co. v. Bandai-Am., Inc.* 546 F. Supp. 124, 141 n.11, 149 (D.N.J. 1982) ("overwhelming and pervasive" copying can preclude, as a matter of law, finding of independent creation, and can support grant for summary judgment).

Nimmer believes in such a very unusual circumstance, the similarity required should "greatly exceed even the striking similarity which would justify a trier of fact in inferring copying without proof of access." NIMMER, 3 NIMMER ON COPYRIGHT § 12.10, at 12, 73, 74 (1986).

55. *Arnstein v. Porter*, 154 F.2d 464, 468 (2d Cir. 1946). "If evidence of access is absent, the similarities must be so striking as to preclude the possibility that plaintiff and defendant independently arrived at the same result." *Id.*

56. *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 68 (D. Mass. 1990). The court concluded that "The works are ... substantially, indeed, strikingly, similar." *Id.* at 70.

57. See *Johnson Controls, Inc. v. Phoenix Control Sys.*, 886 F.2d 1173, 1176 (9th Cir. 1989) ("Access is clear in this case Several employees of Phoenix Control are former employees of Johnson, and worked on several version of the [copyrighted work]."); *Telemarketing Resources v. Symantec Corp.*, No. C88-20352 RPA (N.D. Cal. Sept. 6, 1989) (1989 WESTLAW 200350, 2, Allfeds directory) ("In this case, there is no dispute over the ... access to PC-Outline."); *Manufacturers Techs., Inc. v. Cams, Inc.*, 706 F. Supp. 984, 1000 (D. Conn. 1989) ("[D]efendants had access to COSTIMATOR screen displays and it's user's manual."); *Digital Comms. Assocs. v. Softklone Distrib. Corp.*, 659 F. Supp. 449, 465 (N.D. Ga. 1987) ("Here, the defendants acknowledge access to the status screen prior to the development of their Mirror program."); *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222, 1232 (3d Cir. 1986) ("[H]ere it is uncontested, that Rand Jaslow had access to the Dentalab program, both because Dentalab was the program used in Jaslow Labs and because Rand Jaslow acted as a sales representative for Whelan Associates.").

It appears that since access is such a loose standard, *see supra* note 52 and accompanying text, it is often easily met.

58. See *Telemarketing Resources v. Symantec Corp.*, No. C88-20352 RPA (N.D. Cal. Sept. 6, 1989) (1989 WESTLAW 200350, 2, Allfeds directory) ("The only disputed issue is whether or not there is substantial similarity in the expression of the idea of a computer outlining program."); *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222, 1232 (3d Cir. 1986) ("[T]he sole question is whether there was substantial similarity between the Dentcom and Dentalab programs.").

predictability of outcome in this already complex area of the law. Unfortunately, it appears the courts have failed to establish and apply a uniform test.

IV. EXISTING TESTS FOR "SUBSTANTIAL SIMILARITY"

Several distinct standards currently exist for determining whether substantial similarity exists between a copyrighted work and an allegedly infringing work. Early copyright cases involved reasonably simple factual determinations, such as those involving the alleged infringement of a copyrighted plot of a book or the copyrighted score or lyrics of a song.⁵⁹ In such cases, the ordinary lay person could reasonably ascertain whether an allegedly infringing work substantially appropriated the copyright holder's protected efforts.⁶⁰

However, as technological advances grew by leaps and bounds in the later part of this century, so too did the complexity level of trials where new "cutting edge" technologies were at hand. The triers of fact were often too inexperienced and uneducated to adequately grasp and distinguish the intricate, detailed facts of a complex case.⁶¹ As a result, some courts began to allow experts to provide enlightening evidence on the complicated issues of a given case. The appropriate role and weight of this expert testimony has yet to be firmly established by the courts, particularly in cases of extraordinary complexity where fear that jurors will either ignore or misuse this testimony is greatest.

This has resulted in the concurrent existence of three distinct and conflicting tests for substantial similarity in the circuit courts: one completely absent of any expert testimony,⁶² one allowing expert opinion and lay observation to be used in separate, very departmentalized manners,⁶³ and a third, more

59. See *Burgess v. Chase-Riboud*, 765 F. Supp. 223, 239-43 (E.D. Penn. 1991) (involving two plays); *Branch v. Ogilvy & Mather, Inc.*, 765 F. Supp. 819, 823 (S.D.N.Y. 1990) (involving two books); *Black v. Gosdin*, 740 F. Supp. 1288, 1292-94 (M.D. Tenn. 1990) (involving two songs).

60. See *infra* notes 65 through 74 and accompanying text.

61. See Note, *Copyrighting "Look and Feel": Manufacturers Technologies v. Cams*, 3 HARV. J.L. & TECH. 195, 202 (1991) (stating that "the lay observer may not be able to determine similarity based solely on [copyrightable] elements. The similarity of uncopyrightable elements might make the ordinary person perceive the [works] as similar.").

62. See *infra* notes 65 through 74 and accompanying text.

63. See *infra* notes 75 through 110 and accompanying text.

pragmatic approach where the trier of fact has access to all relevant testimony, regardless of origin, on this issue.⁶⁴

A. THE "ORDINARY OBSERVER" TEST

The first "test" to determine if one work was substantially similar to another seems to have originated in *Daly v. Palmer*.⁶⁵ In *Daly*, a playwright sued for infringement based on a scene in the defendant's play which was almost identical to that found in the plaintiff's production. In establishing whether the defendant's play was so like the plaintiff's as to be considered an infringement, the court stated the issue was whether the two works would be "recognized by the spectator, through any of the senses to which the representation is addressed, as conveying substantially the same impressions to, and exciting the same emotions in, the mind, in the sequence or order."⁶⁶

While this standard is often referred to by many different names,⁶⁷ most courts have labeled this approach the "ordinary observer" test, a label first coined in *Harold Lloyd Corp. v. Whitwer*.⁶⁸ Regardless of the name, the practical application of this test is clear: the trier of fact is to make a "spontaneous and immediate"⁶⁹ evaluation of the two works and, without the

64. See *infra* notes 111 through 126 and accompanying text.

65. 6 F. Cas. 1132 (C.C.S.D.N.Y. 1868) (No. 3,552).

66. *Id.* at 1138.

67. Courts and commentators have referred to this standard also as the "audience" or "spectator reactions" test, see *Atari, Inc. v. North Am. Philips Consumer Elecs. Corp.*, 672 F.2d 607, 619 (7th Cir. 1982), *cert. denied*, 103 S. Ct. 176 (1982) (applying the "audience" test); Note, *Copyright Infringement Actions: The Proper Role for Audience Reactions in Determining Substantial Similarity*, 54 S. CAL. L. REV. 385, 393-416 (1981) (arguing that a finely-tuned "audience" test, one that evaluates infringement from the point of view of an artist's economic incentive to create - his audience - is the best test for substantial similarity); NIMMER, 3 THE LAW OF COPYRIGHT, §13.03[E][2] (1991) (using the term "audience test"); *MCA, Inc. v. Wilson*, 425 F. Supp. 443, 454 (S.D.N.Y. 1976) (holding that a "viewing audience" test is preferred to the traditional "average lay observer" approach).

Courts have also changed the wording of this test to fit the appropriate subject matter of the dispute. Hence, it has also been described as the "ordinary lay hearer" test, see *Arnstein v. Porter*, 154 F.2d 464, 473 (2d Cir. 1946).

Courts have also used the term "ordinary reasonable person" regarding this test. See *Sheldon v. Metro-Goldwyn Pictures Corp.*, 7 F. Supp. 837, 842 (S.D.N.Y. 1934), *rev'd on other grounds*, 81 F.2d 49 (2d Cir. 1936).

For criticism of the "reasonable person" standard as applied in copyright law, see *infra* note 91 and accompanying text.

68. 65 F.2d 1 (9th Cir. 1933). The court held that the substantial similarity analysis must be made from the perspective of the "ordinary observer." *Id.* at 19.

69. *Id.* at 18.

aid of expert analysis and detailed dissection,⁷⁰ decide by “spontaneous response”⁷¹ whether the expression of the copyrighted work was appropriated. By ridding from the analysis the overwhelming technical material presented by experts,⁷² this approach, as Judge Learned Hand put it, rescues the lay juror from “the classic difficulty of not being able to see the forest for the trees.”⁷³

Since computer-related cases involve by necessity the overwhelming technical evidence of the type Judge Hand felt must be avoided, an unmodified “ordinary observer” test in the traditional sense seems to be obsolete regarding this subject matter. This may explain the complete abyss of case law applying the traditional test to computer-related technology, particularly since the development of the “bifurcated” approach.⁷⁴

B. THE “BIFURCATED” TEST

As intricate, detailed factual issues arose in cases involving specialized technical expertise, courts found that expert testimony in some form was required to help, if not educate, the often perplexed trier of fact in making their determinations.⁷⁵ Rather than abolishing decades of precedent regarding the traditional “ordinary observer” test, some jurisdictions added a preliminary level of inquiry in which the court, not the trier of fact, would evaluate and use this expert evidence. Two distinct forms of this “two-step” or “bifurcated” test have emerged in the circuit courts that when taken together form the second conflicting test in this area. On their face, the two approaches seem to be different and may even appear inconsistent.

70. Detailed or “analytical” dissection here means a “side-by-side comparison of each element of the copyrighted and allegedly infringing works.” *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127, 1136 (N.D. Cal. 1986).

71. *Walker v. Time Life Films, Inc.*, 784 F.2d 44, 51 (2d Cir. 1986), *cert. denied*, 476 U.S. 1159, 106 S. Ct. 2278 (1986).

72. Judge Learned Hand was so incensed by the use of experts on this issue that he ruled that such evidence would not be heard before him and that he wished “such evidence may in the future be entirely excluded.” *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 123 (2d Cir. 1930).

73. *Frankel v. Irwin*, 34 F.2d 142, 144 (S.D.N.Y. 1918).

74. See Section IV, subsection B and accompanying notes.

75. See Note, *Copyrighting “Look and Feel”: Manufacturers Technologies v. Cams*, 3 HARV. J.L. & TECH. 195, 202 (1991) (concluding that the traditional “ordinary observer” test may fail in complex computer-related cases “since the determination of copyrightable elements in a screen display is a technical legal issue, [and] the lay observer may not be able to determine similarity based solely on those elements”). “The similarity of uncopyrightable elements might make the ordinary person perceive the [computer user] interfaces as similar.” *Id.*

However, upon close examination of the language of these tests and their application it becomes apparent that, semantics aside, the same doctrine is being applied.

1. *The Arnstein Doctrine*

*Arnstein v. Porter*⁷⁶ first solidly delineated a “two-prong” substantial similarity analysis. In that case, the plaintiff brought a copyright infringement action alleging the defendant infringed the plaintiff’s copyrighted musical compositions.⁷⁷ The *Arnstein* court introduced a separate “essential element to a plaintiff’s case,”⁷⁸ not to be confused with “copying.”⁷⁹ This element the court referred to as “improper appropriation,”⁸⁰ which is distinguished from copying as follows:

As to the first - copying - ... the trier of fact must determine whether the similarities are sufficient to prove copying. On this issue, analysis (“dissection”) is relevant, and the testimony of experts may be received to and the trier of fact ...

If copying is established, *then and only then* does there arise the second issue, that of illicit copying (unlawful appropriation). On that issue ... the test is the response of the ordinary lay hearer; accordingly, on that issue, “dissection” and expert testimony are irrelevant.⁸¹

In the realm of computer technology litigation, the bifurcated approach proffered by *Arnstein* was adopted and very aptly explained almost 43 years later in *Manufacturers Technologies, Inc. v. Cams, Inc.*⁸² In *Manufacturers Technologies,*

76. 154 F.2d 464 (2d Cir. 1946).

77. *Id.* at 469.

78. *Id.*

79. *Id.*

80. *Id.*

81. *Id.* (emphasis added).

82. 706 F. Supp. 984 (D.Conn. 1989). See also *Walker v. Time Life Films, Inc.*, 784 F.2d 44, 51 (2d Cir. 1986). “The relevance, and hence admissibility, of expert analysis on this issues depends on the standard for determining substantial similarity. We note that some confusion surrounds the standard to be applied. The formula most favored by courts ... and often expressed in our circuit ... is that substantial similarity should be judged by the spontaneous response of the ordinary lay observer. Taken literally, such a standard would altogether bar expert analysis and “dissection” of creative works However, our opinion in *Arnstein v. Porter* ... indicates that such literalness is not required.” *Id.*

plaintiff corporation developed and copyrighted a computer-aided cost estimating program called "COSTIMATOR" designed to enable the user to estimate the cost of machining a manufactured part by computer rather than manual calculation.⁸³ The defendants, after having spent two years as "sales representatives" for the plaintiff's COSTIMATOR product line, terminated their sales relationship with the plaintiff corporation and began marketing their own copyrighted cost-estimating programs.⁸⁴ Plaintiffs brought suit, alleging that the defendants had infringed the COSTIMATOR copyright.

The court held an infringement had occurred. Noting the two-prong test of *Arnstein* was still competing in the Second Circuit with the traditional "ordinary lay observer" test,⁸⁵ the *Manufacturers Technologies* court bluntly rejected the notion that the "ordinary observer" test was the sole dispositive consideration.⁸⁶ It held that in complex cases, the court may first consider expert testimony relevant to whether there is sufficient similarity between non-protected aspects of the two works to establish copying.⁸⁷ "Then, if and only if copying is established, the factfinder must determine without the assistance of expert testimony whether there are substantial similarities between the protected aspects of the plaintiff's work and the allegedly infringing work indicating "illicit copying" or infringement."⁸⁸

2. *The Krofft Approach*

In an effort to extend and clarify the bifurcated analytical process established in *Arnstein*,⁸⁹ the Ninth Circuit Court of Appeals handed down the landmark opinion of *Sid & Marty Krofft*

The court in *SAS Inst., Inc. v. S & H Computer Sys.*, 605 F. Supp. 816 (M.D. Tenn. 1985) also implicitly followed the "bifurcated" approach, referring to the satisfaction of "branch[es]" in its analysis of the substantial similarity test. *Id.* at 829.

83. *Manufacturers Techs., Inc. v. Cams, Inc.*, 706 F. Supp. 984, 988 (D. Conn. 1989).

84. *Id.* at 989-90. The product of the defendants' efforts were the programs known as "QUICKCOST (QC)" and "RAPIDCOST." In the defendant's own words, they planned to market a "K-Mart Cost Estimator rather than a Cadillac [namely COSTIMATOR]." *Id.*

85. *Id.* at 1000 (the court pointed out the conflict between the *Arnstein* decision and that of *Walker v. Times Life Films, Inc.*, 784 F.2d 44, 51-52 (2d Cir. 1986), *cert. denied*, 476 U.S. 1159, 106 S. Ct. 2278 (1986), which held that the Second Circuit standard for determining whether works are substantially similar is whether they appear so from the "spontaneous response of the ordinary lay observer," without regard to expert testimony).

86. *Manufacturers Techs., Inc. v. Cams, Inc.*, 706 F. Supp. 984, 1000 (D.Conn. 1989).

87. *Id.*

88. *Id.*

89. *Arnstein v. Porter*, 154 F.2d 464 (2d Cir. 1946).

*Television Productions, Inc. v. McDonald's Corp.*⁹⁰ Rather than adopt the foreign language used by the Second Circuit, the court chose to restate the bifurcated test using its own jurisdictional dialect, holding that two steps are implied by the requirement of substantial similarity; (1) an "extrinsic" test, where analytical dissection and expert testimony are appropriate to determine if there are similarity of ideas and where the question can be disposed of as a matter of law, and (2) an "intrinsic" test, where the expressions of the two works involved should be considered and tested, not hypercritically or with meticulous scrutiny, but by the observations and impressions of the average reasonable⁹¹ reader or spectator without external criteria and analysis.⁹²

The *Krofft* approach was expressly adopted in two recent computer program copyright cases: *Digital Communications Assocs. v. Softklone Distrib. Corp.*⁹³ and *Broderbund Software, Inc. v. Unison World, Inc.*⁹⁴ In *Softklone*, an infringement lawsuit was brought by the owner of single copyrighted status

90. 562 F.2d 1157, 1164-65 (9th Cir. 1977) (stating that "the same type of bifurcated test was announced in *Arnstein v. Porter* We believe the court in *Arnstein* was illuding to the idea-expression dichotomy which we make explicit today.").

91. The term "reasonable person" regarding the intrinsic test has been held to mean "reasonable person in the intended audience." *Johnson Controls, Inc. v. Phoenix Control Sys.*, 886 F.2d 1173, 1176 n.4 (9th Cir. 1989); *Aliotti v. R. Dakin & Co.*, 831 F.2d 898, 902 (9th Cir. 1987); *Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp.*, 562 F.2d 1157 (9th Cir. 1977).

However, it has been suggested that the courts, by attempting to apply to copyright law the "reasonable person" doctrine as found in other areas of the law, have forgotten that all other areas put the trier of fact in the defendants shoes, not as an observer, and as such the "ordinary observer" test is of questionable use. See NIMMER, 3 THE LAW OF COPYRIGHT, § 13.03 [E][2] (1991).

92. *Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp.*, 562 F.2d 1157, 1164 (9th Cir. 1977) (under the "intrinsic test, analytical dissection and expert testimony are not appropriate").

This "extrinsic/intrinsic" dichotomy has been uniformly applied in computer program infringement cases in the Ninth Circuit's jurisdiction. See *Johnson Controls, Inc. v. Phoenix Control Sys.*, 886 F.2d 1173, 1176 (9th Cir. 1989) (to show a program is substantially similar, a plaintiff "must demonstrate substantial similarity in both idea and expression"); *Telemarketing Resources v. Symantec Corp.*, No. C88-20352 RPA (N.D. Cal. Sept. 6, 1989) (1989 WESTLAW 200350, 2, Allfeds directory) (substantial similarity is established by first applying an "extrinsic" test to determine whether two ideas are similar. This is an objective test which rests upon specific criteria which can be listed and analyzed. If the ideas are similar, the expression of the idea is compared under an intrinsic, subjective test which depends on the response of the ordinary reasonable person). However, cf. *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127, 1136 (N.D. Cal. 1986) (disapproving of *Krofft*, but ultimately admitting being bound to follow the Ninth Circuit's "clearly marked" path of *Krofft*).

93. 659 F. Supp. 449 (N.D. Ga. 1987).

94. 648 F. Supp. 1127 (N.D. Cal. 1986).

screen for asynchronous data communications systems⁹⁵ against a corporation marketing and distributing an allegedly infringing “clone” program.⁹⁶ Citing *Krofft*,⁹⁷ the *Softklone* court weighed the evidence⁹⁸ and found that substantial similarity existed between the ideas behind the two screens (the “extrinsic” test) and between the expression of the two screens (the “intrinsic” test).⁹⁹

In *Broderbund*,¹⁰⁰ the liability portion of an audiovisual “screen” copyright infringement claim was tried.¹⁰¹ Broderbund was the exclusive licensee of a copyrighted computer software printing program called “The Print Shop” which enables its user to create customized greeting cards, signs, banners and posters, albeit only on Apple Computer, Inc. computers.¹⁰² Defendant Unison World, without authorization, adapted and marketed a version of plaintiffs’ “Print Shop” program for use on IBM compatible computers.

On the issue of substantial similarity, the *Broderbund* court cited *Arnstein*¹⁰³ as the “leading case in this area ... establishing a two-step test for determining substantial similarity ...” but followed *Krofft*,¹⁰⁴ describing *Krofft* as a decision which adopted “albeit with some modification” the *Arnstein* test.¹⁰⁵ Applying the “extrinsic” test, the *Broderbund* court readily determined that “there is no question but that [the two

95. Plaintiff Digital Communications Associates, Inc. purchased the original plaintiff corporation which actually owned and registered the “Crosstalk System” copyright.

96. *Digital Communications Assocs., Inc. v. Softklone Distrib. Corp.*, 659 F. Supp. 449, 452-53 (N.D. Ga. 1987). *Softklone* Distributing Corporation was a wholly owned subsidiary of ForeTec Development Corporation, and was created for the purpose of marketing and distributing “clone” product such as the “Mirror” program at issue. *Id.*

97. *Sid & Marty Krofft Television Prods., Inc. v. McDonald’s Corp.*, 562 F.2d 1157 (9th Cir. 1977).

98. The primary evidence provided by both parties were hard copies of the computer program status screen utilized by each program. *Digital Comms. Assocs. v. Softklone Distrib. Corp.*, 659 F. Supp. 449, 453 (N.D. Ga. 1987).

99. *Id.* at 465. The court held that the *Mirror* status screen captured the “total concept and feel” of the *Crosstalk* status screen, and that placement of the screens side-by-side “clearly points up the substantial similarities between the two display screens.” *Id.*

100. *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127 (N.D. Cal. 1986).

101. *Id.* at 1129.

102. *Id.* at 1130.

103. *Arnstein v. Porter*, 154 F.2d 464 (2d Cir. 1946).

104. The *Broderbund* court weighed heavily the possibility of adopting the newly emerging “integrated” approach. See *infra* notes 124 and 126 and accompanying text.

105. *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127, 1136 (N.D. Cal. 1986).

works] share the same underlying idea."¹⁰⁶ Regarding the second "intrinsic" branch, the court stated that the test was whether an ordinary reasonable person would find the total concept and feel of the expression of the subject works to be substantially similar.¹⁰⁷ Applying this test, the *Broderbund* court found that "[t]he ordinary observer could hardly avoid being struck by the eerie resemblance between the screens of the two programs"¹⁰⁸ which "compels the finding that their expression is substantially similar."¹⁰⁹

The apparent distinctions between the *Arnstein* and *Krofft* approaches are illusory upon close inspection. Both approaches are not so much inconsistent as they are uniquely stated and often loosely applied. Regardless of the titles of each "part" or "step" in the analysis, the effect of each test is the same; expert opinion testimony regarding similarity of ideas is admissible and, most notably, can be used by a judge as a matter of law to grant summary judgement before the trier of fact has an opportunity to evaluate any similarities between the works themselves.¹¹⁰

C. THE "INTEGRATED" TEST

The third¹¹¹ concurrent test for substantial similarity in computer copyright cases was established by the Third Circuit

106. *Id.*

107. *Id.* at 1137.

108. *Id.*

109. *Id.* The court thoroughly discussed the similarities between the "sequence" of the screen, and concluded that "[o]ther similarities are too numerous to list. Mere lists of similarities cannot adequately convey the expression of overall similarity between [the two programs]. No ordinary observer could reasonably conclude that the expression of the ideas underlying these two programs were not substantially similar. Put simply, "Printmaster" looks like a copy of "Print Shop" with a few embellishments scattered about in no particular order. The 'total concept and feel' of these programs [citation] is virtually identical." *Id.*

110. For a thorough discussion of the interplay between the bifurcated approach and the summary judgment standard, see *Shaw v. Lindheim*, 919 F.2d 1353, 1359 (9th Cir. 1990) (holding that "satisfaction of the extrinsic test creates a triable issue of fact ... making it improper for a court to find no substantial similarity as a matter of law"). However, "[t]his is not to say that summary judgement on the issue of expression is never proper." *Id.* at 1361 n.2 (citing *See v. Durang*, 711 F.2d 141, 143 (9th Cir. 1983)).

111. A fourth approach, an "iterative" test, has been suggested by one commentator but has yet to be adopted by any court. See Note, *Copyright Infringement of Computer Programs: A Modification of the Substantial Similarity Test*, 68 MINN. L. REV. 1264, 1294-1302 (1984). The author suggested a more "objective" approach, free from the ordinary observer test completely, allowing expert opinion and focusing on whether an alleged infringer literally reproduced a significant portion of the copyrighted work, is a better alternative. While allowing reverse engineering and "second sourcing" in many cases, the "iterative" approach, it was suggested, "provides a clearer standard to judge infringement of copyrighted computer programs, and furthers the policies of copyright law by promoting dissemination of ideas resulting in more cumulative innovation." *Id.* at 1302.

in *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*¹¹² In that case, Whelan Associates¹¹³ was hired to design a computer program to aid the administration of Jaslow Laboratory, Inc.'s (hereinafter "Jaslow") dental prosthetics laboratories.¹¹⁴ After the program was developed and in use, the parties' business relationship worked successfully for two years.¹¹⁵ Subsequently, Jaslow began to develop a program that would serve essentially the same function but written in a more marketable computer language.¹¹⁶ Whelan Associates brought an infringement action against Jaslow after the new Jaslow program was placed on the market.¹¹⁷

The *Whelan* court opined that the "ordinary observer" test, whether standing alone or as the second "intrinsic" step of the bifurcated test,¹¹⁸ was of doubtful value in cases involving computer programs on account of a programs' complexity and its unfamiliarity to most members of the public.¹¹⁹ Further, the *Whelan* court observed the value of a bifurcated approach is also doubtful when the finder of fact is the same person for each step.¹²⁰ Abandoning completely the use of the dated lay observer test in any part of the substantial similarity analysis,¹²¹ the *Whelan* court stated:

112. 797 F.2d 1222 (3d Cir. 1986).

113. The principal of Whelan Associates was originally a principal of the company with which Jaslow made the development contract. However, "presumably with an eye towards exploiting the economic potential of the [newly-developed program], she left to form her business and purchased the rights to the program from her former company." *Id.* at 1225-26.

114. *Id.* at 1225. The agreement, while not a signed writing, was implied by conduct, and provided that Whelan Associates retain all ownership rights in the software developed, with a ten percent royalty going to Jaslow for each system sold. *Id.* at 1225 n.2.

115. *Id.*

116. *Id.* at 1226. Since Whelan Associate's program was written in EDL language, it could not be used many smaller dental labs, so Jaslow began to re-write the program in BASIC. *Id.*

117. *Id.* at 1226-27.

118. The bifurcated *Arnstein* test was expressly adopted by the Third Circuit in *Universal Athletic Sales Co. v. Salkeld*, 511 F.2d 904, 907 (3d Cir. 1975), *cert. denied*, 423 U.S. 863, 96 S. Ct. 122 (1975).

119. *Id.* at 1232. The complexity and unfamiliarity of a program and its technology to most members of the public discussed here directly bears on those members of the public who might become jurors.

120. *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222, 1232 (3d Cir. 1986). Further describing that concern, Judge Becker said, "that person has been exposed to expert evidence in the first step, yet she or he is supposed to ignore or 'forget' that evidence in analyzing the problem under the second step. Especially in complex cases, we doubt that 'forgetting' can be effective when the expert testimony is essential to even the most fundamental understanding of the objects in question." *Id.* at 1232-33.

121. In support of this action, the *Whelan* court pointed to its decision in *Williams Elecs. v. Arctic Int'l, Inc.*, 685 F.2d 870, 876 n.6 (3d Cir. 1982) where the court found substantial similarity concerning computer programs without mentioning the

On account of these problems with the standard, we believe that the ordinary observer test is not useful and is potentially misleading when the subjects of the copyright are particularly complex, such as computer programs. We therefore join the growing number of courts which do not apply the ordinary observer test in copyright cases involving exceptionally difficult materials, like computer programs, but instead adopt a *single substantial similarity inquiry* according to which both lay and expert testimony would be admissible.¹²²

This "integrated" substantial similarity approach, while seeming to be the most realistic and practical about the true complexity of computer-related copyright cases and the inherent human limitations of ordinary triers of fact, has yet to be expressly followed by an appellate court.¹²³ However, one Ninth Circuit district court expressed an eagerness to adopt the *Whelan* approach as "the wave of the future,"¹²⁴ but admitted it was bound by the *stare decisis* effect of *Krofft*¹²⁵ to not do so.¹²⁶

V. CONCLUSION

Since the test for substantial similarity is often dispositive in computer program infringement cases,¹²⁷ consistent expression

Arnstein test. As the *Whelan* court stated. "*Williams* did not explain why it did not use the bifurcated *Arnstein* approach, nor did it distinguish [the 1975 Third Circuit case that adopted *Arnstein*]. To the extent *Williams* did these things *sub silentio*, our holding today is merely a ratification of *Williams* on this point." *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222, 1233 n.24 (3d Cir. 1986).

122. *Id.* at 1233 (emphasis added).

123. The court in *Whelan* cited the following cases as the "modern trend" of courts adopting the integrated approach. See *E.F. Johnson Co. v. Uniden Corp.*, 623 F. Supp. 1485, 1493 (D.Minn. 1985); *Hubco Data Prods. Corp. v. Management Assistance, Inc.*, 2 Copyright L. Rep. (CCH) 25,529 (D.Id 1983) (enunciating a bifurcated test, but relying entirely on expert testimony); *Midway Mfg. Co. v. Strohon*, 564 F. Supp. 741, 752-3 (N.D. Ill. 1983) (relying entirely on expert testimony to find substantial similarity). *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222, 1233 (3rd Cir. 1986).

124. *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127, 1136 (N.D. Cal. 1986).

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

126. See *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127, 1136 (N.D. Cal. 1986). "Although this Court is of the opinion that an integrated test involving expert testimony and analytical dissection may well be the wave of the future in this area, the Ninth Circuit's position is clearly marked out in *Krofft*, and controls the analysis herein." *Id.*

127. See *supra* note 58 and accompanying text.

and application of one uniform approach must be had if we wish to stabilize the unpredictable state of the law as it currently exists in this area.¹²⁸ The mere fact that three distinct tests for substantial similarity have emerged may be indicative of a greater problem: modern "high-tech" subject matter may have outgrown the bounds of current copyright law.¹²⁹ The resolve of modern courts to adhere to the existing scheme with only occasional substantive modification is laudable. However, judges should not be forced to resort to judicial legislation and doctrinal sleight of hand to reach just decisions in this area. The time has come for forthright legislative reconsideration of how we protect computer technology.¹³⁰

In the interim, this Note concludes that the integrated test, as established in *Whelan*,¹³¹ is the sounder, more practical approach in light of the technical, multifarious nature of computer-related cases. By allowing the factfinder to hear all relevant evidence on the subject matter,¹³² the integrated approach is realistic about the tremendous undertaking required to understand the facts and issues of a complicated case in order to reach a fair, reasoned and responsible decision.

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128. This is true regardless of which of the approaches is chosen, or if a new approach is created and uniformly followed.

129. See Note, *Copyrighting "Look and Feel": Manufacturers Technologies v. Cams*, 3 HARV. J.L. & TECH. 195 (1991). "As the courts have become more experienced in this area of intellectual property law, their decisions have become increasingly sophisticated. At the same time, their decisions have become increasingly contorted as they attempt to manipulate an existing statutory framework that is unsuited to the field." *Id.* at 204.

130. Good arguments have been made for the protection of such works under patent law, see generally Lundberg, Michel & Smuner, *The Copyright/Patent Interface: Why Utilitarian "Look and Feel" is Uncopyrightable Subject Matter*, COMPUTER LAW., Jan. 1989, at 5, or trade dress, see generally Beutel, *Trade Dress Protection for the Look and Feel" of Software: A New Source of Proprietary Rights Protection for the Software Industry?*, COMPUTER LAW., Oct. 1988, at 1, 2.

At least one Commentator has suggested giving computer technology its own federal statutory protection scheme. See Note, *Copyrighting "Look and Feel": Manufacturers Technologies v. Cams*, 3 HARV. J.L. & TECH. 195 (1991). The author concluded that "Computers and software provide a mixture of traditional intellectual property areas and special problems relating to creation, copying, and reverse engineering not found elsewhere. By devising a separate category of federal protection for computers and computer programs, much of the uncertainty which results from manipulation of general principles could be eliminated. In this way, the progress of the useful art of science and computer programming would truly be promoted." *Id.* at 204.

131. *Whelan Assocs. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222 (3d Cir. 1986).

132. Particularly since testimony by experts is urged in Federal courts "[i]f scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue ..." Fed. R. Evid. 702 (West 1990).

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