High Technology Jurisprudence: In Defense of Look and Feel Approaches to Copyright Protection

Carl A. Sundholm
HIGH TECHNOLOGY JURISPRUDENCE: IN DEFENSE OF "LOOK AND FEEL" APPROACHES TO COPYRIGHT PROTECTION

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I. INTRODUCTION

This essay comments on current directions and issues in computer copyright litigation respecting the so-called “look and feel” approach taken by courts to the application of substantial similarity tests in determining copyright infringement of computer programs and audiovisual displays. The evolving case law still walks the classic copyright tightrope between the dialectic of the reward and protection of innovation in the field, on the one hand, and preventing the unwarranted monopolization of ideas which retard innovation, competition, and progress, on the other. Although the balancing of these opposing ideals by recent court decisions appears increasingly to favor the strengthening of copyright protection for computer programs and output as set out by the Whelan ¹ and Broderbund² courts, the so-called “look and feel” approach embodied by these decisions has generated a great deal of vigorous attack and controversy which has clouded the value of the new integrative test. This essay speaks in defense of what its critics have characterized as the “look and feel” approach, the integrative approach to high technology jurisprudence.

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II. CULTURAL LAG & HIGH TECHNOLOGY JURISPRUDENCE

One recurrent characteristic of the relationship between technological and legal change is that the latter tends to lag behind the former. This observation is not new. It was in 1922 when William F. Ogburn first coined the term "cultural lag" to refer to the characteristic gap created when the faster rate of technological change in the material culture of a society outraces the slower moving non-material culture, which includes law. Such a "cultural lag" syndrome has not only characterized the initial response of American courts to the prospect of applying traditional copyright rules to new computer technology, but still continues to present a backlash of criticism against the more progressive high technology jurisprudence presented in the Whelan and Broderbund court decisions. However, as Dean Roscoe Pound suggested, one of the primary tasks of the law is social engineering and the test of time will be which approach to copyright protection provided the wisest approach for the social engineering of the development of progress in the computer high technology field. I submit that the Whelan/Broderbund integrative approach provides the best means to attain this goal.

In the mid 1980s, when I wrote Computer Copyright Infringement: Beyond the Limits of the Iterative Test, the field of computer

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5. For readers without a background in this area, it should be noted that a court's decision as to whether one copyrighted computer program/display is infringed by that of an alleged copy is generally accomplished by the application of a "substantial similarity test" which compares and/or contrasts the two products to determine the nature and extent of impermissible appropriation. Broadly, such tests are classifiable along a continuum from restrictive approaches which tend to be more favorable to Defendants (including the "iterative" approach which requires point-by-point copying to find infringement) to protectionist approaches which are more favorable to Plaintiffs (including the instant "integrative" Whelan/Broderbund test which allows enforcement of copyright in non-literal copying situations and integrates both analytic and synthetic comparisons, expert and ordinary observer viewpoints, and emphasizes an open approach to integrate various forms of evidence of copying, including non-literal paraphrasing and translation between computer programs to assure adequate protection against those who misappropriate the intellectual property of others, but add slight alterations to avoid prosecution).

6. Carl A. Sundholm, Comment, Computer Copyright Infringement: Beyond the Limits of the Iterative Test, 3 Santa Clara Computer & High Tech. L.J. 369 (1987) [hereinafter Sundholm II]. The first article I published on this topic, Carl A. Sundholm, Note, Copyright Protection for Computer Programs Extends Beyond Literal Duplication to Structure, Sequence, and Organization, 3 Santa Clara Computer & High Tech. L.J. 221 (1987) [hereinafter Sundholm I], was a casenote review of the Whelan decision noting the significance and implications of the innovative approach taken by the Third Circuit Court of Appeals in that case. Sundholm II is a much more comprehensive review of the history of all prior case law decl-
copyright litigation was in the early stages of its development and the case law was in a state of flux and contradiction. The rapidity with which innovation in computer technology was taking place left courts with the prospect of stretching traditional constitutionally-based concepts of copyright law originally drawn from expressive works such as books and artistic creations. However, when it became clear that the traditional notions were unable to protect this new form of intellectual property, courts, rather than leaping into the abyss and extending protection to the newly disenfranchised inventors, shrank from the task and stubbornly refused to protect these emerging forms of intellectual property.

III. PRE-WHELAN CASE LAW

The first such manifestation of the "cultural lag" of legal analysis behind technological change was found in the reasoning of the court in Synercom Technology, Inc. v. University Computing Co. Although the Synercom court had the first opportunity to develop a new high technology jurisprudence by creatively enlarging traditional copyright substantial similarity tests to protect emerging computer subject matter, it chose not to meet the task. On the contrary, it refused to protect the new subject matter by taking a conservative anti-protectionist approach which ultimately resurfaced in later court opinions. The Synercom analysis inappropriately analogized computer input formats to the "H" pattern on an automobile gearshift knob and held that the expression of the idea in input formats was too limited by the technology and too functional to be copyright protected. Some commentators at the time reinforced this overly conservative anti-protectionist position by advocating an "iterative approach" which restricted copyright protection for computer

sions on computer copyright substantial similarity tests. It offers a systematic typology categorizing each approach, an evaluation of the strengths and weaknesses of the prior approaches, and a proposal for a systematic new "integrative" approach which combines the strengths and minimizes the weaknesses of prior approaches. The instant essay assumes that the reader has a basic understanding of the current technological background, legal history and issues concerning computer copyright law. For background review of the case law, see Daniel A.D. Hunter, Protecting the "Look and Feel" of Computer Software in the United States and Australia, 7 SANTA CLARA COMPUTER & HIGH TECH. L.J. 95 (1991) [hereinafter Hunter], and the succinct summary by the court in Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37 (D. Mass. 1990), discussed infra note 34 and accompanying text.


8. This view has been corrected by the opinion in Broderbund, 648 F. Supp. 1127, where input formats in screen displays were held protectable by copyright.
programs to cases containing literal phrase-by-phrase copying.9

The Synercom court was not alone. Other early court decisions compounded the "cultural lag" of the law behind technology by adopting the "iterative test" and taking an anti-protectionist copyright approach which favored defendant-appropriators over plaintiff-inventors. This "iterative" approach dominated the early line of cases concerning computer programs copyrighted as "literary works."10 Virtually every pre-Whelan "literary work" case took an anti-protectionist "iterative" approach requiring evidence of literal copying in order to find copyright infringement of the computer program.11 Although all of these cases required proof of literal copying before infringement could be found, the later cases contained dicta indicating that "copying of the organization and structural details" can form the basis for infringement.12 In addition, the early courts took a restrictive view which favored defendants, by holding that either computer program similarities were "functional" and noncopyrightable,13 or that the structure, sequence or organization of computer programs and output was unprotectable by an overbroad definition of the idea behind the program, which is not protectable. In essence, the Synercom court held that the idea merged with the expression.14 The technical nature of the computer program media also led these early courts to focus on expert dissection of similarities and differences in the programs.

9. Howard Root, Note, Copyright Infringement of Computer Programs: A Modification of the Substantial Similarity Test, 68 MINN. L. REV. 1264 (1984). John Pinheiro & Gerard Lacroix, Protecting the "Look and Feel" of Computer Software, 1 SANTA CLARA COMPUTER & HIGH TECH. L.J. 411 (1986) also appears to advocate an iterative approach, stating that "[t]he peculiar nature of computer software suggests that a court should limit the category of literary works to a program's code." Id. at 432.

10. Although computer programs were previously copyrightable as "literary works" or "audiovisual works," the Copyright Office has adopted a policy that a single registration of a computer program also protects its audiovisual aspects. See Letter from the Copyright Office (Jan. 20, 1987), reprinted in Computer Screen Displays of Text Are Not Independently Registrable, 33 Pat. Trademark & Copyright J. (BNA) No. 825, at 613-614 (April 9, 1987).


At the same time, a second line of cases was evolving where computer program output displays were copyrighted as "audiovisual works" (initially these cases were restricted to computer audiovisual game displays) with courts applying more liberal substantial similarity tests that were generally more favorable to plaintiffs. Because of the visual nature of the media, courts tended to apply the more protectionist traditional ordinary observer tests which either looked to the synthetic overall similarity of the works\(^\text{15}\), or analytically dissected the similarities and differences of the works\(^\text{16}\), or attempted to incorporate both approaches into a two-stage "extrinsic/intrinsic" test.\(^\text{17}\)

Against this historical backdrop arrived two cases which revolutionized and broadened both lines of case law. The landmark case of *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*\(^\text{18}\) was the first computer program case to move beyond the "iterative" test literal duplication requirement, to find copyright infringement where there was only non-literal substantial similarity in the general structure, sequence and organization between defendant's and plaintiff's computer programs.

Following on the heels of *Whelan* came *Broderbund Software, Inc. v. Unison World, Inc.*,\(^\text{19}\) which was the first audiovisual display copyright case to hold that the structure, sequence and organization of non-game computer program audiovisual displays were protected by copyright.\(^\text{20}\)

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18. Whelan Assoc., Inc., v. Jaslow Dental Lab., Inc., 797 F.2d 1222 (3rd Cir. 1986), cert. denied, 479 U.S. 1031 (1987). For a summary of *Whelan*, see Sundholm I, supra note 6, and for a summary of *Broderbund*, see Sundholm II, supra note 6, at 380. Suffice to say, both courts advocated an "integrative" approach to the application of substantial similarity tests to determine copyright infringement of computer programs and audiovisual works. This approach flexibly combined prior tests in a simultaneous evaluation of the works in question from the standpoints of both an ordinary observer and expert witness using both a synthetic "overall" comparison and a detailed analytic point-by-point comparison which included non-literal similarities.
20. Id. at 1133. During this formative time, it was unclear whether *Whelan* and *Broderbund* were mere aberrations of "maverick" courts or the wave of the future. These two seminal cases were decided as I was writing early drafts of *Computer Copyright Infringe-
IV. AN EVALUATION OF THE IMPACT AND RESPONSE TO THE WHELAN-BRODERBUND INTEGRATIVE APPROACH

No sooner was the ink dry on the Whelan and Broderbund opinions, than courts and critics alike began to attack.

A. Responses of Other Courts

The response of other courts as to the Whelan/Broderbund revolution has generally been mixed. However, the lack of a uniform substantial similarity test for computer copyright still poses a problematic lack of consistency and predictability in court decisions as to whether a given work will be protected.

Several courts have rejected or criticized the progressive Whelan/Broderbund approach. The computer program copyright case of Plains Cotton Coop. Ass'n v. Goodpasture Serv., Inc. expressly rejected the Whelan test in favor of the archaic Synercom test. An early audiovisual computer copyright case which criticized the Whelan/Broderbund approach was Digital Communications Associates, Inc. v. Softklone Distributing Corp. which not only applied the 9th Circuit Krofft two-step test for substantial similarity, but

21. Plains Cotton Coop. Ass'n v. Goodpasture Serv., Inc., 807 F.2d 1256 (5th Cir. 1987), cert. denied, 484 U.S. 821 (1987); see the discussion of the logical flaws in this court opinion in Sundholm II, supra note 6, at 387-88 n.75.


23. The 9th Circuit Krofft two-step test, and the 2nd circuit Arnstein test upon which it is based (Arnstein v. Porter, 154 F.2d 464 (2d Cir. 1946)), is ostensibly maladapted to computer copyright because the first phase attempts to determine whether the idea was copied using an expert dissection test and the second phase determines whether the expression was copied using an ordinary observer overall similarity test. The problem in applying these two-stage tests to computer copyrights is that both the Krofft or Arnstein tests prohibit expert testimony evidence in the critical determination of whether defendant's expression infringes upon that of plaintiff's computer program. Obviously, this exclusion of expert evidence is such a handicap in applying the two-stage test to computer subject matter where expert evidence is critical that most courts applying the two-stage test in computer copyright cases
also embarrassingly made an erroneous criticism of the Broderbund case by stating:

One court, however, has gone a step further than Whelan and has concluded that a computer program's copyright protection extends to its audiovisual screen displays. Broderbund Software, Inc. v. Unison World, Inc., 648 F. Supp. 1127, 1133 (N.D. Cal. 1986).24

This meritless criticism is based upon a misreading of the Broderbund opinion. The Broderbund court never had a computer program copyright before it (the only copyright was on the audiovisual display) and certainly Broderbund never held that the copyright on a computer program extended to protect an uncopyrighted audiovisual display. The Broderbund court merely applied the non-iterative reasoning of Whelan to audiovisual copyright subject matter and ruled that an audiovisual copyright protects the structure, sequence and organization of screen displays. Unfortunately, over-eager opponents of Broderbund, including both courts and commentators,25 have repeated the misguided criticism that Broderbund "rests upon faulty premises"26 without bothering to

have complied with the ritual application of the test, but have implicitly disregarded the test by still basing their decision upon expert testimony and analytic dissection. See the criticism of the two-stage approaches in Sundholm II, supra note 6, at 402. It should also be noted that the Broderbund court recognized there was a shortcoming of this two-stage test by noting that, although it was bound to apply the Krofft two-stage approach, the preferable approach established by Whelan of "an integrated substantial similarity test pursuant to which both lay and expert testimony would be admissible . . . may well be the wave of the future in this area." Broderbund, 648 F. Supp. at 1136.


26. Nadan, supra note 25, at 1646 (citing Manufacturer Technologies, Inc. v. CAMS, Inc., 706 F. Supp. 984 (D. Conn. 1989)), and stating: "Not only is Whelan's result harmful, its logic is misguided." Nadan, supra note 25, at 1648. See also Jeffrey R. Benson, Note, Copyright Protection for Computer Screen Displays, 72 MINN. L. REV. 1123 (1988), erroneously stating:

The court in Whelan never suggested the program's copyright extended beyond the program code to embrace its screen display. Despite the Broderbund court's professed reliance on Whelan, therefore, its extension of a program's copyright to the structure, sequence and organization of its screens is without precedent.

Id. at 1145. (emphasis added). Another anti-Whelan/Broderbund commentator, Gregory C. Damman in Copyright of Computer Display Screens: Summary and Suggestions, 9 COMPUTER/L.J. 417 (1989), claims that the Whelan holding that "the screen display could serve as indirect evidence of copying of the program code," id. at 425, was erroneously interpreted by the Broderbund court which

held that Whelan stood for the proposition that 'copyright protection is not limited to the literal aspects of a computer program, but rather extends to the
verify the inaccurate summary against the original opinion. The Manufacturer Technologies, Inc. v. CAMS, Inc.\textsuperscript{27} court was also critical of the integrative Whelan approach, as apparent in its repeating the misguided criticism of the Broderbund court made by the Softklone court.\textsuperscript{28}

Despite the opinion of these courts, the majority of subsequent cases have supported the Whelan/Broderbund protectionist approach to computer copyright cases. In Pearl Systems, Inc. v. Competition Electronics, Inc.,\textsuperscript{29} the court adopted the Whelan/Broderbund integrative substantial similarity test in using both expert dissection and ordinary observer "total concept and feel" to find infringement of a computer program copyright by non-literal organizational copying. The Ninth Circuit Court in Johnson Controls, Inc. v. Phoenix Control Systems, Inc.,\textsuperscript{30} applied the Whelan integrative test using analytic dissection and expert evidence (while apparently abandoning any pretense of applying the awkward Krofft\textsuperscript{31} two-stage test) in upholding a copyright infringement finding where there was only substantial similarity in the structure, sequence, and organization of the computer program and no literal copying. A second Ninth Circuit case, Telemarketing Resources v.

\textsuperscript{27} CAMS, 706 F. Supp. 984 (D. Conn. 1989). This case was the first to be heard after the Copyright office announced its new policy of considering any computer copyright to extend to both audiovisual and program aspects. \textit{Id.} at 990-91.

\textsuperscript{28} The CAMS court stated that Broderbund


\textsuperscript{30} Johnson Controls, Inc. v. Phoenix Control Sys., Inc., 886 F.2d 1173 (9th Cir. 1989).

\textsuperscript{31} See Krofft, supra note 17 and accompanying text.
Symantec Corp., 32 called upon the court "to decide whether the 'look and feel' of the screen displays in defendants' computer outlining program are substantially dissimilar from plaintiffs'." 33 Here the court cited the Whelan/Broderbund test with approval, but actually applied the Krofft two-stage test and found that the program screen displays were not substantially similar as a matter of law. The court held the resemblance found on the first stage was at the idea level embodied in an outlining program and not the expression level. In Lotus Development Corp. v. Paperback Software Intl., 34 the court expressly approved the Whelan/Broderbund integrative test when it was applied to determine that non-essential aspects of the screen display of Plaintiff's computer spreadsheet program (Lotus 1-2-3) were infringed by non-literal copying in Defendant's spreadsheet (V-P Planner). The Lotus court's progressive scholarly opinion expresses and faithfully follows the Whelan/Broderbund integrative test by incorporating both expert and ordinary observer viewpoints, using both analytic dissection of similarities and differences and overall "concept and feel" evaluations, and by recognizing that it is "not a step-by-step decision making process, but a simultaneous weighing of all the factors or elements that the legal test identifies as relevant." 35

B. Rebuttal to Responses of Commentators

The Whelan and Broderbund opinions and the underlying integrative test have polarized legal commentators and have been a lightning rod for criticism, most of which is based upon mischaracterizations and the unjustified fears of monopoly.

1. The Whelan/Broderbund Integrative Test is not a "Look And Feel" approach.

Many critics have set up and knocked down a "scarecrow" mischaracterization of the Whelan/Broderbund position. One such "scarecrow" is the fundamentally inaccurate portrayal of the integrative test as a "look and feel" approach. That expression was originally a modification of the earlier phrase "total concept and feel" which was originally used in Roth Greeting Cards v. United

33. Id. at 1992.
35. Id. at 61.
Card Co.,36 and Krofft37 to denote the court's evaluation of substantial similarity exclusively from (1) the perspective of an ordinary observer or consumer rather than an expert and (2) using a synthetic, gestalt or overall similarity approach rather than an analytic dissection involving systematic comparison of similarities and differences. This "total concept and feel" approach or "audience overall similarity test" is merely one of the six types of substantial similarity tests38 used by courts in the field and is only represented by Atari, Inc. v. North American Philips Consumer Electronics Corp.,39 and Atari, Inc. v. Armenia, Ltd.40 The "total concept and feel" approach also constitutes the second "intrinsic" stage of the Krofft test.

However, it is extremely misleading and inaccurate to refer to the integrative tests employed in Whelan, Broderbund or their progeny as "look and feel" approaches because they also utilize both expert opinion and analytic dissection. The phrase "look and feel" has been used primarily by the critics of the integrative test to set up a "straw man," a misleading image of an impressionistic, unsystematic, arbitrary, and dangerous test of substantial similarity which is set up for easy criticism.41 Such critiques of "straw man" mischaracterizations do little to advance the state of high technol-
ogy jurisprudence. The term "integrative test" should be used because it is more descriptive and less misleading.

2. The Whelan and Broderbund cases do not extend computer copyright protection too far.

Opponents have also used the argumentum ad absurdum technique and raised the specter of the wholesale repression of high technology progress and scare tactics claiming the Whelan-Broderbund "look and feel" approach would lead to the monopolization by larger companies crushing smaller competitors by the steamroller of overbroad copyright protection. Needless to say, the Whelan and Broderbund cases have been extant for more than five years, other cases adopting their position have accumulated, and the forecasted specter of monopoly has not materialized.

Some critics attack the Whelan court's decision based upon where the line was drawn between expression and idea. Peter

42. The use of the term "integrative test" is proposed in Sundholm II, supra note 6, at 371, 399-404 see also Whelan, 797 F.2d at 1232-33 and Broderbund, 648 F. Supp. at 1136. Moreover, the use of the "look and feel" expression should be abandoned because imprecise language perpetuates confusion and inconsistency. In addition to referring to audience overall similarity tests, the phrase "look and feel" is also occasionally, variously, and ambiguously used to refer to expert analytic dissection non-literal similarity tests, expert overall non-literal similarity tests, and also non-literal similarity tests in general. For instance, the Hunter article, supra note 7, variously uses "look and feel" to refer to non-literal aspects, id. at 97, audiovisual aspects, id., the audiovisual work stream of computer cases, id. at 153, non-literal display of screen sequence, id. at 98, and the Whelan/Broderbund case approaches and their successors, id. at 115.

43. Whelan stated that the idea of a dental inventory computer program could have many different expressions in its sequence, structure and organization.

The "expression of the idea" in a software computer program is the manner in which the program operates, controls and regulates the computer in receiving, assembling, calculating, retaining, correlating, and producing useful information either on a screen, printout or by audio communication.

Whelan, 797 F.2d at 1239. "Where there are various means of achieving the desired purpose, then the particular means chosen is not necessary to the purpose; hence, there is expression, not idea." Id. at 1236. Charles Walter criticized Whelan:

With cavalier disregard for logic, language and 17 U.S.C. Section 102(b), the Third Circuit equated purpose or function with "idea," and everything not necessary to that purpose or function was equated with "expression." This led the Third Circuit to the incorrect distinction between "expression" and "idea." . . . This analysis ignored the fact that, while the merger doctrine can be used to identify expression which is not within the scope of copyright protection, it cannot be used to identify all expression which is not in the scope of copyright protection.

Charles Walter, Defining the Scope of Software Copyright Protection for Maximum Public Benefit, 14 Rutgers Computer & Tech. L.J. 1, 130-31 (1988). Mr. Walter is being very unfair to the Whelan court and displays his own "cavalier disregard for logic" by setting up and knocking down yet another "straw man." As the Whelan court never stated that every aspect of the varying means for accomplishing the purpose of a computer program constitutes
Mennell\textsuperscript{44} ineffectually criticized the \textit{Whelan} opinion by setting up another "straw man" and using the \textit{argumentum ad absurdum} technique when claiming that \textit{Whelan}'s reasoning would mean a cookbook organized by courses in a meal, a dictionary organized alphabetically or a history book organized by historical epochs would be copyrightable.\textsuperscript{45} Christian H. Nadan also argues \textit{ad absurdum} claiming that the specter of overbroad "look and feel" protection will chill U.S. software developers, undermine economic incentive for software development, and display unwarranted hostility toward copyright defendants.\textsuperscript{46} These arguments are based upon mischaracterization and "beg the question" by assuming the so-called "look and feel" approach makes protection dangerously overbroad. These critics believe it will have a chilling effect on in-

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\item Copyrightable expression, it is unfair and misleading to criticize \textit{Whelan} as though it did. Similarly, another \textit{Whelan-Broderbund} critic, J. Scott MacKay, goes so far as to recommend that courts employ the "useful article" doctrine as the best approach rather than the idea/expression test. MacKay, supra note 26, at 134. MacKay argues for non-protection of utilitarian aspects of the interface under the "useful article" doctrine which holds that "the only elements of an application program's interface eligible for copyright protection are those that can be separated from, and exist independently of, the utilitarian aspects of the interface." \textit{Id.} at 130-31. The problem with this type of approach is that it fails to understand that, due to the fundamental difference between literary/artistic works and computer programs/displays, most aspects of computer subject matter are useful or utilitarian. This type of approach impractically restricts copyright protection to the useless and valueless aspects of the computer subject matter. Thus the "useful article" doctrine holds little promise as "the" test for computer copyright infringement cases. Pinheiro \& Lacroix also argue that \textit{Whelan}'s approach "fails" to distinguish between a program's expression and its underlying process or function because they simply do not like where \textit{Whelan} draws the line. Pinheiro \& Lacroix, supra note 9, at 427. For a criticism of Broderbund, see Robert E. Rudnick, Comment, Manufacturers Technologies, Inc. v. CAMS, Inc.: A False Hope for Software Developers Seeking Copyright Protection for Their Generated Screen Displays, 17 RUTGERS COMPUTER \& TECH. L.J. 211 (1991).
\item Peter Mennell, \textit{An Analysis of the Scope of Copyright Protection for Application Programs}, 41 STAN. L. REV. 1045 (1989).
\item The \textit{[Whelan]} court's approach did not, however, pay adequate attention to the implications of broad protection for the structure, sequence, and organization of application program code. Perhaps more significantly with regard to fundamental copyright principles, the \textit{Whelan} court naively reasoned that because a function could be performed in more than one way, its structure, sequence, and organization is expressive and therefore copyrightable. A few simple examples bring out the inconsistency of this reasoning with well-established copyright principles. Under the \textit{Whelan} approach, a culinary writer would have an arguable claim that his cookbook's structure based upon the order of courses in a meal is copyrightable because the function—a book expressing recipes—can be expressed in other ways. Similarly, a lexicographer could seek protection for a dictionary in alphabetical order because surely there are other ways of writing a book that defines words; and a historian could seek copyright protection for chronological presentation of a particular period. \textit{Id.} at 1084-5.
\item Nadan, supra note 25, at 1650-51.
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novation and progress and then claim those very "defects" as evidence of its shortcomings.

Critics have also claimed that overbroad "look and feel" protection allegedly embodied by the Whelan/Broderbund approach encourages monopoly and discourages progress because it protects the most efficient structure, sequence or organization of a computer program in completing a particular task. Other critics have extended this argument to the untenable assertion that the Whelan test should be limited by only protecting expressions of the structure, sequence and organization of programs that have no economic value in increasing computing efficiency. The problem with these arguments is that they would have copyright only protect valueless aspects of inventions. If the computer program or audiovisual display were of no economic or technological value, why would anyone want to copyright it to begin with?

Furthermore, these arguments are fallacious because the mischaracterization results in overlooking the fact that the integrative test still allows each court to limit any potential for monopolization which would be counterproductive to high technology progress. Courts are still free to apply the idea-expression test to protect gen-

47. Pamela Samuelson, "Why the Look and Feel of Software User Interfaces Should Not Be Protected By Copyright Law," 32 COMM. OF ACM 563 (1989). MacKay, supra note 26, argues that the Broderbund decision goes against the policies and purposes of copyright law. If this decision is followed by other courts, competition in the software industry will be lessened, innovation in the development of interfaces will be slowed, and consumers will be forced to pay monopoly prices to developers undeserving of the enjoyment of such a powerful incentive. Id. at 134.

The rationale used in Broderbund has the potential to cripple competition in the computer software industry. The Broderbund analysis, if followed by other courts, will allow the first software developer to market its product to obtain a monopoly on the most efficient and logical interface for that program.

Id. at 135-6. See also Damman, supra note 26, at 444-5, recommending against copyright of sequence and order of screen display on anti-monopoly grounds; Rudnick, supra note 43, at 245, claiming that "[a] 'look and feel' analysis would unjustifiably benefit the plaintiff in an infringement suit"; Walters, supra note 43, at 150, arguing that "the scope of copyright protection should not extend to the user interface."

48. Mennell, supra note 44, at 1085; Benson, supra note 26, at 1153 claims that "[g]ranting expansive copyright protection to a technology such as a screen design risks giving the developer a virtual monopoly over a process or system for performing a given task." See also MacKay, supra note 26; Richard A. Forsten, It Walks and Talks Like My Duck, So How Come It's Not Infringement?: The Case Against "Look and Feel" Protection for Computer Programs, 70 J. PAT. & TRADEMARK OFF. SOC'Y 639 (1988); Pinheiro and Lacroix, supra note 9.
eralized "building block" ideas or to apply the merger doctrine to protect "bottleneck" areas of innovation where the expressions of ideas are unreasonably limited. The originality requirement still must be met, and courts are free to refuse protection of obvious expressions. Finally, the "scenes a faire" doctrine and the blank forms doctrine of Baker v. Selden may be used to limit any counterproductive monopolization interfering with high technology progress. In fact, the Lotus court, which used the Whelan integrative test, specifically ruled that the idea of a general spreadsheet format itself and the L-shaped screen format of a spreadsheet were on the general idea level, obvious, unoriginal and not copyrightable. Therefore, the arguments that Whelan or Broderbund threaten the marketplace of innovation because of where the idea-expression line is drawn are without merit.

Other critics have accepted the mistaken criticism by the Software court claiming that the Broderbund court erroneously held that a computer program copyright extends to protect the otherwise uncopyrighted audiovisual displays. For example, Hunter states Broderbund "confused the copyright in the audiovisual display of a program with the separate copyright in the literary work." Ben-

49. See Herbert Rosenthal Jewelry Corp. v. Kalpakian, 446 F.2d 738, 742 (9th Cir. 1971).
55. See also David Ladd & Bruce G. Joseph, Expanding Computer Software Protection by Limiting the Idea, 2 J. L. & TECH. 5, 10 (1987). Note also that the otherwise sound work of NIMMER ON COPYRIGHT has criticized Whelan as extending copyright protection too far, stating that [Whelan's]

sweeping rule and broad language extend copyright protection too far. Providing protection for such amorphous concepts as the "overall structure" of a program, without considering whether such a structure is protectable under traditional copyright theories, increases the risk of granting copyright holders protection on a par with that provided to patent holders. Such a result could be disastrous . . . .

3 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 13.03[A][1][d] (1991). This observer doubts that Professor Nimmer would have approved this updated commentary as it is inconsistent with the general statements of copyright law contained in his authoritative treatise and it misreads Whelan as extending protection to overall structure of a program without any consideration of its copyrightability.
57. Hunter, supra note 6, at 97. This is not the only mischaracterization in the Hunter article. Hunter also apparently mischaracterizes my own work. For instance, Hunter, supra
son's praise of the position of the Softklone court over that of the Whelan/Broderbund courts also leads to an erroneous acceptance of the Softklone court's error by claiming: "The court in Whelan never suggested the program's copyright extended beyond the program code to embrace its screen display. Despite the Broderbund court's professed reliance on Whelan, therefore, its extension of a program's copyright to the structure, sequence and organization of its screens is without precedent."\(^{58}\) Nadan is another critic of Broderbund who parrots this misguided criticism\(^ {59}\) claiming that Broderbund "rests upon faulty premises," citing the re-hashing of the Softklone error in the CAMS court opinion and stating, "Not only is Whelan's result harmful, its logic is misguided."\(^ {60}\) In a similar vein, Peter Mennell has also stated:

The Broderbund decision has been roundly criticized for inferring from Whelan that the copyright in the application program code extends to the video displays. See Digital Communications Associates v. Softklone, 659 F. Supp 449, 2 USPQ 2d (BNA) 1385 (ND Ga. 1987); J. Scott MacKay, Broderbund Software v. Unison World, Inc.: "Look and Feel" Copyright Protection for the Display Screens of an Application Microcomputer Program, 13 Rutgers Computer & Tech. L.J. 105, 126 (1987). Notwithstanding this apparent error, the substance of the Broderbund court's approach—applying Whelan's idea/expression test to the overall structure, sequence, and organization of screen displays—has been followed. See Digital Communications, 659 F. Supp. 449.\(^ {61}\)

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58. Benson, supra note 26, at 1145.
59. Nadan, supra note 25, at 1646.
60. Id. at 1648.
61. Mennell, supra note 44, at 1090 n.248.
3. The integrative approach is best suited to the determination of computer copyright infringement.

Certain commentators have argued against the Whelan integrative approach and claimed that other tests, such as a two-stage Krofft approach is preferable. For instance, Hunter states that the Krofft two-step test is "the preferred approach" but fails to give any reasons why it should be considered superior to the Whelan/Broderbund integrative test. As discussed previously, the Krofft two-step test is ill-adapted to computer copyright subject matter because it excludes expert opinion in the evaluation of the issue of whether the copyrightable expression of plaintiff's work was infringed by defendant's work. It may be well suited to infringement of musical scores and cartoon characters, but it is not suited to evaluating infringement of computer programs. In fact, there are no other systematic similarity tests which stand as a serious contender to the integrative test.

The focus of this essay on the rebuttal of commentators critical of the Whelan/Broderbund approach should not obscure the fact that many commentators have recognized the superiority and promise of the integrative test of substantial similarity for computer copyright.

V. CONCLUSION

While some courts and commentators have been vociferously critical of the Whelan/Broderbund approach, there remains a confusion and lack of uniformity in the application of substantial similarity tests to computer subject matter. The general trend of the law after Whelan is toward the adoption of the integrative test for computer copyright infringement, which is the wisest approach to the

62. Hunter, supra note 6, at 101-02. Other commentators have advocated the archaic and maladapted Arnstein or Krofft two-step tests for computer program and output copyright infringement. Walter, supra note 43, at 128.

social engineering of technological progress in this area. Yet it is likely that the “cultural lag” of legal theories behind advancing technology will continue and many courts can be realistically expected to continue to apply a panoply of ill-suited tests to computer copyright cases and continue to cling to the archaic Synercom rationale and anti-protectionist approaches. Although it is clear that the Whelan/Broderbund integrative approach is the wave of the future, it is equally clear that absent legislative interdiction or a Supreme Court opinion establishing the Whelan/Broderbund integrative substantial similarity test as the proper uniform test for the evaluation of computer copyright infringement, the future direction of the law in this area will continue to be marked by controversy, resistance, non-uniformity, and unpredictability regarding how and when courts will enforce computer copyrights. The realism of Charles Horton Cooley seems an appropriate estimation of the future of this area of law:

As regard the proximate future I see little to justify any form of facile optimism, but conceive that, though the world does move, it moves slowly, and seldom in just the direction we hope. There is something rank and groping about human life, like the growth of plants in the dark: if you peer intently into it you can make out weird shapes, the expression of forces as yet inchoate and obscure; but the growth is toward the light.64

64. CHARLES HORTON COOLEY, SOCIAL PROCESS 409 (1966).