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Manufacturers Technologies, Inc. v. Cams, Inc.—The Legal Fiction Created by a Single Copyright Registration of a Computer Program and its Display Screens

In Manufacturers Technologies, Inc. v. Cams, Inc., Judge Daly, of the United States District Court, District of Connecticut, ruled that a single registration of a computer program protects the program and the screen displays separately by way of a "legal fiction of two separate registrations." The District Court issued the verdict in light of the recent policy decision of the United States Copyright Office of the Library of Congress ("Copyright Office") disallowing separate registrations for a computer program and its screen displays. This policy decision extended copyright protection on a computer program to both the program and its screen displays, and was meant to clarify "to the public and the courts [the Copyright Office's] view that multiple claims are unnecessary . . . to assert copyright in the screen displays." After finding that some screens contained copyrightable subject matter, the Manufacturers Technologies, Inc. ("M.T.I.") court held there was substantial similarity between many screen displays of the two works, indicating the defendant infringed the plaintiff's computer program and screen display copyrights. This Comment examines whether the conclusions reached in M.T.I. conform to the Copyright Office's policies and traditional copyright infringement analysis.

Part I of this Comment discusses the facts and holding of M.T.I. Part II outlines the scope of copyright protection for screen displays, discussing the statutory developments relating to computer program and screen display copyrights, the elements of a copyright infringement cause of action, the landmark cases in the area and the hearings held by the Copyright Office, and Part III considers the Copyright Office's recent policy decision and the implications for copyright protection of computer screens.
Copyright Office in 1987 on registering screen displays. Part III discusses the apparent conflict between the Copyright Office’s policy decision and the holding in M.T.I., as well as inconsistencies within the M.T.I. opinion. Part IV concludes that although the M.T.I. court found a way to harmonize previous decisions, the holding did not conform to the Copyright Office’s recent policy decision.

I. Manufacturers Technologies, Inc. v. Cams, Inc.

In 1982 and 1983, M.T.I. developed the COSTIMATOR® program, a computer program9 for estimating the cost of machining a manufactured part.10 M.T.I. expended over 3,000 hours producing the COSTIMATOR® program11 and its 300 plus screen displays.12 The screens assisted the user in selecting appropriate choices and displayed the final estimate.13 One of the program’s primary attractions was its efficiency14

8 For the notice of the public hearing and request for written submissions to the Copyright Office, see Registration and Deposit of Computer Screen Displays; Public Hearing, 52 Fed. Reg. 28,311 (1987) [hereinafter Public Hearing] (copies of the transcript, as well as written submissions of participants cited throughout this Comment, can be obtained from the Copyright Office, Library of Congress, Washington, D.C. 20559) See Registration Decision, supra note 3, for the policy decision resulting from the hearings. Although the transcript of the hearing was not published in its entirety, a summary of relevant testimony was published in Registration of Computer Screens is Subject of Copyright Office Hearing, 36 Pat. Trademark & Copyright J. (BNA) 507 (1987).

9 A computer program is a detailed sequence of written instructions that are executed by a computer to perform a specific function. A program is considered the complete plan “for the transcription of data, coding for the computer, and plans for the absorption of the result into the system. . . . [It is] a set of instructions or steps that tells the computer exactly how to handle a complete problem - payroll, production scheduling, or other applications.” C. Sippl, COMPUTER DICTIONARY & HANDBOOK 409 (1980). A computer system is comprised of both hardware and programs. The hardware is the physical equipment used for processing data. Programs, are necessary for the hardware to perform any functions. The programs allow the user to accomplish various tasks.

The computer program consists of a series of instructions known as “source code.” Id. at 508. The instructions are written in a programming language such as BASIC, Fortran, Cobol, etc. These languages are as different as English, Spanish, and French. Before the computer can execute the program, however, the source code must be converted to “object code,” a series of “0” and “1” symbols which instruct the computer. Id. at 354. The code instructs the computer to perform certain functions and possibly, to produce a visible display on the screen.

The term “software” refers to a program that has been fixed in a storage device (ROM, floppy disk, hard disk, etc.). See infra note 56 for a discussion of programs stored in ROM. The term simply refers to the fact that a program allows the electronics inside of the computer to accomplish a task. The term “software” is commonly used to refer to not only programs but any documentation which comes with the programs and any source material (such as flowcharts). Id. at 501.

10 Manufacturers Technologies, Inc. v. Cams, Inc., 706 F. Supp. 984, 988 (D. Conn. 1989). The program was actually developed by Thomas Charkiewicz and Rene Laviolette for M.T.I. Mr. Charkiewicz was the incorporator, president and controlling stockholder of M.T.I. Id. at 987.

11 Id. at 988.

12 Id. at 1000 n.20.

13 Most application programs are designed to produce displays so the user can effectively interface with the computer to carry out the program’s function. Many software manufacturers employ human interface groups to study the aesthetic, psychological, graphical and ergonometric factors that influence the audiovisual appeal of the screen display. See Written Submission of Apple Computer, Inc. at 4-5 (September 4, 1987) in response to Public Hearing, supra note 8. These groups do not actually write the program which produce the display(s); they only advise the programmers on the recommended design. The screen display is then created by the source code the programmer writes. See supra note 9. However, there may be several ways to write the source code and still produce the same, or substantially similar, screen display. See, e.g., Stern Elecs., Inc. v. Kaufman, 699 F.2d 852, 855 (2d Cir. 1982) (“Many different computer programs can produce the same ‘results’; whether those results are an analysis of financial records or a sequence of images and sounds.”); Manufacturers Technologies, Inc. v. Cams, Inc., 706 F. Supp. at 991 (“two different computer pro-
which depended, to a great extent, upon its screen designs.\textsuperscript{15} The program sold for approximately $20,000.\textsuperscript{16}

M.T.I. obtained valid copyright registrations on four different versions of the COSTIMATOR\textsuperscript{®} program in April, 1985.\textsuperscript{17} Marketing efforts began as early as 1983. Since copyrights exist from the time a work is created,\textsuperscript{18} M.T.I.'s program was technically "copyrighted" in 1983. However, until the work is actually submitted to the Copyright Office for registration, an infringement action cannot be decided.\textsuperscript{19} M.T.I. did not have a "registered copyright" until April, 1985. Between 1983 and 1985, therefore, M.T.I. had a copyright without a registration. The interest in the work was still protected, but an infringement action could not conclude until M.T.I. registered the work. Once the work was registered and the action instituted, the suit related to any infringement from the date of creation — 1983 in the instant case.\textsuperscript{20}

From December 5, 1983, to May 22, 1984, Cams, Inc. ("Cams") acted as M.T.I.'s sales representative for the COSTIMATOR\textsuperscript{®} program.\textsuperscript{21} As a sales representative, Cams received copies of all promotional material showing the various screen displays.\textsuperscript{22} In addition, Cams employees

\textsuperscript{14} "[T]he structure and efficiency of the screen displays is often the most significant selling point of the computer program, distinguishing it from competing programs." Plaintiff's Trial Brief on the Liability Issues Raised in the Complaint at 2, Manufacturers Technologies, Inc. v. Cams, Inc., 706 F. Supp. 984 (D. Conn. 1989) (No. 85-253).

\textsuperscript{15} [M.T.I.'].s design efforts focused on producing a computer program whose visual display screens were structured to most efficiently solve their user's problems from the user's perspective. This efficient structure includes both the internal structure of the individual screen displays themselves as well as the external or organizational structure of the screen displays as they relate to each other.

\textsuperscript{16} 706 F. Supp. at 990.

\textsuperscript{17} Id. at 988.

\textsuperscript{18} "Copyright in a work created on or after January 1, 1978 subsists from its creation." 17 U.S.C. § 302(a) (1988).

\textsuperscript{19} "[N]o action for infringement of the copyright in any work shall be instituted until registration of the copyright claim has been made in accordance with this title." 17 U.S.C. § 411(a) (1988). \textit{See also infra} note 61 and accompanying text.

\textsuperscript{20} \textit{See supra} note 18.

\textsuperscript{21} 706 F. Supp. at 988.

\textsuperscript{22} Between the spring of 1983 and June, 1986, M.T.I. distributed 28,100 brochures showing seven of the COSTIMATOR\textsuperscript{®} screen displays. Although these brochures did not contain notice of a copyright, they were distributed as part of a promotional package which contained a copyright notice. \textit{Id.} at 998-99. In addition, M.T.I. distributed 112 copies of a brochure entitled "The System" to key accounts. These, too, did not contain a copyright notice. However, in February, 1987, after M.T.I. filed suit and discovered this error, M.T.I. sent stick-on labels containing the copyright notice to each of the recipients. \textit{Id.} To secure copyright protection, a published work must have a copyright notice affixed to it. M. NIMMER, \textit{2 NIMMER ON COPYRIGHT} § 7.13[A]-[B] (1989) [hereinafter \textit{NIMMER}]. This general rule has two exceptions: 1) omitting notice from a relatively small number of copies is excused; and, 2) omitting notice is excused if the work is registered within five years after the publication without notice and reasonable efforts have been made to remedy the defect. \textit{Id.} If
viewed the program in operation on several occasions during demonstrations to customers and were allowed to view and photograph the screen displays. On May 22, 1984, Cams notified M.T.I. of its intent to terminate its sales representation and to compete with M.T.I. by selling its own cost estimating program.

Cams invested about 1,500 hours to produce its QUICK COST III, V and X programs which sold for approximately $1,000 to $2,500 each. Cams obtained a copyright registration on the QUICK COST programs in February, 1985, two months before the registration of M.T.I.'s COSTIMATOR® program. The date of registration does not determine which party will prevail in an infringement action. Rather, originality of authorship, date of first publication and other factors discussed throughout this Comment are determinative.

M.T.I. filed suit against Cams on June 3, 1985, alleging copyright infringement of its COSTIMATOR® program's screen displays. On August 28, 1986, the court granted M.T.I. leave to amend its complaint "to incorporate a newly issued copyright registration into its Count for copyright infringement." The new registrations included a copyright on COSTIMATOR® screen displays received in January, 1986, and a copyright on its user manual received in May, 1986.

The District Court first considered whether copyright protection extended to screen displays. The court examined the recent decisions of Broderbund Software, Inc. v. Unison World and Digital Communication Association, Inc. v. Unison World, Inc. The omission does not fall within these two exceptions, the work enters the public domain and no longer receives copyright protection. In the instant case, since M.T.I. omitted the notice from a small number of copies and since M.T.I. made efforts to remedy the omission during the suit, the court considered the error harmless. 706 F. Supp. at 1000.

The court considered error harmless. 706 F. Supp. at 988-89. The opinion stated that although "Cams [was] preparing to compete with M.T.I. as early as January 1984, they made no effort to notify Cams of this fact until May 22, 1984." Id. (emphasis added). However, when read in context, it is apparent that the court intended to state "they made no effort to notify M.T.I. of this fact until May 22, 1984." Id. (emphasis added).

QUICK COST III, V and X are three separate versions of the same program, QUICK COST. The program is also known as "RAPIDCOST." The three versions are "very similar, if not exactly identical" but are marketed through different channels. Id. at 989 n.7. The programs will be referred to collectively as "QUICK COST."

as well as the hearings held in 1987 by the Copyright Office on the issue. The court considered two possible tests. First, the court contemplated requiring M.T.I. to show substantial similarity of both the computer screen displays and the underlying program code. Second, the court contemplated treating "the single registration of the computer program as accomplishing two inter-related yet distinct registrations; one of the program itself and one of the

grams were used to create greeting cards, signs, posters and banners. The court held that copyright protection for the underlying program code extended to the screen displays. The court relied on the decision in Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc., 609 F. Supp. 1307 (E.D. Pa.), aff'd, 797 F.2d 1222 (3d Cir. 1986), cert. denied, 479 U.S. 1031 (1987) which held that copyright protection extended to the structure, sequence, and organization of a computer program. In Broderbund, the court reasoned that the organization of a computer program is a "nonliteral" aspect of a computer program (one that is not based solely on the written code) and that other nonliteral aspects should therefore be protected as well. 648 F. Supp. at 1132-33. After determining that the defendant had access to the plaintiff's copyrighted program, and concluding that there was substantial similarity between the two programs based on the traditional two step audience test, the court held that the PRINT MASTER infringed the copyright of THE PRINT SHOP. See infra notes 78-85 and accompanying text for a discussion of the two step audience test.

Many commentators and courts have considered the Broderbund reasoning faulty since Whelan specifically stated that evidence of similarity between screen displays is not conclusive proof of infringing the program's copyright. The Whelan court stated:

Insofar as everything a computer does, including its screen outputs, is related to the program that operates it, there is necessarily a causal relationship between the program and the screen outputs. The screen outputs must bear some relation to the underlying programs, and therefore they have some probative value. . . . Our holding that evidence of screen outputs may be admissible does not necessarily mean that such evidence would be alone sufficient.

Whelan, 797 F.2d at 1244 n.45. The Broderbund court failed to consider the similarities of the underlying code of the two programs, and compared only the visual screen displays. Based on Whelan, the Broderbund court should have evaluated both the screens and the program to determine whether infringement occurred. According to M.T.I., "the [Broderbund] court appears to have misinterpreted the Third Circuit's holding in Whelan Associates, Inc. v. Jaslow Dental Laboratory," 706 F. Supp. at 992. See also Note, The Copyrightability of Computer Program Screen Displays, 10 HASTINGS COMM. ENT. L.J. 859, 871 (1988); Comment, Broderbund Software, Inc. v. Unison World, Inc.: "Look and Feel" Copyright Protection for the Display Screens of an Application Microcomputer Program, 13 RUTGERS COMP. & TECH. L.J. 105 (1987); Computer Screen Display is Not Protected by Program Copyright, 33 PAT. TRADEMARK & COPYRIGHT J. (BNA) 611 (1987).

In Softklone, the defendant alleged copyright infringement of its CROSSTALK XVI communications program, by the defendant's MIRROR program. The court rejected the holding of Broderbund and concluded that "copyright protection of a computer program does not extend to screen displays generated by the program." Id. at 455. The court based its reasoning on the idea that "screen displays generated by computer programs are not direct 'copies' or 'reproductions' of the literal or substantive content of the computer programs." Id. In this regard, the court recognized that it is possible to create similar or identical screen displays using a different underlying code. Id.

Registration Decision, supra note 3, at 21,817. After conducting hearings in September, 1987, to determine whether to accept a registration for a screen display separate from the underlying computer program, the Copyright Office concluded that it would no longer accept deposits of screen displays separately from the underlying program. The policy decision stated, "the Copyright Office of the Library of Congress has determined that all copyrightable expression owned by the same claimant and embodied in a computer program . . . including computer screen displays, is considered a single work and should be registered on a single application form." Id. The decision also stated that all copyrightable elements of the registered program would be protected by the single registration. Id. at 21,818. The policy decision considered the fact that similar screen displays could be generated by different program code. However, the Copyright Office still concluded that "this does not alter the fact that the computer program code and screen displays are integrally related and ordinarily form a single work." Id. at 21,819.

The court adopted the second approach which created "the legal fiction of two separate registrations" and concluded that copyright protection extended to the screen displays of a computer program.

After deciding the appropriate test, the court conducted a lengthy analysis of the similarities between COSTIMATOR® and QUICK COST. The court found substantial similarity between the screen displays of the two programs. It held that Cams infringed the screen display copyright as well as the program code copyright as it related to the screen display. The court enjoined Cams from any further manufacturing or marketing efforts.

II. The Scope of Copyright Protection

A. Statutory Developments Relating to Computer Program and Screen Display Copyrights

Congress derives its power to enact copyright laws from the United States Constitution, which states that Congress shall have the power "[t]o promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries." A copyright is an intangible right an individual holds to the exclusive privilege of copying and publishing a

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36 Id. at 993.
37 Id. The two tests would allow courts to reach extremely different results. Under the first test, the infringement suit would not succeed unless both the program code and the screen displays were copied. In the instant case, this would result in a finding for Cams, since the court found no substantial similarity between the underlying program code. The second test, the one adopted by the court, seems contradictory to the Copyright Office's policy decision. The second test allows the court to analyze the work as if separate registrations existed—one on the screen alone, and one on the program code. However, the Copyright Office has specifically disallowed such separate registrations. See supra note 34. The second test does not recognize that the program and the screen displays form a single work. Under the second test, the court may find infringement, as it did in M.T.I., if only the screen displays are copied, without considering copying of the underlying program. See also infra notes 158-59 and accompanying text.
38 The court found that there was no "evidence of source or object code similarity" and therefore did not discuss similarities between the underlying code of the two programs. Id. at 1000. Rather, the court considered the similarities between the screen displays of both programs as well as the navigational commands (the keys that a user would strike to move between screens). The court found substantial similarity in several aspects of the screen displays, including: the flow of the displays (this is the order in which the screens appear when using the program); the format of the screen displays (this includes centered headings, alphabetized lists, and capitalization of key words); the navigational method (both programs used the backspace and spacebar keys to switch between the screens); the identification method (particularly the identification of certain tools and departments and the subsequent reference displays); and in the several specific screen displays themselves (where certain portions of the displays were not ordinary and yet appeared in both programs). Recently, the Copyright Office further clarified its position on the copyrightability of screen displays. Specifically, the Copyright Office stated that "menu screens and similar functional interfaces consisting of words or brief phrases in a particular format are not registrable." 38 Pat. Trademark & Copyright J. (BNA) 1 (1989). This would include "names, titles, and phrases such as column headings, simple checklists, . . . format, arrangement or typography." Id. The Copyright Office's clarified position suggests that in M.T.I., neither the format of the screen displays nor the identification method were copyrightable subject matter. See infra notes 194-96 and accompanying chart for a complete analysis of the elements the M.T.I. court considered.
39 706 F. Supp. at 1006.
work the individual has produced. Through the Copyright Act, copyright protection is available for various works of authorship: literary works; musical works; dramatic works; pantomimes and choreographic works; pictorial, graphic and sculptural works; motion pictures and other audiovisual works; and sound recordings.

In 1964, the Copyright Office began accepting computer programs for registration under the statute's "literary works" category. This category was defined as "works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects, such as books, periodicals, manuscripts, phonorecords, films, tapes, disks, or cards, in which they are embodied." Based on this legislative definition, computer programs are likened to books, periodicals and manuscripts. The copyright does not protect the actual function of the program. Rather, protection is afforded to the written code — either the source code or the object code — which is deposited for registration.

Copyright law underwent revision in 1980 to incorporate the recommendations of a congressional committee, the National Commission on New Technology Uses of Copyrighted Works (CONTU). The CONTU report noted that software is expensive to produce but easy to duplicate and appropriate. To foster competition and protect "intellectual effort," the Commission determined that copyright protection should be afforded to computer programs. However, the Commission did not determine the scope of copyright protection for computer programs. Rather, in recommending that copyright protection extend to computer programs, the Commission specifically noted, "should a line need to be drawn to exclude certain manifestations of programs from copyright that line should be drawn on a case by case basis by . . . the federal judiciary."

45 1 Nimmer, supra note 22, § 2.04[C]. The Copyright Office had three prerequisites for registration of computer programs. First, the "elements of assembling, selecting, arranging, editing and literary expression" had to be sufficient to constitute original authorship. Second, the program had to be published and include a copyright notice. Finally, the copies that were deposited for registration had to be fixed in a tangible medium in a language that was intelligible to human beings. 11 Bull. Copyright Soc'y 361, 367 (1964). The last requirement suggested that programs written in object code could not be deposited since they were only a series of "0" and "1" characters that would have no intelligible meaning. The requirement seems to suggest that only programs in source code (a code consisting of words, numbers and symbols that can be read by humans as well as computers) would be acceptable. See supra note 9.
46 See supra note 9.
48 "The cost of developing computer programs is far greater than the cost of their duplication," Final Report of the National Commission on New Technological Uses of Copyrighted Works, Copyright L. Reports (CCH) 26 (July 31, 1978). The Report also noted, "if the cost of duplicating information is small, then it is easy for a less than scrupulous person to duplicate it." Id. at 24.
49 Id. at 27.
50 Id. at 57.
Congress adopted the CONTU report in whole and incorporated it into the current copyright laws. Computer programs are still protected under the literary works category. However, there are some difficulties in determining the scope of protection based on this classification. As with all literary works, only the means of expression, not the underlying idea, receives protection. In addition, where only a limited number of ways exist to express an idea, the expression is not copyrightable, although this is open to judicial interpretation. This idea/expression dichotomy has caused difficulties for many courts faced with the question of whether copyright protection extends to a computer program. For example, a process is an idea and thus is not copyrightable. However, based on legislative history, courts have extended copyright protection.


"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 a work." 17 U.S.C. § 102(b) (1988).


When the... subject matter is very narrow, so that "the topic necessarily requires," if not only one form of expression, at best only a limited number, to permit copyrighting would mean that a party or parties, by copyrighting a mere handful of forms, could exhaust all possibilities of future use of the substance. 379 F.2d at 678 (citation omitted).

A federal district court properly applied the rule in Telemarketing Resources v. Symantec Corp., No. C 88-20352 RPA (N.D. Cal. 1989) (LEXIS, Genfed library, Dist file, #13012). In Symantec, the plaintiff alleged that the defendant's computer outlining program, "Grandview," infringed its copyright on "PC-Outline." The programmer who wrote "Grandview" had formerly written "PC-Outline" for the plaintiff. Telemarketing Resources' main allegation was that several screen displays were substantially similar and therefore Symantec Corp. infringed the copyright. The court granted the defendant's motion for summary judgment after analyzing the substantial similarity of the two programs under the audience test. See infra notes 78-85 and accompanying text for a discussion of the audience test. The court found that a menu window which lists different functions the user can perform is an "idea of the outlining program." Id. at 13. Similarly, the use of "pull down windows" which a user accesses to direct the program's function are "commonplace in the computer software industry" and therefore, are not copyrightable subject matter. Because the idea of an outlining program can only be expressed in a limited number of ways, certain elements, such as the menu windows and navigational keys, are not protected by copyright. Id. at 13-15.

The idea/expression dichotomy is best understood by reviewing Professor Nimmer's example of Shakespeare's "Romeo and Juliet." In that work, the "idea" is a romance "between members of two hostile families." This idea is not protected by copyright. However, the story line, dialogue, setting and characterization are all expressions of the idea and are protected by copyright. 3 NIMMER, supra note 22, § 13.03[A]. In terms of a computer program, word processing, for example, is an idea which does not receive copyright protection. The problem lies in determining exactly what constitutes an expression of that idea. Factors such as screen display, choice of navigational keys, flow of the screen displays, and the like are all taken into consideration when looking at the expression of the idea. See, e.g., Manufacturers Technologies, Inc. v. Cams, Inc., 706 F. Supp. 984, 994-96 (D. Conn. 1989).

In adopting the recommendations of CONTU and amending the Copyright Act of 1976, the House Report noted:

Some concern has been expressed lest copyright in computer programs should extend protection to the methodology or processes adopted by the programmer, rather than merely to the "writing" expressing his ideas. Section 102(b) [of the Copyright Act of 1976] is intended, among other things, to make clear that the expression adopted by the programmer is the copyrightable element in a computer program, and that the actual processes or methods embodied in the program are not within the scope of the copyright law.

to computer programs even though they are technically "processes" for solving a problem or fulfilling a function.\textsuperscript{56} Some software manufacturers have sought separate protection for their screen displays by registering the displays as audiovisual works.\textsuperscript{57} Although the definition of audiovisual work does not explicitly include a display visible on a computer screen, the Copyright Office has nonetheless accepted screen displays for registration.\textsuperscript{58} On some occasions, prior to June, 1988, the Copyright Office even allowed manufacturers to obtain two separate copyright registrations: one on the program code as a literary work, and another on the screen displays as an audiovisual work. In fact, M.T.I. was one of the manufacturers obtaining two separate copyrights. However, in June, 1988, the Copyright Office issued a policy decision stating that it would no longer allow separate registrations of a computer program and its resulting screen displays.\textsuperscript{59} In this

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\item[\textsuperscript{56}] Id. In addition, the CONTU report noted, "[t]hat the words of a program are used ultimately in the implementation of a process should in no way affect their copyrightability." \textit{Final Report of the National Commission on New Technological Uses of Copyrighted Works}, Copyright L. Reports (CCH) 21 (July 31, 1978).
\item[\textsuperscript{57}] Much of the controversy over the idea/expression dichotomy deals with whether programs in object code are protected and whether programs stored in ROM are protected. \textit{See supra} note 9 for a discussion of "object code." \textit{ROM} is "Read Only Memory" which is a component of a computer used to store part, or all, of a program. Information is permanently stored in a ROM and cannot be altered. C. SIPPL, \textit{Computer Dictionary & Handbook} 469 (1980). Because of the permanency and type of the fixation, courts were hesitant to extend copyright protection to programs stored in a ROM. \textit{See, e.g.,} Data Cash Systems, Inc. v. J. S. & A Group, Inc., 480 F. Supp. 1063, 1066 (N.D. Ill. 1979), \textit{aff'd}, 628 F.2d 1038 (7th Cir. 1980) ("[T]he court believes that the \{Copyright Act of\} 1976 applies to computer programs in their flow chart and \{source\}... phases but not in... ROM... In [ROM], the computer program is a mechanical device which is engaged in the computer to become an essential part of the mechanical process."). However, precedent is now clear that programs stored in ROM meet the fixation requirements of 17 U.S.C. § 101(a) (1988). \textit{See, e.g.,} Apple Computer v. Formula, 562 F. Supp. 775, 780 (C.D. Cal. 1983), \textit{aff'd}, 725 F.2d 521 (9th Cir. 1984) ("Either all computer programs \{embodied in any medium\} are within the terms 'idea, procedure, system, method of operation' and are excluded \{from copyright protection\}, or all of them are outside those terms and thus protectable... It is crystal-clear that CONTU recommended that all computer programs, fixed in any method and performing any function, be included within copyright protection.").
\item[\textsuperscript{58}] Apple Computer, Inc. v. Franklin Computer Corp., 545 F. Supp. 812 (E.D. Pa. 1982), \textit{rev'd}, 714 F.2d 1240, 1251 (3d Cir. 1983), \textit{cert. denied}, 464 U.S. 1033 (1984) ("[T]he medium is not the message... The mere fact that the... program may be etched on a ROM does not make the program either a machine, part of a machine or its equivalent."); Tandy Corp. v. Personal Micro Computers, Inc. 524 F. Supp. 171, 173 (N.D. Cal. 1981) (a program stored in ROM was the proper subject of copyright). Storing a program in ROM does not change the literary character of the program, only the method of storage. Thus, as long as a program meets the other copyright requirements discussed throughout this Comment, a program stored in ROM receives copyright protection. \textit{See infra} note 133. "Audiovisual works" is a category of copyrighted material under the Copyright Act of 1976. The Copyright Act of 1976 defines audiovisual works as follows:
\item[\textsuperscript{59}] Works that consist of a series of related images which are intrinsically intended to be shown by the use of machine or devices such as projectors, viewers, or electronic equipment, together with accompanying sounds, if any, regardless of the nature of the material objects, such as films or tapes, in which the works are embodied. 17 U.S.C. § 101 (1988).
\item[\textsuperscript{58}] According to the Copyright Office's Registration Decision, separate registrations had previously been allowed for screen displays and program code. Registration Decision, \textit{supra} note 3, at 21.818. The separate registration was allowed only for a display which was predominately graphic under the "audiovisual" section of the code. \textit{Id.} Screens which were primarily textual were not afforded separate copyright protection. \textit{Id.} Since June, 1988, the Copyright Office no longer accepts separate registrations for screen displays containing either graphic or textual material. Instead, it reaffirmed the existing rule allowing only a single registration on each work. \textit{See infra} notes 133-48 and accompanying text.
\item[\textsuperscript{59}] \textit{Registration Decision, supra} note 3.
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policy decision the Copyright Office interpreted and clarified existing federal regulations.  

B. Elements of a Copyright Infringement Cause of Action

Registering the program and/or screen display is necessary to obtain a judgment in a copyright infringement case. In an infringement suit, the plaintiff must prove two elements. First, the plaintiff must prove ownership of the copyright. Second, the plaintiff must prove actual copying.

The first element, ownership of a copyright, requires both original material and copyrightable subject matter. As stated previously, copyright protection subsists from the time a work is created. However, a court cannot render judgment in an infringement suit until the material is registered in the Copyright Office. Although a registration certificate issued by the Copyright Office is prima facie evidence of ownership, it does not guarantee the subject matter's copyrightability. Determining whether the subject matter is copyrightable begins with the assumption that most material is copyrightable. Then, statutory and judicial exceptions to the rule are applied to exclude certain subjects that are not protected. For example, copyright protection does not extend to ideas. Thus, the subject matter must be an expression and not an idea. Similarly, the work cannot be a form, rule or instruction, since these

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60 See infra notes 133-48 and accompanying text for a discussion of the policy decision. The regulations interpreted by the policy decision are published at 37 C.F.R. § 202 (1989). See infra note 140 and accompanying text for a discussion of 37 C.F.R. § 202.3.

61 The copyright registration may be pursued during the course of the infringement litigation. 2 NIMMER, supra note 22, § 7.16[B]. “A copyright registration is effective on the date of receipt in the Copyright Office of all the required elements in acceptable form, regardless of the length of time it takes thereafter to process the application and mail the certificate of registration. COPYRIGHT OFFICE, LIBRARY OF CONGRESS, CIRCULAR R61 (1986). M.T.I. registered its program prior to instituting the suit and received registrations for the screen displays and user manual during the discovery process. See supra notes 17-20 and accompanying text.

62 "[T]here are only two elements necessary to the plaintiff’s case in an infringement action: ownership of the copyright by the plaintiff, and copying by the defendant." 3 NIMMER, supra note 22, § 13.01[B].

63 3 id. § 13.03[A].

64 Id.


66 3 NIMMER, supra note 22, § 13.01[A].

67 See supra note 18 and accompanying text.

68 See supra notes 19 & 61 and accompanying text.

69 3 NIMMER, supra note 22, § 13.01[A].


71 Baker v. Selden, 101 U.S. 99 (1879). In Baker, a book containing bookkeeping forms was copyrighted. The forms had specific numbers of columns, ruled lines and headings. Another individual used similar forms but with a different arrangement of columns. The Court held that copyright protection did not extend to the forms contained in the book. The Court stated:

The copyright of a work on mathematical science cannot give to the author an exclusive right to the methods of operation which he propounds, or to the diagrams which he employs to explain them, so as to prevent an engineer from using them whenever occasion requires. The very object of publishing a book on science or the useful arts is to communicate to the world the useful knowledge which it contains.

Id. at 103. Commentators and other courts have extended this statement to deny copyright protection to forms and mathematical formulas.

72 Morrissey v. Procter & Gamble Co., 262 F. Supp. 737 (D. Mass.), aff’d, 379 F.2d 675 (1st Cir 1967). In this case, the plaintiff filed suit alleging copyright infringement of its sweepstakes rules.
also do not receive copyright protection. Furthermore, since lists and processes have only a limited number of expressions, they are also not copyrightable.\textsuperscript{73} Thus, in any infringement case, the court will analyze the subject matter to determine whether it is copyrightable.

To prove the second element, actual copying of the copyrighted work, the plaintiff may introduce direct evidence. However, since it is often difficult to obtain direct evidence,\textsuperscript{74} copying is usually inferred by proving access to the copyrighted work\textsuperscript{75} and substantial similarity\textsuperscript{76} between the works.\textsuperscript{77}

A two step test known as the "audience test" is used to prove actual copying of the copyrighted work.\textsuperscript{78} Basically, "[t]he 'audience test' is an

Following Baker v. Selden, 101 U.S. 99 (1879), the court found for the defendant, holding that the rules were not copyrightable subject matter since they could only be expressed in a limited number of ways.

\begin{itemize}
\item \textsuperscript{73} 3 NIMMER, supra note 22, § 2.01[B].
\item \textsuperscript{74} "It is generally not possible to establish copying by direct evidence, since it is rare that the plaintiff has available a witness to the act of copying." 3 id. § 13.01[B].
\item \textsuperscript{75} Access is generally defined as the opportunity to copy. However, some courts have required proof that the duplicating author actually viewed the work and knew of the original work. 3 id. § 13.02. In M.T.I., the defendants had access to the screen displays through the literature they were given as sales representatives and through demonstrations of the program. Manufacturers Technologies, Inc. v. Cams, Inc., 706 F. Supp. 984, 1000 (D. Conn. 1989).
\item \textsuperscript{76} Several factors are reviewed in considering substantial similarity. According to one commentator, "in evaluating the defendant's claim of independent creation, the trier may properly consider the defendant's training, his past conduct in independently creating works, or conversely, his record of copying in other instances." 3 NIMMER, supra note 22, § 13.01[B]. Other factors that may be considered include the number of hours expended to produce each product, production costs, and sales prices. In M.T.I., Cams spent only half the time that M.T.I. did to produce QUICK COST (M.T.I. spent over 3,000 hours and Cams spent 1,500 hours; see supra notes 11 & 25 and accompanying text) and its sales price was minimal compared to COSTIMATOR® (COSTIMATOR® sold for about $20,000 and QUICK COST sold for about $2,500; see supra notes 16 & 26 and accompanying text).
\item \textsuperscript{77} It is difficult to determine how similar works must be to constitute substantial similarity. Determining substantial similarity requires line drawing: Somewhere between the one extreme of no similarity and the other complete and literal similarity lies the line marking off the boundaries of "substantial similarity." Judge Learned Hand has said that this line "wherever it is drawn will seem arbitrary" and that "the test for infringement of a copyright is of necessity vague." 3 NIMMER, supra note 22, § 13.03[A] (quoting, Nichols v. Universal Pictures Co., 45 F.2d 119, 122 (2d Cir. 1930), cert. denied, 282 U.S. 902 (1931), and Peter Pan Fabrics v. Martin Weiner Corp., 274 F.2d 487, 489 (2d Cir. 1950)). In Arnstein v. Porter, 154 F.2d 464 (2d Cir. 1946), the court stated that the question "is whether defendant took from plaintiff's works so much of what is pleasing to the ears of lay listeners, who comprise the audience for whom such popular music is composed, that defendant wrongfully appropriated something which belongs to the plaintiff." Id. at 473.
\item \textsuperscript{78} "[C]lear and convincing evidence of access will not avoid the necessity of also proving substantial similarity since access without similarity cannot create an inference of copying." 3 NIMMER, supra note 22, § 13.09[D].
\item \textsuperscript{79} The "audience test" was originally enunciated in Daly v. Palmer, 6 F. Cas. 1132 (C.C.S.D.N.Y. 1868) (No. 3552). Later courts have built upon and modified the original test. In Daly, the test was a one step process where the court determined whether substantial similarity existed based on the knowledge of a reasonable man. This is now the second step of the audience test, known as the intrinsic test.
\item \textsuperscript{80} In Arnstein, Judge Learned Hand first enunciated a two step analysis. The plaintiff alleged copyright infringement of several songs. The court set forth a two part test to determine whether there was evidence of infringement. Under this test, the plaintiff had to prove that the defendant copied the work. In determining whether the defendant copied the work, the court applied expert witness testimony to dissect and analyze the entire work (both expression and idea), including both protectable and non-protectable material. 154 F.2d at 468. Once the plaintiff proved copying, then the court determined whether the copying went "so far as to constitute an improper appropriation." 3 NIMMER, supra note 22, § 13.09[E].
\end{itemize}
attempt at applying the ‘reasonable man’ doctrine as found in other areas of law to copyright.”79 The first step of the audience test is the extrinsic test. Under the extrinsic test, the trier of fact (the judge in a bench trial or the jury), assisted by expert testimony, determines whether there is substantial similarity between the two works.80 Under the extrinsic test, the “two works are compared in their entirety, including both protectible and nonprotectible material.”81 Although the extrinsic test usually presents a question of fact,82 the extrinsic test may be decided as a matter of law by the judge in a motion for summary judgment.83

If the court determines the works are substantially similar after applying the extrinsic test, then the court goes on to the second step, the

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79 3 NIMMER, supra note 22, § 13.03[E].
80 154 F.2d at 468.
81 3 NIMMER, supra note 22, § 13.03[E]. See, e.g., Morse v. Fields, 127 F. Supp. 63, 66 (S.D.N.Y. 1954) (“The court should reach the problem of eliminating from consideration the unprotected part of plaintiff’s work only if and when [the extrinsic test is met] and the issue of [the intrinsic test] is properly before it.”); McCulloch v. Albert E. Price, Inc., 823 F.2d 316, 320 (9th Cir. 1987) (“A proper analysis of this issue requires that all of the elements of the work, including the uncopyrightable text, be considered as a whole in determining copyright infringement”).

There is a substantial split of authority among the courts as to what portions of the work the extrinsic test applies. The Ninth Circuit, in Sid & Marty Krofft Television Productions v. McDonald’s Corp., 562 F.2d 1157 (9th Cir. 1977), stated the extrinsic test applied only to determine whether there was substantial similarity in general ideas (a non-protectable element; see supra notes 52-54 and accompanying text), not to the expression of those ideas. But see, Litchfield v. Spielberg, 736 F.2d 1352 (9th Cir. 1984) (extrinsic test applied to plot, dialogue and sequence which are expressions and not merely ideas).

In Nimmer, it has been pointed out that Arnstein, in enunciating the original two step test, cited several authorities on the issue of determining “permissible copying” in the extrinsic test discussion. According to Arnstein, if only “permissible copying” (i.e. copying elements which are not protected by copyright such as lists, rules and forms) was found, the work was not infringed. 154 F.2d at 472-73. But, contrary to the Krofft decision, the cases cited in Arnstein at note 18 to support the proposition are examples of expressions and not ideas. Id.

Three of the four cases cited at footnote 18 of the Arnstein opinion to illustrate “permissible copying” are examples of similarity of expression, not merely of idea. These are: Oxford Book Co. v. College Entrance Book Co., 98 F.2d 688 (2d Cir. 1938) (similarity of concepts and of order of presentation amounting to a similarity of expression, excused because such concepts and order were factual); Eggers v. Sun Sales Corp., 263 Fed. 373 (2d Cir. 1920) (verbatim similarity of expression excused because such expression taken by plaintiff from a “public document”); Matthews Conveyor Co. v. Palmer-Bee Co., 135 F.2d 73 (6th Cir. 1943) (similarity of expression excused because the articles depicted were in the public domain, and because the quantum of such similarity of expression was so small as to amount to a fair use). The remaining case cited, Dymow v. Bolton, 11 F.2d 690 (2d Cir. 1926), does appear to hold copying permissible because the similarity was only of idea and not of expression.

3 NIMMER, supra note 22, § 13.03[E] n.256. Thus, Arnstein’s extrinsic test calls for an examination of both expression and idea.

In M.T.I., the court interpreted the extrinsic test as applying only to all non-protectable elements of the work. Manufacturers Technologies, Inc. v. Cams, Inc., 706 F. Supp. 984, 1000 (D. Conn. 1989) (“the Court may first consider expert testimony relevant to the question of whether there is sufficient similarity between non-protected aspects of the two works at issue to establish copying”).

However, the extrinsic test of Arnstein, applying expert testimony to the entire work, and not merely to ideas or non-protected elements, is generally preferred in the interest of “justice and of avoiding nuisance litigation.” 3 NIMMER, supra note 22, § 13.03[E] n.258.

82 See supra note 80 and accompanying text.
intrinsic test. Under the intrinsic test, the trier of fact disregards the expert's testimony and determines whether a reasonable person would find substantial similarity. Under the audience test, both the extrinsic and the intrinsic steps of the test must be met before the plaintiff's infringement action can succeed.

The intrinsic prong of the audience test is difficult to apply in copyright cases involving computer software since it is often impossible for the trier of fact to "isolate the 'spontaneous and immediate' reaction of the lay observer to two sets of object code." It is very difficult for the judge or jury to simply disregard an expert's testimony and reach a conclusion based simply on the knowledge of a reasonable person. This is even more difficult in computer cases where the trier of fact may have only a limited understanding of the subject, based mostly on testimony adduced at trial. The trier's task is further complicated by the difficulty involved in analyzing program code which may seem like a foreign language to a non-programmer.

Fortunately, a recent update to the noteworthy treatise, *Nimmer on Copyright*, outlined a new approach analyzing substantial similarity in computer program copyright cases called "successive filtering." The successive filtering approach requires a court to apply expert testimony in a dissection of the work. The goal is to eliminate all non-protectable elements from the analysis so that the intrinsic test of the lay observer can be applied only to protectable expressions.

There are four major steps prescribed in successive filtering, and expert testimony is relevant in each step. First, the court must separate unprotectable ideas from protectable expression. Here, the court must consider "all of the ideas which might underlie a computer program, and ascertain the point at which they become sufficiently delineated to warrant copyright protection." The work is broken down into decreasing

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84 Arnstein v. Porter, 154 F.2d 464, 468 (2d Cir. 1946).
85 Id. at 469.
86 3 NIMMER, supra note 22, § 13.03[F]. In Whelan Assoc., Inc. v. Jaslow Dental Labs., Inc., 609 F. Supp. 1307 (E.D. Pa.), aff'd, 797 F.2d 1222 (3d Cir. 1986), cert. denied, 479 U.S. 1031 (1987), the court, determined that the intrinsic test of substantial similarity was not applicable to infringement cases involving computer programs because it was so difficult to apply. See infra notes 109-11 and accompanying text for a discussion of Whelan.
87 See supra note 9.
88 NIMMER, supra note 22.
89 3 id. § 13.03[F]. Although "successive filtering" is a new approach, elements of it have been implemented in prior cases. For example, in Concrete Machinery Co., Inc. v. Classic Lawn Ornaments, Inc., 829 F.2d 600 (1st Cir. 1988), the court stated:
   As a preliminary matter, the court can "dissect" the copyrighted work to identify those aspects of expression that are not necessarily mandated by the idea it embodies. . . . By dissecting the accused work and identifying those features which are protected in the copyrighted work, the court may be able to determine as a matter of law whether or not the former has copied protected aspects of the latter. The court can also determine, in at least a general way, those aspects of the work that are protected by the copyright and that should be considered in the subsequent comparative analysis under the ordinary observer test.
   Id. at 608-09. Similarly, in Atari v. North American Philips Consumer Elecs. Corp., 672 F.2d 607, 615 (7th Cir.), cert. denied, 459 U.S. 880 (1982), the court also dissected the work "to distill the protectible forms of expression . . . from the game itself" before proceeding with the intrinsic test.
90 3 NIMMER, supra note 22, § 13.03[F][I].
91 Id. The process of eliminating the unprotected ideas is similar to a test known as the abstractions test. Id. § 13.03[A][1]. The abstractions test looks at the work from the most general view and
levels of complexity to eliminate those elements which are not protected by copyright. Courts are cautioned that this step must include a thorough analysis of all ideas which are included in a program—not simply the major idea such as "word processing." The problem is that a program may have more than one idea which is not protected by copyright and all ideas must be eliminated for this test to achieve its goal.

In the second step of successive filtering the court, again applying expert testimony, must exclude elements dictated by logic and efficiency. Many elements excluded here are those that are capable of only a limited number of expressions and thus are not copyrightable.

The third step requires the court to exclude elements dictated by external considerations. The specific considerations are: hardware standards (here, elements which are included in a program because they are necessary for the program to function properly on a specific computer are excluded); software standards (elements required by the programming language or operating system are excluded); manufacturer's design standards (elements that are included in a program based on a manufacturer's standard which provides uniformity in applications, are excluded from further analysis); and industry practices (elements which are dictated by specific market considerations or widely used programming techniques are excluded). Elements dictated by any of the above considerations are then eliminated from any further analysis.

gradually adds specific elements until a point is reached where the idea "constitutes a pattern which is sufficiently concrete so as to warrant a finding of substantial similarity if it is common to both plaintiff's and defendant's works." In other words, the abstractions test is aimed at determining the point between the abstract idea of a word processing program, and the complete expression of that idea in the program code, where the idea crosses into expression.

In other words, the abstractions test is aimed at determining what the overall purpose of the program was, and calling that the idea; then, everything not necessary to that purpose was an expression.

See supra note 53 and accompanying text.

"As another step in its analysis, a court should examine the allegedly infringed computer program after eliminating from consideration elements that are not original, or that flow naturally from considerations external to the author's creativity. Such considerations arise from a number of constraints." Id.

See supra note 9 for a discussion of programming terms.

In many instances computer manufacturers establish standards for third party programmers to follow in designing software to run on their machines. . . . Similarities between two programs that result from compliance with manufacturers' standards should not be considered evidence of illegal copying." Id.

These include both target industry practices (i.e. the cotton industry or stock market; see infra note 122) and computer industry practices and/or techniques which are widely used.
Finally, the elements that are in the public domain are excluded from the analysis. After all of these elements are eliminated, the remaining material is compared using the intrinsic test to determine whether substantial similarity exists.

Thus, the successive filtering approach would require an analytic dissection, applying expert testimony, of the entire work to allow the court to determine which portions constitute copyrightable subject matter and which do not. The unprotectable items are then excluded from further analysis, leaving the protectable items for consideration under the intrinsic test. The trier of fact would then determine whether substantial similarity exists between only the protectable items of the work.

The successive filtering approach provides a functional solution to the difficulty of applying the audience test in computer copyright cases. By dissecting the work and eliminating the non-protected elements, the trier of fact has less technical material to consider when applying the intrinsic test. This eliminates some confusion in dealing with both technical material and copyright issues. Since the approach is new, it has yet to be applied in its entirety in any case. Nimmer's discussion of the approach states:

As with any new legal rule or test, there is a danger that the analytical method proposed herein will be difficult to apply. Because this proposed method is merely a thorough and rigorous application of traditional copyright rules to cases involving computer software, however, the danger in this instance is minimal.

Thus, successive filtering does not change the existing copyright tests and rules. Even the traditional extrinsic test is not altered, it is simply clarified. Courts should retain the traditional audience test of *Arnstein v. Porter*, and utilize the successive filtering technique as a tool for evaluating substantial similarity in computer program or screen display copyright cases.

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102 Works in the public domain, "the realm embracing property rights that belong to the community at large, are unprotected by copyright or patent, and are subject to appropriation by anyone." Webster's Ninth New Collegiate Dictionary 952 (1986).

103 3 Nimmer, supra note 22, § 13.03[F][4]. "It is axiomatic that material in the public domain is not protected by copyright, even when incorporated into a copyrighted work." Id.

104 3 id. § 13.03[F][5]. "After applying the doctrines set forth above, a core of protectible material may remain. If so, this material must be compared with material from the defendant's program to ascertain if there is a sufficient degree of similarity to justify a finding of infringement. . . . This approach parallels the Second Circuit's reasoning in *Arnstein v. Porter.*" Id.

105 The successive filtering approach was first included in Nimmer on Copyright in the December, 1989, update to that treatise.

106 3 id. § 13.03[F][6].

107 154 F.2d 464 (2d Cir. 1946). See supra note 78 for a discussion of *Arnstein*. In *M.T.I.*, the court applied the audience test in analyzing whether there was infringement. Manufacturers Technologies, Inc. v. Cams, Inc., 706 F. Supp. 984, 1000 (D. Conn. 1989). However, the court seems to have applied the extrinsic test improperly, stating that the extrinsic test should be used in answering "whether there is sufficient similarity between nonprotected aspects of the two works at issue." Id. (emphasis added). *Arnstein* did not limit the inquiry to only "nonprotected aspects" but instead, used the extrinsic test throughout the entire evaluation. See infra notes 177-79 and accompanying text for a discussion of *M.T.I.*'s application of the *Arnstein* test.
C. Pre-M.T.I. Copyright Protection for Computer Programs and Displays

The scope of copyright protection is sometimes the most difficult issue in a computer program or display copyright infringement suit. In M.T.I., for example, the plaintiff asked the court to determine "whether a copyright in a computer program extends to its screen displays."108 Prior decisions varied widely, with some courts extending protection to the program's overall structure and organization (including the screen displays) and others requiring a separate copyright for screen displays. Four leading cases address the scope of copyright protection.

In Whelan Associates, Inc. v. Jaslow Dental Laboratories, Inc.,109 the Court of Appeals for the Third Circuit extended a computer program's copyright protection to the program's sequence, structure, and organization.110 The court reasoned that "insofar as everything that a computer does, including its screen outputs, is related to the program that operates it, there is necessarily a causal relationship between the program and the screen outputs. The screen outputs must bear some relation to the underlying programs."111 Thus, the court believed that similarity between screen displays had probative value in determining whether the program's copyright had been infringed.112 However, similarity between screen displays alone would have been insufficient to support a finding of infringement.113

The court's analysis focused on two ways in which a program might be substantially similar to another: comprehensive nonliteral similarity, and fragmented literal similarity.114 Comprehensive nonliteral similarity

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109 609 F. Supp. 1307 (E.D. Pa.), aff'd, 797 F.2d 1222 (3d Cir. 1986), cert. denied, 479 U.S. 1031 (1987). In Whelan, the court was forced to determine whether copyright protection extended beyond the literal program code to the program's structure, sequence, and organization. The plaintiff, a custom software manufacturer, supplied a program for dental laboratories. The defendant represented the manufacturer as a sales representative for two years. After the defendant realized the original product could not be used on all computers, he wrote a program that would be compatible with other types of computers. When the defendant began marketing his program, the plaintiff sued for infringement. The court extended copyright protection to the program's sequence, structure, and organization and found for the plaintiff. Thus, the facts of Whelan are somewhat similar to those in M.T.I.

110 The sequence, structure, and organization of a program can best be understood by examining the parts of a book. The sequence of a book is the order in which a plot is developed throughout the book. The structure of a book is the topical arrangement of words into sentences, sentences into paragraphs, paragraphs into pages, etc. The organization is the functional arrangement of that material into an introduction, chapters and a conclusion. The sequence, structure, and organization combined, form the book.

Applying this to a program, then, the sequence is the order in which instructions are written. The structure would refer to how and when specific functions (topics) are performed or displayed. The organization is the manner in which the programmer elects to group the functional parts of the program (i.e. definitions, comments, etc.). The organization, though, is frequently dictated by the programming language used, just as the organization of a book is dictated by the subject (i.e. there is a different organization required for a fictional work than for a legal brief).

111 797 F.2d at 1244.
112 Id.
113 Id. "Our holding that evidence of screen outputs may be admissible does not necessarily mean that such evidence would alone be sufficient to withstand motions of summary judgment or directed verdict." Id. at n.45. See also infra notes 125 & 176 and accompanying text.
114 The distinction between comprehensive nonliteral similarity and fragmented literal similarity, according to Professor Nimmer, requires a value judgment. 3 NIMMER, supra note 22, § 13.03[A]. Quoting Justice Story, Professor Nimmer stated that the rule is "if so much is taken that the value of
is "a similarity not just as to a particular line or paragraph or other minor segment, but where the fundamental essence or structure of one work is duplicated in another." In other words, comprehensive nonliteral similarity is similarity in the overall work based on a comparison of the entire work without paying close attention to specific details. Fragmented literal similarity, on the other hand, is word-for-word similarity found occasionally within a work. Using the concept of comprehensive nonliteral similarity, the court concluded that copyright protection extended to nonliteral elements of a computer program, namely the sequence, structure, and organization.

Relying on Whelan, in Broderbund Software, Inc. v. Unison World, Inc., the District Court for the Northern District of California also extended copyright protection to screen displays when the plaintiff had obtained a single copyright on a program. Here, the defendant's program had screens almost identical to those in the plaintiff's program. The court held that the single copyright covered the program's structure, sequence, and organization. Since the screen display was a part of that structure, the screen was protected.

In a subsequent case, however, the Court of Appeals for the Fifth Circuit rejected Whelan's holding that a program's copyright protected the sequence, structure, and organization of a program. In Plains Cotton Co-Op v. Goodpasture Computer Service, Inc., the plaintiff alleged that the structure and organization of a program developed by a former employee infringed its copyright on a computer program. The court specifically rejected Whelan and refused to extend protection to the program's sequence, structure, and organization. The court reasoned that the structural aspects were "dictated by the externalities of the cotton market" which allowed only limited ways to express these items. Therefore, the original is sensibly diminished, or the labors of the original author are substantially to an injurious extent appropriated by another, that is sufficient in point of law to constitute a piracy pro tanta." Id. (quoting Folsom v. Marsh, 9 F. Cas. 348 (C.C. Mass. 1841) (No. 4901)).

Using a cake analysis (see infra note 126), comprehensive nonliteral similarity would be found in two recipes where one uses one egg and two teaspoons of chocolate in a cake, and the other uses two eggs and one teaspoon of chocolate to also produce a cake. Both recipes are similar in that they achieve the same result — a chocolate cake — but they are not identical since they use different ingredients.

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Id. at 1292.

807 F.2d 1256 (5th Cir.), cert. denied, 484 U.S. 821 (1987). In this case an agricultural cooperative developed an accounting system for its members. The cooperative agreed with another firm to manufacture a different version of the program. Five years later, the other firm hired a former employee of the cooperative, terminated the agreement, and manufactured its own program. The cooperative sued for infringement. The court found a lack of substantial similarity and held for defendant.

Id. at 1262 n.4. Industry practices effect the way a program is written. For example, "programs intended to trade stock on the New York Stock Exchange necessarily must be designed to comply with the rules and practices of the Exchange." 3 Nimmer, supra note 22, § 13.03[F][3][d]. Thus, two programs created for the same industry will necessarily have similar elements which are required by that industry.
fore, the court considered the program’s structural aspects “ideas” not susceptible to copyright protection.123

In Digital Communications, Inc. v. Softklone Distributing Corp.,124 the District Court for the Northern District of Georgia rejected Whelan and Broderbund. The court ruled that a single copyright does not protect both the program and the screen displays. The court criticized Broderbund, stating:

The Broderbund court based its conclusions on what this court believes to be an overexpansive and erroneous reading of Whalan [sic]. . . . Whalan [sic] dealt only with the evidentiary use of the copying of screen displays for the purpose of establishing copying of the underlying computer program. The Whalan [sic] case did not stand for, as Broderbund believed it to, the proposition that screen displays are protected by the computer program’s copyright from copying.125

Instead, the Softklone court required two separate copyright registrations to recover for infringement of screen displays.126

In summary, the precedents in this area have evolved from an overinclusive scope of copyright protection, to a much narrower one. Under Whelan, copyright protection extended to a program’s sequence, structure, and organization.127 Broderbund expanded upon Whelan, holding that because a program’s sequence, structure, and organization were protected, the screen displays received copyright protection incidental to the program.128 However, Plains Cotton rejected the notion that a program’s copyright extended to the sequence, structure, and organization.129 Finally, the Softklone decision recognized that the Broderbund court erroneously interpreted Whelan130 and refused to extend a computer program’s copyright protection to the program’s screen displays.131 Instead, it required separate copyrights on the program and screen displays to protect both elements. In light of the conflicting hold-

123 807 F.2d at 1262.
125 Id. at 455.
126 The court stated that “a computer program is considered a ‘copy’ of a screen display but a screen display is not considered a ‘copy’ of a computer program.” Id. at 456. What the court meant by this statement is that two entirely different programs can create the same screen display, but two identical programs cannot create two different displays. By examining the program, it is possible to determine what the program will display. For example, by reviewing the ingredients in a cake recipe, one could determine that the ingredients, when put together, would make a cake. Yet, there are several different recipes, with different ingredients, that will produce a cake, just as different programs can produce the same screen.

Conversely, by simply viewing a screen display, it is not possible to determine the exact program used to create the display. The same is true of a cake. One may look at the cake to determine that it is chocolate or lemon, but it is impossible to determine what ingredients were used to make the cake simply from the visual inspection.

Thus, in determining whether a program’s copyright was infringed, evidence of similarity between the screens is insufficient. That would be like saying that because two cakes were chocolate, they used the same recipe.
127 See supra notes 32 and 109-17 and accompanying text.
128 See supra notes 32 and 119-20 and accompanying text.
129 See supra notes 121-23 and accompanying text.
130 See supra note 32. See also infra note 155.
nings, the Copyright Office held hearings to clarify the registration of computer programs and screen displays.  

D. The Copyright Office Registration Decision on Computer Screen Displays

In September, 1987, the Copyright Office held public hearings addressing the protection of computer program screen displays. The hearings specifically addressed the question of whether the Copyright Office should register screen displays separately from the underlying computer programs that generate them.

Most participants in the hearings recommended a single registration of a computer program protecting both the program and its screen displays. However, other participants suggested allowing a separate registration of screen displays in addition to a copyright on the underlying program, at the manufacturer's request.

As a result of the hearings, the Copyright Office issued a policy decision stating that it would no longer accept separate registrations for computer programs and their screen displays. Rather, the Copyright Office would register either the computer program as a literary work, or the screen displays as an audiovisual work. The decision recognized that "computer program code and screen displays are integrally related and ordinarily form a single work." This recent policy decision ac-

132 Public Hearing, supra note 8, at 28,512.
133 See supra note 8 for a discussion of the hearings and the decision. Major software manufacturers such as Apple Computer, Inc., and Lotus Development Corp., participated in the recent hearings as did many industry support groups, professors and privately interested individuals. Registration Decision, supra note 3. Many software manufacturers have spent a considerable amount of time and money designing screen displays for their programs and produce program code to accommodate the designs. The companies therefore wished to protect their investment in those screen displays through copyright protection. This was particularly true for video game manufacturers where the display itself markets the program. Id.
134 Public Hearing, supra note 8, at 28,511.
135 Written Submission of Professor Peter Jaszi, Washington College of Law, The American University at 7 (September 10, 1987) in response to Public Hearing, supra note 8 ("Since I am convinced that, standing alone, textual screen displays do not [qualify] as copyrightable works, the risk of distorting the development of the law by allowing separate registrations does not seem worth running."). Written Submission of ADAPSCO at 2 (September 9, 1987) in response to Public Hearing, supra note 8 ("Screen displays are an integral part of the computer program that generates them and should be registerable as such. Screen displays are physically embodied with the underlying program in a single copy and are distributed with the program as a unit. Accordingly, single registration makes both technical and business sense."). Written Submission of William F. Patry, Saidman, Sterne, Kessler & Goldstein, Of Counsel at 7 (September 9, 1987) in response to Public Hearing, supra note 8 (Mr. Patry is now a Policy Planning Advisor in the United States Copyright Office) ("the screen display, as a part of the computer program, is protected as it appears on the screen and not just as it appears in the computer program"). Written Submission of Ed Belove, Vice President, Research and Development, Lotus Development Corp. at 9 (September 9, 1987) in response to Public Hearing, supra note 8 ("it is in large part because a program is a single, albeit complex, work that we advocate that you continue your present practice of a single registration that covers all of the diverse copyrightable elements that a program contains").
136 Written Submission of Apple Computer, Inc., at 33 (September 4, 1987) in response to Public Hearing, supra note 8. Written Submission of T. Michael Elliott, The Computer Society of the IEEE at 26 (September 9, 1987) in response to Public Hearing, supra note 8 ("because dissimilar code can produce identical screen displays, there is little practical alternative to implementation of separate code and display registrations").
137 Registration Decision, supra note 3.
138 Id. at 21,817.
139 Id. at 21,818. See also supra note 34.
cords with the existing rule of single registration for a copyrighted work.\textsuperscript{140} The Copyright Office suggested that registering the program as a literary work, or the screen displays as audiovisual works, will depend on which work of authorship (the program code or the screen design) predominates.\textsuperscript{141} The manufacturer is free to choose under which category to register the work, but in no case can the manufacturer register the work twice.\textsuperscript{142} If the manufacturer registers the program as a literary work, both the program and the screen displays receive copyright protection.\textsuperscript{143} If the manufacturer instead registers the screen displays as audiovisual works, only the screen displays receive protection.\textsuperscript{144}

The single registration requirement will not adversely affect those manufacturers who previously received two separate copyright registrations.\textsuperscript{145} The policy decision stated:

Since this decision confirms the validity of a single registration policy, the Office assumes that this decision makes clear to the public and the courts our view that multiple claims are unnecessary, and indeed not appropriate, to assert copyright in the screen displays. . . . In those cases where separate registrations were made for computer program code and the screen displays, the registrations are also valid if, in each case, the registration is based on original creative authorship.\textsuperscript{146}

Thus, although previously issued separate registrations are still valid, multiple registrations are no longer allowed. The Copyright Office’s policy decision indicates that courts should conduct the substantial similarity analysis by considering the entire work.\textsuperscript{147} With respect to the single registration, the decision noted that “ultimately, of course, the courts determine the precise scope of protection.”\textsuperscript{148}

III. Analysis of the \textit{M.T.I.} Decision

\textit{M.T.I.}\textsuperscript{149} was the first reported case to decide a copyright infringement issue on screen displays after the Copyright Office’s registration

\begin{footnotesize}
\begin{enumerate}
\item \textsuperscript{140} The single registration rule states:

\begin{itemize}
\item \textit{(3) Registration of a single work.} (i) For the purpose of registration on a single application and upon payment of a single registration fee, the following shall be considered a single work:

\begin{itemize}
\item \textit{(A)} In the case of published works: All copyrightable elements that are otherwise recognizable as self contained works, that are included in a single unit of publication, and in which the copyright claimant is the same.
\end{itemize}
\end{itemize}
\end{enumerate}
\end{footnotesize}
decision. It was also a case of first impression in the District Court of Connecticut. Thus, the court first discussed what precedent would apply to the case. The court examined the decisions of both Broderbund and Softklone. The M.T.I. court was unpersuaded by the Broderbund decision. Basically, the court agreed with Softklone’s analysis that Broderbund misinterpreted Whelan. However, the M.T.I. court rejected the Softklone conclusion since that case suggested screen displays and program code should be copyrighted separately. The M.T.I. court recognized that Softklone was called into doubt by the Copyright Office’s recent policy decision.

The court considered two possible methods for analyzing M.T.I.’s infringement claim. First, the court could follow the older thinking and require M.T.I. to prove infringement by showing substantial similarity of both the program code and the screen display. Second, the court could follow the spirit of the Copyright Office policy decision and treat the single registration as creating the “legal fiction of two separate registrations.” Under the second test, M.T.I. would only have to show substantial similarity between either the program code or the screen display. The court adopted the second option, treating the single registration as the fiction of two separate registrations.

This novel approach to dealing with the copyright protection afforded screen displays attempted to harmonize the Broderbund and Softklone holdings while still complying with the Copyright Office’s policy decision. Although the result in M.T.I. is partially correct, the

150 “These arguments raise issues novel to this district and circuit which courts have only just begun to confront.” Id. at 991.
151 Id. at 991-92. The opinion directly discussed Broderbund and Softklone, the two decisions which “have specifically dealt with the issue of whether the copying in a computer program should extend protection to the screen displays generated by the program.” Id. at 992. However, in a footnote, the court also discussed both Whelan and Plains Cotton as cases which “have considered the scope of copyright protection of a computer program copyright.” Id. at 991 n.12.
154 706 F. Supp. at 992. “The Broderbund court sought to determine the protectible expressive aspects of the screen displays at issue by referring to the idea of the computer program at issue. . . . In doing so, it overextended the scope of scope of [sic] copyright protection applicable to those screen displays.” Id.
155 Id. at 992-93. “[T]he court is not persuaded that it should adopt the Broderbund approach and its implication that computer program infringement can be shown merely by showing substantial similarity of screen outputs. Such an approach ignores the fact recognized by both the Whelan and Softklone courts that more than one computer program can produce virtually the same screen display.” Id.
156 Id. at 992.
157 Id. “The Copyright Office’s refusal to accept separate copyright registrations of screen displays calls into doubt the validity of the first part of the Softklone holding because it would effectively preclude the protection of expression in the computer screen displays, a result obviously not envisioned by the Softklone court.” Id.
158 In M.T.I., however, it was unnecessary to create a “legal fiction of two separate registrations” since the plaintiff held valid registrations on both the screen displays and the program. See supra note 37 and accompanying text.
159 706 F. Supp. at 993. See also supra note 37 and accompanying text.
160 Creating the legal fiction of two separate registrations “allows the court to build on Softklone by focusing on the copyrightable expression in each type of registration and avoiding the mistake of
court's rationale may be erroneous due to several problems in the analysis. There are three problematic areas: a) inconsistencies with the Copyright Office's policy decision; b) misapplication of the audience test of substantial similarity; c) inconsistencies within the M.T.I. court's analysis of copyrightable subject matter and substantial similarity.

A. The Impact of the Copyright Office's Policy Decision on the Scope of Copyright Protection

The Copyright Office announced its policy decision in June, 1988, after plaintiffs filed their complaint in M.T.I. The policy decision, however, clearly applies to the case. The Copyright Office clearly stated that "the policies announced in this [1987] computer screen display decision constitute in essence a confirmation of the general registration policies first adopted in the 1978 registration regulations." In addition, the policy decision confirmed the validity of existing copyrights held on a program and its screen displays separately. Taken together, these two statements suggest that although the registrations on M.T.I.'s screen display and on its program are both still valid, the M.T.I. court erred in failing to consider the Copyright Office's policy decision when determining the scope of copyright protection.

The Copyright Office's policy decision issued in 1988 rejected the Softklone result. It specifically disallowed multiple registrations for computer programs, in compliance with the guidelines of 37 C.F.R. § 202.3. In addition, the Copyright Office's policy decision stated that "the computer program code and screen displays are integrally related and ordinarily form a single work." If the two elements are indeed a single work, then a copyright on the program protects the screen displays as well. Thus, courts should look at the work as a whole when determining whether substantial similarity exists.

In M.T.I., though, the court stated that the program and its screen displays are "fundamentally distinct." The distinction, according to M.T.I., was that the computer program "direct[s] the computer to efficiently perform a particular task" while the screen display "is designed to communicate with the user in a way to facilitate the understanding and use of the program itself." Although this distinction is technically correct, M.T.I.'s analysis fails to recognize that the program could not operate correctly without the input of the user, and that the user's input depends on the prompts generated by the screen display. Therefore, the

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160 See infra note 176 and accompanying text.
161 See infra notes 197-201 and accompanying text.
162 Registration Decision, supra note 3, at 21,820.
163 See supra note 145 and accompanying text.
164 See supra note 134-48 and accompanying text for a discussion of the policy decision.
165 See infra note 140 for text of 37 C.F.R. § 202.3.
166 Id.
167 Registration Decision, supra note 3, at 21,819.
169 Id.
program and screen displays are related and dependent upon one another.

However, the M.T.I. court, never discussed similarity of the underlying program code. Rather, without any analysis, the court simply noted there was no evidence\textsuperscript{170} of source code similarity and proceeded with a review of the screen displays.\textsuperscript{171} The analysis focused solely on the flow and content of screen displays, considering factors such as the headings appearing on the screens, the location of instructions and specific designs of unusual screens.\textsuperscript{172} The court then found substantial similarity between the screen displays. The court held that M.T.I.'s screen display copyright was infringed as was its program's copyright to the extent that the screen displays were subsumed in the program.\textsuperscript{173}

Thus, the M.T.I. analysis is somewhat inconsistent with the policy decision of the Copyright Office. The M.T.I. court stated that the copyright on the program was not infringed.\textsuperscript{174} Yet, it continued its analysis, finding that the screen display’s copyright was infringed, as was the copyright on the “screen displays subsumed within the registration of . . . [the] program.”\textsuperscript{175} The Copyright Office’s policy decision, as applied to situations where two copyrights were issued, suggests that the proper analysis would allow the program’s copyright to extend protection to the program and the screen displays after viewing the work as a whole. The screen display’s copyright would then protect only the screen display and not the underlying program. If this interpretation is applied to M.T.I., then the court was correct in holding that the screen display’s copyright was infringed. However, it was incorrect in basing its finding that the program’s copyright was infringed on substantial similarity in the screen displays without considering the underlying code.\textsuperscript{176} The program’s copyright could only be infringed if there was substantial similarity of the work as a whole.

B. M.T.I.’s Incorrect Application of the Substantial Similarity Test

A court should apply the audience test to determine whether two works are substantially similar, indicating copyright infringement.\textsuperscript{177} The M.T.I. court misinterpreted the traditional audience test by applying

\textsuperscript{170} See supra notes 74-77 and accompanying text for a discussion of proof by direct evidence.

\textsuperscript{171} 706 F. Supp. at 1000. “There is, however, no evidence that the defendants had access to the plaintiff’s source code nor did plaintiff put forth any evidence of source or object code similarity.”\textsuperscript{Id.} See supra note 38 and accompanying text.

\textsuperscript{172} Id. at 994. The M.T.I. court stated that evaluating substantial similarity “requires a bifurcated analysis of the external and internal aspects of the screen displays themselves. Externally, plaintiff claims that the flow and sequencing of the screen displays is subject to copyright protection.”\textsuperscript{Id.} 173 Id. at 1002. “The Court rejects plaintiff’s claim that its source code has been infringed as without adequate foundation . . . Therefore, to that extent the program copyrights have not been infringed.”\textsuperscript{Id.} However, “the Court holds that the defendants have infringed the copyright of the screen display registration . . . as well as the copyright of the screen displays subsumed within the registration of the COSTIMATOR program.”\textsuperscript{Id.}

\textsuperscript{174} Id.

\textsuperscript{175} Id.

\textsuperscript{176} “[A]s a matter of demonstrating substantial similarity of the programs themselves, screen output alone is insufficiently probative. Two wholly different programs can generate the same screen output.” 3 NIMMER, supra note 22, § 13.03[F] n. 282.

\textsuperscript{177} See supra notes 78-85 and accompanying text.
the extrinsic test only to "non-protected aspects" of the programs. Perhaps the court misinterpreted the extrinsic test based on a reading of the audience test as modified by *Sid & Marty Krofft Television v. McDonald's Corp.*

In *Krofft*, the court recognized the continued validity of the traditional *Arnstein* test, but attempted to clarify the holding of that case. The *Krofft* court interpreted *Arnstein*’s extrinsic test as applying to "copying" merely the work’s idea. In other words, the court applied expert witnesses testimony to determine only whether the work’s non-copyrightable idea was substantially similar. The court did not apply the extrinsic test to the work as a whole, as suggested by *Arnstein*. The court then applied the intrinsic test to determine whether the copying reached a point of "unlawful appropriation," by examining both the idea and the expression embodied in the work.

The *M.T.I.* court may have misinterpreted the *Krofft* decision as standing for the proposition that since ideas are non-protectable elements, the extrinsic test applies only to non-protectable elements. However, this reasoning is undesirable because ideas are simply one type of non-protectable element — rules, lists, forms and instructions also are not copyrightable. Applying the extrinsic test to only non-protectable elements might exclude elements deserving consideration from further evaluation under the intrinsic test.

It is also possible that *M.T.I.* attempted to perform an analytic dissection, similar to the newly prescribed successive filtering method, to exclude non-protectable elements before proceeding with the intrinsic test. Although the successive filtering method was not enunciated until after *M.T.I.*, elements of the method were implemented in prior cases. Thus, while the *M.T.I.* court may not have conducted a "successive filtering" analysis as enunciated in Nimmer’s treatise, it is possible that the court could have used a methodology prescribed by the

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178 See supra notes 80-83 and accompanying text for a discussion of the extrinsic test.

In *Arnstein v. Porter* ... the court set out a two-part test for similarity which guides this Court's analysis. ... That test provides that in a complex case such as this the Court may first consider expert testimony relevant to the question of whether there is sufficient similarity between non-protected aspects of the two works at issue to establish copying.

706 F. Supp. at 1000 (emphasis added).
180 562 F.2d 1137 (9th Cir. 1977).
181 See supra notes 78-85 and accompanying text for a discussion of the *Arnstein* test.
182 562 F.2d at 1165.
183 In *Krofft*, the extrinsic test was applied only to determine whether there was substantial similarity in general ideas, not to the expression of those ideas. Expert testimony was relevant to complete an "analytic dissection" of specific criteria including "the type of artwork involved, the materials used, the subject matter, and the setting for the subject." Id. at 1164.
184 See supra note 81 and accompanying text.
185 562 F.2d at 1164.
186 See supra notes 70-73 and accompanying text.
187 See supra notes 89-106 for a discussion of the new successive filtering approach.
188 See supra note 89.
189 See supra notes 89-106 and accompanying text for a discussion of the successive filtering method.
prior courts. Yet, once again, even if M.T.I. intended to apply a method similar to successive filtering, the court's substantial similarity analysis was incorrect.

Under successive filtering, the entire work is examined to determine which elements are copyrightable subject matter and which elements are non-protectable. The non-protectable elements are then excluded from any further analysis. Only the protectable elements are submitted to the trier of fact for a determination of substantial similarity using the intrinsic test. If M.T.I. had attempted to perform this type of analytic dissection, the proper approach would have been to use expert testimony to evaluate the entire work, and then exclude non-protectable elements. M.T.I.'s analysis, where expert testimony was used only on non-protectable elements, followed neither the traditional audience test nor the newly prescribed successive filtering approach. On the other hand, if the M.T.I. court had applied the extrinsic test to all aspects of the program under either the traditional test or successive filtering method, it may have reached a different result, as discussed in the following section.

C. Inconsistencies in M.T.I.'s Finding of Copyrightable Subject Matter and Substantial Similarity

Commentators have noted that the audience test is often applied improperly. In this case, the M.T.I. court made a mistake similar to that in Krofft by narrowing the scope of material analyzed under the extrinsic test, specifically stating that the extrinsic test applied only to "non-protected aspects" of the programs. Thus, the court must have applied the extrinsic test only to those elements of the screen displays containing material which was not copyrightable. In its extensive analysis of individual screen displays, the court found that many screen displays contained lists, forms and other elements which were dictated by functional considerations and were therefore not copyrightable subject matter. For example, in the discussion of Screen 8, the court described the screen's contents as calculations of operations in a columnar format. The court found that this was not copyrightable subject matter because it was not original and was only capable of a limited number of expressions. Thus, the extrinsic test was applied to Screen 8 and others containing non-copyrightable subject matter. The intrinsic test (where the isolated observations of trier of fact as a lay observer are relevant) was correctly applied only to screens containing copyrightable subject matter.

The analysis in M.T.I. is best understood by reviewing the specific screen displays and elements the court considered; reviewing the contents of those screen displays; looking to whether the court found the material copyrightable subject matter; and finally, looking at whether the

190 3 NIMMER, supra note 22, § 13.03[E] ("[T]he audience test has had an artificial and disappointingly inaccurate application").
192 See supra notes 65-73 and accompanying text for a discussion of the requirements of copyrightable subject matter. See supra note 38 for a discussion of specific elements the court considered in M.T.I.
193 706 F. Supp. at 998.
finding of infringement was based on that screen display or element. The following chart summarizes the *M.T.I.* court's analysis.

<table>
<thead>
<tr>
<th>Screen Number</th>
<th>Contents of Screen Display</th>
<th>Is it Copyrightable?</th>
<th>Was it Infringed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2 column, alphabetical list of departments</td>
<td>No</td>
<td>Undecided</td>
</tr>
<tr>
<td>4</td>
<td>Request for job information, part number, name, customer name, etc.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>7</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Yes</td>
</tr>
<tr>
<td>8</td>
<td>Calculation of operations in a columnar format</td>
<td>No</td>
<td>Yes\textsuperscript{194}</td>
</tr>
<tr>
<td>9</td>
<td>Columnar list of component parts</td>
<td>Yes</td>
<td>Portions</td>
</tr>
<tr>
<td>15</td>
<td>Lists similar to screen #8</td>
<td>No</td>
<td>Yes\textsuperscript{195}</td>
</tr>
<tr>
<td></td>
<td>Sequence/flow of display</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Format</td>
<td>Centered headings, bottom line for navigation commands, middle for selection</td>
<td>No</td>
<td>Yes\textsuperscript{196}</td>
</tr>
<tr>
<td>Navigation Method</td>
<td>Backspace key and spacebar for moving between screens</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Method of identifying the department and tool</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

As the above chart illustrates, the *M.T.I.* court based the finding of infringement on similarity in certain aspects of the screen displays which contained non-copyrightable material. This conclusion resulted from the court's improper application of the audience test.

By misapplying the two part test, the *M.T.I.* court reached inconsistent results. After ruling that certain screens contained material that was not subject to copyright protection, such as Screen 8, the court then applied the extrinsic test and found substantial similarity between the unprotected screen displays of the two programs. The court found substantial similarity in Screen 8 because the two works utilized the same redundant language.\textsuperscript{197} Similarly, the method of navigation (i.e. the use of the spacebar and backspace keys to move between screens) was dictated by functional considerations (i.e. the type of computer on which the program was run, the type of keyboard and similar restrictions), and

\textsuperscript{194} In this screen, infringement was based on redundancy of titles and capitalization.
\textsuperscript{195} In this screen, infringement was based on similarity of capitalization.
\textsuperscript{196} With respect to the format, only the capitalization, alphabetical arrangement and centering were infringed.
\textsuperscript{197} 706 F. Supp. at 1001.
therefore was not copyrightable subject matter. Yet, the court again found that there was substantial similarity since both programs used the same method. Because there were examples of substantial similarity, the court held that M.T.I.'s copyrights were infringed.

An infringement action can only succeed if the work was copyrightable. If these elements were truly outside the scope of copyright protection, then, regardless of whether evidence of substantial similarity existed, the court should not have found evidence of infringement.

IV. Conclusion

The Copyright Office has not allowed a program and its screen displays to be copyrighted separately since June, 1988. However, copyrights issued separately on a program and its screen displays prior to the policy decision are still valid. The copyright on the program protects both the program and the screen display when the work is viewed as a whole. The copyright on the screen display protects that element alone.

When a court considers whether a program copyright has been infringed, it must consider the work as a whole (both the program code and the screen displays) to determine whether there is substantial similarity between the copyrighted work and the allegedly infringing work. Substantial similarity between the screen displays alone is only sufficient to find infringement of a screen display's copyright (under the audiovisual category), not a program's copyright (under the literary works category). Therefore, the court should find infringement only when the material contained copyrightable subject matter (i.e. it is an expression and not an idea), when there was access to the work, when there was substantial similarity between the two programs as a whole, and when there was evidence of illicit copying (either literal copying, or non-literal copying of the overall sequence, structure, and organization of the program).

In M.T.I., the court misapplied the audience test of substantial similarity. Simply, this test is a two step process to determine whether substantial similarity exists: 1) the extrinsic test where the trier of fact (either the judge in a bench trial, or the jury) evaluates the work assisted by expert testimony; and 2) the intrinsic test where the trier of fact disregards the expert's testimony and determines whether a reasonable person would find the copying illicit or unlawful.

By applying the extrinsic test only to non-protectable elements, the M.T.I. court extended copyright protection to elements which contained non-copyrightable subject matter. Substantial similarity of non-copyrightable elements should not have resulted in a finding of infringement since no protection was available. In addition, the court misinterpreted the policy decision of the Copyright Office allowing only a single registration of a computer program and its screens. Since there was no evi-

198 Id. at 995.
199 Id. at 1001.
200 Id. at 1002.
201 See supra notes 65-73.
dence of substantial similarity in the program code, the only copyright the court should have considered was M.T.I.’s copyright on the screen displays. Even then, the court should only have found infringement where there was substantial similarity between the screen displays containing copyrightable subject matter.

The *M.T.I.* decision is a learning tool for courts facing this issue in the future. The opinion is an excellent example of the problems that arise in applying traditional tests to technological advancements. In the future, courts should bear in mind that a program and its screen displays are indeed interrelated. Courts should not create a legal fiction of two separate registrations and any substantial similarity analysis should view the work as a whole.

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