

United States Court of Appeals,
Eleventh Circuit.

No. 94-5262.

MITEK HOLDINGS, INCORPORATED, MiTek Industries, Incorporated,
Plaintiffs-Appellants,

v.

ARCE ENGINEERING COMPANY, INCORPORATED, Defendant-Appellee.

Aug. 5, 1996.

Appeal from the United States District Court for the Southern District of Florida. (No. 91-2629-CIV-KMM), K. Michael Moore, Judge.

Before BIRCH and CARNES, Circuit Judges, and SIMONS*, Senior District Judge.

BIRCH, Circuit Judge:

This case presents our circuit with an issue of first impression, namely the scope of copyright protection afforded to nonliteral elements of a computer program. The holder of copyright registrations in three versions of a wood truss layout program brought an infringement action against a competitor, alleging infringement of several of the program's nonliteral elements, including the menu and submenu command tree structure and other elements of the user interface. At the conclusion of a bench trial, the district court found that the copyright registrant's program contained largely unprotectable elements, and in those instances where elements were protectable and appropriated by the putative infringer, it deemed the copying to be *de minimis*. Therefore, the district court entered judgment for the putative

*Honorable Charles E. Simons, Jr., Senior U.S. District Judge for the District of South Carolina, sitting by designation.

infringer on the copyright infringement claim and denied the copyright registrant's motion for a preliminary injunction. For the reasons that follow, we AFFIRM the judgment of the district court.

I. BACKGROUND

Plaintiffs-appellants MiTek Holdings, Inc. and MiTek Industries, Inc. ("MiTek"), hold registration certificates for their claims of copyright in three versions of the ACES wood truss layout program, known as ACES Layout versions 1, 2, and 3. Defendant-appellee Arce Engineering Company, Inc. ("Arce"),¹ is the producer of a layout program known as TrussPro.² The only version of TrussPro at issue in this case is TrussPro Layout Program Version 1, and we will refer to that Arce program as "TrussPro." There is no dispute that the ACES program, at least its first two versions, were released prior to the publication of TrussPro. A few months after Arce released TrussPro, MiTek filed suit against Arce, alleging copyright infringement and seeking a preliminary injunction.³ The district court conducted a bench trial, and in its findings of facts and conclusions of law, found in favor of Arce. *See MiTek Holdings, Inc. v. Arce Eng'g Co.*, 864 F.Supp. 1568 (S.D.Fla.1994). Before we address the numerous issues on appeal, it is important to provide some background as to both the wood

¹We refer to Arce Engineering as "Arce", rather than "Arce," to avoid confusion with the name of one of the principals of Arce, Antonio Arce.

²This program has also been called "LayoutPro Layout Program" and the "FramePro Layout Program."

³MiTek did not file suit until after it had registered its claim of copyright in all three versions of the ACES program.

truss industry and the relationship between the parties to this litigation.

Both MiTek and ArcE are in the business of supplying products and services to the wood truss industry. A wood truss is group of wood beams, usually triangular in shape, that supports a roof; the beams in a wood truss are held together by connector plates. Wood trusses often are not constructed by the builder, but rather by off-site "fabricators" who build roof trusses to certain specifications and then deliver them in bulk to building sites. The use of off-site fabricators reduces construction time as well as labor costs. Prior to the advent of personal computers, fabricators would design and arrange the wood trusses by engaging an engineer to obtain the necessary truss specifications and drawings for the planned structures. After fabricators began using personal computers, layout programs,⁴ like the ones at issue in this case, were developed to permit fabricators to do their own engineering and related work for their building designs, thereby eliminating the need to employ an engineer.

In this case, the parties disagree over whether or not the layout programs are "substantially similar" in a copyright context, but both sides agree that the programs at issue were written by the same author, Emilio Sotolongo ("Sotolongo").⁵ In 1988, Sotolongo

⁴A wood truss "layout program" is a computer program that graphically draws and places wood trusses on the walls of a building structure, indicating the size and location of the trusses.

⁵Given the programs' subject matter, roof truss design, it is inevitable that there will be similarities, particularly in the output. "Substantial similarity," in the copyright context, refers to appropriation by the putative infringer of the

began working in Miami for Advanced Computer Engineering Specialties, Inc. ("Aces"), the software arm of the Bemax Companies ("Bemax"). Bemax sold connector plates to the wood truss industry. Sotolongo was employed by Aces to develop a wood truss layout program that depicted three-dimensional representations of truss layouts.⁶ Version 1 of the ACES program was published in March of 1989, upon display of the program at a trade show. ACES Version 1 was well received by the wood truss industry.⁷ However, since Version 1 did not have its own printing functions, Sotolongo was asked to develop an improved version that would permit the user to print the layout. Aces released Version 2 in September of 1990. This version not only featured printing capabilities, but also had expanded memory capacity and a slightly different screen

"fundamental essence or structure" of a protected work. *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 701 (2d Cir.1992) (citation omitted).

⁶The district court found that "[a]t this time, another software company, Online, had developed a program known as 'Trusstar' which used intersecting planes and was considered to be superior to existing layout programs that could only depict truss layouts two-dimensionally." *MiTek*, 864 F.Supp. at 1572. In order to have a better understanding of what Aces wanted to develop, Sotolongo visited one of Aces's clients, a truss manufacturer, to observe the operation of Online's Trusstar program firsthand. It was the goal of Aces for Sotolongo to write a program that, while utilizing some of the same ideas used in Trusstar, would be more "user friendly." The district court found that Sotolongo intended on accomplishing this by having his program "logically follow[] the steps a draftsman would go through in developing a layout by hand." *Id.*

⁷As noted by the district court, the market for wood truss layout programs "had grown increasingly competitive by early 1989, when layout programs were being marketed by other software companies, including Online, Alpine, Hydro-Air and Gang-Nail." *MiTek*, 864 F.Supp. at 1572.

arrangement.⁸ In March of 1991, ACES Version 3 was published, featuring some enhanced graphics capabilities.

During the process of developing Version 3 of the ACES program, Sotolongo was approached by Art Sordo, MiTek's President of Operations, to gauge his interest in working for MiTek. MiTek wanted Sotolongo to compose a new truss layout program that was superior to the ACES program. Although MiTek offered Sotolongo a significant raise, he declined the offer, in large part because MiTek made its programmers maintain detailed logs and notes of the steps taken in writing their programs. Sotolongo testified that he preferred to work without notes, and that he would often conceptualize program segments in his mind. Sotolongo advised Aces of the MiTek offer and explained his reasons for rejecting it. He was concerned, however, with rumors that MiTek was going to acquire Aces and he asked Aces about this. Sotolongo was assured that the acquisition was not going to occur, and as a reward for his loyalty, he was given a raise.

Contrary to what Sotolongo was advised, MiTek purchased Aces for \$2.5 million on April 1, 1991. As part of the purchase, MiTek received an assignment of Aces's copyrights in the layout programs at issue in this case.⁹ Eugene Toombs, the president and chief

⁸Version 1 featured a three-box visual display, whereas Version 2 featured a four-box visual display; the extra box was the result of the addition of a top bar main menu. The other three boxes are the work space area, which occupies most of the screen, the command trees running down the right side of the screen, and a command module running along the bottom of the screen.

⁹It is undisputed that Sotolongo wrote the three ACES programs as a work-for-hire employee, and he advances no claim that the copyrights belong to him, not MiTek (via assignment from

executive officer of MiTek, testified at trial that "the reason we paid the price we did [for Bemax/Aces], very frankly, was because of the software," and he further stated that the ACES layout program was the "key" to the software. R6-485. After the sale was announced, Sotolongo inquired of MiTek if its preacquisition offer was still open. He was told that it was not, since MiTek now had acquired the intellectual property rights to the ACES program. MiTek did offer Sotolongo a job, but at a salary lower than what was previously offered.

At approximately the same time, Antonio Arce, one of the principals of ArceE, approached Sotolongo and recruited him to come work for ArceE. ArceE owned a layout program, but it only operated on Hewlett Packard equipment, and ArceE wanted Sotolongo to develop a program that functioned in the Microsoft Windows ("Windows") environment on International Business Machines Corp. ("IBM") compatible computers. Arce testified that he was aware that Sotolongo had been the principal programmer for all three versions of the ACES program. The ACES programs, however, were written for the MS-DOS ("DOS") operating system, which was starting to be replaced by the more user-friendly Windows operating system.¹⁰

Aces). See 17 U.S.C. § 201(b) (1996).

¹⁰The district court noted that "[t]he Aces programs mimicked a Windows-type program by giving the user the option of either typing in commands by hand or using a mouse to activate functions of the program through the use of pull-down menus." *MiTek*, 864 F.Supp. at 1574. Although the program mimicked a Windows-type environment, it still was not as user-friendly, for it lacked certain distinctive features that generally appear in application programs written for Windows. As the district court noted, "[t]hese features include the use of icons instead of words, a 'frame' around the program which contains certain elements such as a 'button' at the top left, scroll bar arrows at

Sotolongo accepted Arce's offer of employment. Arce testified that he instructed Sotolongo to write the new layout program "from scratch," not relying on any source or object code from the ACES programs.¹¹ In August of 1991, Sotolongo completed TrussPro, and customer testing of the program began shortly thereafter. By early November, Aces had released Version 3 of its layout program. On November 15, 1991, MiTek filed suit against Arce, alleging copyright infringement.¹² Arce counterclaimed that MiTek's

the right and the bottom, and a menu bar at the top." *Id.* In addition, according to MiTek's expert witness, "[a] Windows program also has certain file access features, help features, and printing features different from traditional DOS programs." *Id.* For a comparison of the main menu bar of the ACES program (DOS) with that of TrussPro (Windows), see Appendix A.

¹¹The district court found that Sotolongo did not refer to any notes regarding the ACES programs because he had not taken any, and that he erased all of the code that he had relating to the ACES layout programs. *MiTek*, 864 F.Supp. at 1574. MiTek presented no evidence to the contrary.

¹²Version 1 of the ACES layout program corresponds to claim of copyright registration number TX-3-175-806, effective November 6, 1991. This registration was later corrected by supplemental registration number TX-3-564-806, effective September 3, 1993. The supplemental registration was made in order to correct the date of first publication, which was originally listed incorrectly as February 11, 1989. It was corrected to reflect the correct date of publication, March 10, 1989. *MiTek*, 864 F.Supp. at 1474 n. 2.

Version 2 of the ACES program is covered by claim of copyright registration number TX-2-934-789, effective October 3, 1990. This registration was later corrected by supplemental registration TX-3-175-804, effective November 6, 1991. The supplemental registration was made in order to correct a spelling error and to correct the date of first publication to September 26, 1990. The original registration had been filed by Aces prior to its acquisition by MiTek, and it misunderstood the term "date of publication" to refer to the date of the publication of the first version of the program, not to the date of the publication of the separate and derivative work. *Id.* at n. 3.

institution of the action constituted an abuse of process under Florida law. On December 9, 1993, the district court granted MiTek's motion to dismiss Arce's counterclaim, finding that an abuse of process claim cannot be based solely on the filing of an allegedly meritless complaint.¹³ *MiTek*, 864 F.Supp. at 1574. On that same day, the district court granted MiTek's motion to waive a jury trial. MiTek elected not to seek actual damages in the case, but rather limited itself to statutory damages and attorneys' fees pursuant to 17 U.S.C. §§ 504(c) & 505. Accordingly, it had no constitutional or statutory right to a jury trial. See *Cable/Home Communication Corp. v. Network Prods., Inc.*, 902 F.2d 829, 852-53 (11th Cir.1990) (noting that "in an equitable copyright infringement seeking only minimum statutory damages and injunctive relief, there is 'no constitutional or statutory right to a jury trial' ") (quoting *Twentieth Century Music Corp. v. Frith*, 645 F.2d 6, 7 (5th Cir. Unit B May 1981) (per curiam)). A six-day bench trial was held in December, at the conclusion of which the district court ruled in favor of Arce.

II. ISSUES ON APPEAL

On appeal, MiTek asserts that the district court erred in:
(1) failing to separate copyrightable expression in the ACES

Version 3 of the ACES layout program corresponds to claim of copyright registration number TX-3-175-805, effective November 6, 1991. The date of first publication is listed as March 13, 1991. All of these claims of copyright were properly assigned to MiTek when it acquired Aces. *Id.* at 1574. See also 17 U.S.C. § 201(d).

¹³Arce does not appeal the district court's dismissal of its abuse of process counterclaim. Thus, that is not before us on appeal.

program from the program's ideas, because it failed to perform an abstraction under the *Altai*¹⁴ abstraction-filtration-comparison test or failed to undertake a similar means of analysis; (2) finding that the menu and submenu command tree structure in the ACES program is an uncopyrightable "process," based on its failure to abstract; (3) concluding that the menu and submenu command tree structure is an uncopyrightable "process" because of its erroneous finding of fact that the menu and the submenu command tree structure of the ACES program mimics the way a draftsman draws such a layout by hand; (4) failing to consider the copyrightability of the ACES program as a whole, including the combination of elements that themselves may not be copyrightable; (5) applying the wrong standard in comparing the programs at issue in this case; and (6) finding that ArcE's copying of the copyrightable elements of the ACES program was *de minimis*. We will address these issues in turn.

III. DISCUSSION

A. Claims of Copyright Infringement

To establish copyright infringement, MiTek must prove "(1) ownership of a valid copyright, and (2) copying of constituent elements of the work that are original." *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 361, 111 S.Ct. 1282, 1296, 113 L.Ed.2d 358 (1991); see also *Bateman v. Mnemonics, Inc.*, 79 F.3d 1532, 1541 (11th Cir.1996). A plaintiff satisfies *Feist*'s first prong by demonstrating that "the work as a whole is

¹⁴*Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 706-11 (2d Cir.1992). See also *Bateman v. Mnemonics*, 79 F.3d 1532, 1543-46 (11th Cir.1996) (discussing and applying the *Altai* test).

original," and that it has "complied with applicable statutory formalities." *Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807, 813 (1st Cir.1995), *aff'd by an equally divided Court*, --- U.S. ----, 116 S.Ct. 804, 133 L.Ed.2d 610 (1996). The Copyright Act provides that "[i]n any judicial proceedings the certificate of a registration made before or within five years after first publication of the work shall constitute prima facie evidence of the validity of the copyright and of the facts stated in the certificate." 17 U.S.C. § 410(c) (1996). "Once the plaintiff produces a certificate of copyright, the burden shifts to the defendant to demonstrate why the claim of copyright is invalid." *Bateman*, 79 F.3d at 1541.

In this case, *Feist* 's first prong is not at issue, because ArCE does not contest the validity of the copyright registrations for the three versions of the ACES program. What is at issue is *Feist* 's second prong, namely whether ArCE has copied constituent elements of the ACES programs that are original. As the Tenth Circuit stated, "[t]his question involves two separate inquiries: 1) whether the defendant, as a factual matter, copied portions of the plaintiff's program; and 2) whether, as a mixed issue of fact and law, those elements of the program that have been copied are protected expression and of such importance to the copied work that the appropriation is actionable." *Gates Rubber Co. v. Bando Chem. Indus., Ltd.*, 9 F.3d 823, 832 (10th Cir.1993).

Proof of copying as a factual matter may be shown either by direct evidence, or in the absence of direct evidence, it may be inferred from indirect evidence demonstrating that the defendant

had access to the copyrighted work and that there are probative similarities between the allegedly infringing work and the copyrighted work. *Id.*; see also *Bateman*, 79 F.3d at 1541. Even if the court finds that the putative infringer copied portions of the copyright owner's program, that is not the end of the inquiry. Copyright infringement occurs only if one copies *protected elements* of a copyrighted work; in other words, the portion of the copyrighted work that is copied must "satisfy the constitutional requirement of originality as set forth in Article I, § 8, cl. 8." *Bateman*, 79 F.3d at 1542; see also *Feist*, 499 U.S. at 345-46, 111 S.Ct. at 1287-88 (noting that "[t]he *sine qua non* of copyright is originality," as well as emphasizing that it is a "constitutional requirement"). As the Court in *Feist* noted, "the mere fact that a work is copyrighted does not mean that every element of the work may be protected." *Id.* at 348, 111 S.Ct. at 1289.

Significantly, the Copyright Act expressly states that:

In no case does copyright protection for an original work of authorship extend to any *idea, procedure, process, system, method of operation, concept, principle, or discovery*, regardless of the form in which it is described, explained, illustrated, or embodied in such work.

17 U.S.C. § 102(b) (1996) (emphasis added). Thus, in order for a plaintiff to prevail on a claim of copyright infringement, the court must find not only that the portion of the work copied is original and thus protectable, but also that "the copying of copyrighted material was so extensive that it rendered the offending and copyrighted works substantially similar." *Lotus*, 49 F.3d at 813. In this case, the key inquiry is determining whether the elements of the program that were allegedly copied are original

and hence protectable.

B. The District Court Opinion

On appeal, the district court's conclusions of law are reviewed *de novo*. *Worthington v. United States*, 21 F.3d 399, 400 (11th Cir.1994). A district court's findings of fact in a bench trial "shall not be set aside unless clearly erroneous." Fed.R.Civ.P. 52(a). "A finding is clearly erroneous when the reviewing court, after assessing the evidence, "is left with [the] definite and firm conviction that a mistake has been committed.'" *Worthington*, 21 F.3d at 400 (quoting *United States v. United States Gypsum Co.*, 333 U.S. 364, 395, 68 S.Ct. 525, 542, 92 L.Ed. 746 (1948)). Applying these standards of review, we examine *seriatim* the six issues presented.

1. *Failure to Perform an Abstraction Under the Altai Abstraction-Filtration-Comparison Test*

MiTek asserts that although the district court purported to apply the abstraction-filtration-comparison test of *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693 (2d Cir.1992), it failed not only to understand the test, but also to apply it properly. More specifically, MiTek argues that the district court erred in finding that no abstraction or similar type of analysis was necessary. This finding was based on the district court's determination that since MiTek had "identified 18 non-literal elements of its layout programs that it contends are entitled to copyright protection and which the Defendant infringed upon," the court would "limit its inquiry as to the copyrightability of these 18 elements designated by the Plaintiff." *MiTek*, 864 F.Supp. at 1579. The district court concluded that it did not need to

undertake any abstraction, since MiTek had done this for it. Accordingly, the district court proceeded directly to step two of the *Altai* test, *i.e.*, filtration.

MiTek is correct in asserting that the district court did not further abstract the list of eighteen elements that MiTek presented as being expressive and original elements of the three versions of the ACES program. However, the district court did not err in failing to further abstract the features that MiTek presented to it in its Proposed Findings of Fact and Conclusions of Law as being "original at the time they were first incorporated into those versions of the ACES Layout Program." R2-104-10. During the bench trial, one of MiTek's experts was questioned about an exhibit that he had prepared, which he stated contained the "expressive features in the Aces layout programs Versions 1, 2 and 3" that he deemed to be "original." R5-367-68; see also Plaintiff's Exh. 18L, pp. 4-5. This same list was presented to the court by MiTek in its Proposed Findings of Fact and Conclusions of Law. R2-104-10-12. In other words, the district court took at face value MiTek's representations as to what elements of the ACES program it considered to be protectable expression; in accepting MiTek's representations, the district court committed no error.

What MiTek apparently fails to appreciate is that the ultimate burden is on the copyright holder to prove infringement. Therefore, if the copyright holder presents the court with a list of features that it believes to be protectable (*i.e.*, original and outside of 17 U.S.C. § 102(b)), the court need not further abstract such features. Perhaps the best approach for a district court in

any computer program infringement case, whether involving literal or nonliteral elements,¹⁵ is for it to require the copyright owner to inform the court as to what aspects or elements of its computer program it considers to be protectable. This will serve as the starting point for the court's copyright infringement analysis. While it is not clear that the district court specifically requested this list, or if MiTek offered it to the court, the desired result nonetheless was achieved, because MiTek provided the court with such a delineation. After submitting a specification of the elements that it deemed to be protectable, MiTek cannot now argue that the district court failed to further abstract the elements of its own designation of protectable features. The purpose of the abstraction portion of the *Altai* test is to enable courts to separate protectable expression from unprotected ideas,¹⁶

¹⁵The "literal elements" of a computer program are its source and object code. Source code is a symbolic language that humans can read, whereas object code is a translation of the source code into a series of zeros and ones that is readable by a computer. For a more detailed description of source and object code and the issues related to computer code, see *Bateman*, 79 F.3d at 1539 n. 17 & n. 18. In this case, we are concerned not with literal elements of a computer program, because MiTek concedes that the source and object codes of the two programs are not substantially similar. What is at issue are the "nonliteral elements" of a program, which are the products that are generated by the code's interaction with the computer hardware and operating program(s). Examples of nonliteral elements of a computer program include its screen displays and the main menu and submenu command tree structure contained thereon.

¹⁶The *Altai* test was formulated "to determine whether the nonliteral elements of two or more computer programs are substantially similar." *Altai*, 982 F.2d at 706. The *Altai* case was concerned with the nonliteral copying of the structure of a computer program. In other words, there was no verbatim copying of the source or object code (which would be literal copying of a literal element), but rather, there were allegations of substantial similarity (*i.e.*, nonliteral copying) of nonliteral elements, namely parameter lists, macros, and general flow

and in this case, MiTek presented this analysis to the court. Therefore, there is no merit to MiTek's claim that the district court erred in failing to perform an abstraction under the *Altai* test or in failing to undertake a similar type of analysis.

2. *The ACES Menu and Submenu Command Tree Structure is an Uncopyrightable Process*

MiTek also contends that the district court, in failing to abstract the ACES program's menu¹⁷ and submenu command tree structure,¹⁸ erred in concluding that it is a "process" and thus

charts. *Id.* at 702. It is very important to differentiate between both *literal and nonliteral copying*, as well as between *literal and nonliteral elements* of a computer program. The latter use of the terms "literal" and "nonliteral" are as terms of art, whereas the former are not. However, courts unfortunately often fail to distinguish between the two, or simply mischaracterize what is at issue in a certain case. For instance, the *Lotus* court stated that "[w]hile the *Altai* test may provide a useful framework for assessing the alleged nonliteral copying of computer code, we find it to be of little help in assessing whether the literal copying of a menu command hierarchy constitutes copyright infringement." 49 F.3d at 815. The problem with this statement is that the *Altai* test was designed to help assess nonliteral copying of a nonliteral element, not nonliteral copying of computer code (a literal element). While this slight misstatement has no effect on the ultimate outcome of *Lotus* (since it is a literal copying case, not a nonliteral copying case), it is an example of how imprecise language in computer copyright cases can create confusion and conceivably lead to a misreading of what the court is trying to say. Therefore, in this case, we will attempt to be precise—we are dealing with the alleged *nonliteral copying of nonliteral elements* (*i.e.*, user interfaces) of a computer program.

¹⁷As the district court noted, "[a] 'menu,' in computer parlance, is a graphical user interface employed to store information or functions of the computers in a place that is convenient to reach, but saves screen space for other images." 864 F.Supp. at 1580 n. 11. In both the ACES and TrussPro programs, there are two separate menus of command choices, one running across the top of the screen, and another running along the right-hand side of the screen. A "submenu" is an additional set of options that relates to a prior menu selection.

¹⁸A "command tree" or "command tree structure" informs the user, in a hierarchical fashion, of the options available, and

foreclosed from copyright protection by 17 U.S.C. § 102(b). Although the copyrightability of nonliteral elements of a computer program is an issue of first impression for our circuit, basic principles of copyright law guide us in addressing it.

The district court found that "the method the Aces Layout Programs follow, including the menu and the sub-menu command tree structure, is a process that is not entitled to copyright protection." 864 F.Supp. at 1580. The district court's conclusion was based principally on its finding that "the means by which the Aces Layout Programs undertake their task of drafting roof truss planes mimic the steps a draftsman would follow in designing a roof truss plan by hand." *Id.* MiTek argues that the district court's failure to abstract the ACES menu and submenu command tree structure beyond the level at which MiTek presented it to the district court led it to conclude that it is unprotectable as a process. MiTek contends that an abstraction should have been performed by the court and that such an abstraction would have discovered substantial protectable expression.¹⁹

also interacts with the user in requesting information from the user in order to utilize the program.

¹⁹MiTek seems to misapprehend the fundamental principle of copyright law that copyright does not protect an idea, but only the expression of the idea. The idea-expression dichotomy is clearly set forth in 17 U.S.C. § 102(b), which by its express terms prohibits copyright protection for "any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work." 17 U.S.C. § 102(b). Were we to grant copyright protection to MiTek's user interface, which is nothing more than a process, we would be affording copyright protection to a process that is the province of patent law. As the Federal Circuit stated, "patent and copyright laws protect distinct aspects of a computer program." *Atari Games Corp. v. Nintendo of America, Inc.*, 975 F.2d 832, 839

The First Circuit recently addressed the issue of "[w]hether a computer menu command hierarchy constitutes copyrightable subject matter." *Lotus*, 49 F.3d at 813. The *Lotus* court held that "the Lotus menu command hierarchy is an uncopyrightable 'method of operation' " that provided "the means by which users control and operate Lotus 1-2-3." *Id.* at 815. In reaching its conclusion, the First Circuit analogized the "buttons" that operate a computer program to those that operate a VCR, the latter being an obvious example of a "method of operation." *Id.* at 817. Unlike the *Lotus* court, we need not decide today whether a main menu and submenu command tree structure is uncopyrightable as a matter of law. We agree with the conclusion reached by the district court that the ACES menu and submenu command tree structure is uncopyrightable under 17 U.S.C. § 102(b). MiTek's argument that the district court erred in denying protection under 17 U.S.C. § 102(b) is without merit.²⁰

(Fed.Cir.1992). Patent law "provides protection for the process or method performed by a computer in accordance with a program," whereas copyright protects only "the expression of that process or method." *Id.* If, however, the patentable process and its expression are indistinguishable or inextricably intertwined, then "the process merges with the expression and precludes copyright protection." *Id.* at 839-40. Such is the case with the menu and the submenu command tree structure of the ACES program.

²⁰Even were we to conclude that section 102(b) does not prohibit the ACES main menu and submenu command tree structure from being entitled to copyright protection, MiTek would not prevail on this issue. This feature of the ACES programs is unoriginal and not entitled to copyright protection. The look of the ACES program is basically industry standard for computer aided-design ("CAD") programs, with the menu bars running across the top and the right, and the large work area occupying most of the screen. In addition, based on the district court's conclusion that the ACES programs "mimic the steps a draftsman would follow in designing a roof truss plan by hand," a conclusion with which we find no fault, the structure of the menu

A related argument advanced by MiTek is that the district court erred in characterizing the ACES program's use of trapezoids in truss design as a means of visually depicting planes. MiTek contends that the trapezoids are used not to depict planes, but rather to indicate to the program user that a pitched or sloping plane for a particular wall has been defined. MiTek states that "[a]s part of defining the shape of the roof using the concept of intersecting planes, after all the walls are entered, and after information about each plane is entered for a particular wall, a trapezoid shape surrounds the wall on the screen." Brief of Appellants at 38. MiTek contends that "the use of a trapezoid in this manner is a purely arbitrary, expressive feature." *Id.* We are not certain that the district court misconstrued the purpose behind the use of trapezoids,²¹ but even if it did, this use of

and submenu command tree of the ACES programs tracking that approach is unoriginal and uncopyrightable. The logical design sequence is akin to a mathematical formula that may be expressed in only a limited number of ways; to grant copyright protection to the first person to devise the formula would effectively remove that mathematical fact from the public domain. The merger doctrine prohibits such an appropriation. See *Gates*, 9 F.3d at 838.

²¹The testimony of one of MiTek's experts seems to contradict the argument that it makes in its brief. Thomas Zraggen, who prepared the list of 18 nonliteral elements that MiTek claims are protected by copyright, testified, on direct examination, in response to a question about the use of trapezoids in the program, that "[t]his is the actual depiction of a defined plane." R5-372. He also testified that "the program chose to actually follow a more graphic method by showing a trapezoid which actually encompasses the wall where that plane has been defined." *Id.* Given this expert testimony by one of MiTek's own witnesses, it is understandable that the court concluded that the trapezoids in the ACES programs were used to depict planes. If that is the case, then the district court properly applied the merger doctrine to deny protection to the use of trapezoids.

trapezoids lacks sufficient originality to be entitled to copyright protection.²²

3. *The ACES Program Mimics the way a Draftsman Draws a Truss Layout by Hand*

Closely related to the menu and submenu command tree issue is MiTek's contention that the district court erred in concluding that the ACES program mimicked the steps that a draftsman would take in drawing and designing a roof truss plan by hand. 864 F.Supp. at 1580. MiTek contends that its programs do not mimic the steps taken by a draftsman, because, *inter alia*, a mouse is used, the walls are drawn in different colors, and a pop-up keypad is used on the screen to enter numeric information. Appellants Brief at 33-38. We find that the district court was not suggesting that the ACES program was an *exact* correlation to the steps that a draftsman would take, given the different mediums that are being used (*i.e.*, a computer as compared to a pen and paper). Constraints associated with computer programs and computer design dictate a somewhat different design process. However, as a general matter, the idea of closely correlating the ACES program to the longhand steps taken by a draftsman was the constraining force in the design of the menu and submenu command tree structure. The logic inherent in this step-by-step process renders the resulting program unoriginal in that such logic may only be expressed in a limited number of ways. More than a minor departure from the logical sequence renders the result unusable. Thus, the district court did not err in

²²Even were we to conclude that this use of trapezoids is entitled to protection, ArcE's use of trapezoids in its program would constitute nothing more than nonactionable *de minimis* copying.

concluding that this structure is not entitled to copyright protection.

4. *Consideration of the Copyrightability of the ACES Program as a Compilation*

MiTek argues that the district court gave short shrift to its contention that the selection, coordination, and arrangement embodied in the ACES program and its user interfaces are entitled to compilation copyright protection.²³ It points out that the Supreme Court, in *Feist Publications*, 499 U.S. at 359-60, 111 S.Ct. at 1295, noted that a work comprised only of facts is copyrightable to the extent that such facts are selected, arranged, or organized (and thus presented) in an original way. This protection is limited, however, and only extends to the work as a whole, and only if the selection, coordination, or arrangement is sufficiently original to be copyrightable.

We acknowledge that a user interface, here a screen display (itself an audiovisual work), may be entitled to copyright protection as a compilation. In order to receive this protection, however, the compilation must be original and expressive. MiTek cites to *Digital Communications Associates, Inc. v. Softklone Distributing Corp.*, 659 F.Supp. 449, 463 (N.D.Ga.1987), as a case in which a court concluded that "the status screen, which is a compilation, is copyrightable to the extent of its arrangement and design of parameter/command terms." Underlying this holding,

²³The Copyright Act defines the term compilation as "a work formed by the collection and assembling of preexisting materials or of data that are *selected, coordinated, or arranged* in such a way that the resulting work as a whole constitutes an original work of authorship." 17 U.S.C. § 101 (emphasis added).

however, was the *Softklone* court's finding that the copyright holder's compilation met the requirements of 17 U.S.C. § 102, namely that it was "(1) an original work of authorship (2) fixed in a tangible medium from which it (3) can be perceived and (4) not an idea or necessary expression of an idea." *Id.* Even this determination was not the end of the analysis in *Softklone*, for once the court determined that the status screens were protectable, it still compared the putative infringer's status screens to those of the copyright holder. Only after the court concluded that they were "virtually identical" did it hold that the compilation copyright in the status screens was infringed. *Id.* at 465.

This circuit has never set forth what standard should be used in analyzing claims of compilation infringement of nonliteral elements of a computer program. Today, we join the Ninth Circuit in adopting the "bodily appropriation of expression" or "virtual identity" standard.²⁴ See *Apple Computer, Inc. v. Microsoft Corp.*, 35 F.3d 1435, 1446 (9th Cir.1994) (noting that, in the case of alleged infringement of a work as a whole (*i.e.*, a compilation), "there can be no infringement unless the works are virtually identical"), *cert. denied*, --- U.S. ----, 115 S.Ct. 1176, 130 L.Ed.2d 1129 (1995); *Harper House, Inc. v. Thomas Nelson, Inc.*, 889 F.2d 197, 205 (9th Cir.1989) (stating that "[a]s with factual compilations, copyright infringement of compilations consisting of largely uncopyrightable elements should not be found in the absence

²⁴The terms "bodily appropriation of expression" and "virtual identity" have been used synonymously, although we prefer the latter to the former. Both terms convey a level of similarity greater than the "substantial similarity" standard of the *Altai* abstraction-filtration-comparison test.

of "bodily appropriation of expression' ") (citation omitted).

In analyzing MiTek's compilation claim, the district court applied the virtual identity standard and concluded that "the visual display of the Arc[E] program differs sufficiently, if not substantially, from the Aces Layout Programs to preclude a finding of virtual identity." *MiTek*, 864 F.Supp. at 1584. This conclusion was based in part on the fact that "[t]he Arc[E] Program depicts its commands as icons in the Windows environment, rather than as words in the Aces Layout Programs."²⁵ *Id.* Assuming without deciding that the nonliteral elements of the ACES user interface are a protectable compilation, we agree with the district court that there is not a virtual identity between the ACES program and TrussPro, and thus MiTek's compilation infringement claim must fail.

5. *The Standard Applied in Comparing the Elements Found to be Copyrightable*

Further, MiTek contends that the district court, in comparing to TrussPro the five nonliteral elements of the ACES program that it deemed to be protectable, erroneously employed a "substantial identity" standard rather than the appropriate "substantial similarity" standard. MiTek's challenge is based on the following portion of the district court's opinion: "[w]hen comparing the core protectable elements of the copyright-holder's program to the alleged infringer, the Court will employ the substantial identity standard applied by the Ninth Circuit to nonliteral

²⁵The use of icons as opposed to words in command functions is one of the most noticeable differences between programs that operate in the Windows environment and those that operate in the DOS environment. See Appendix A.

elements of computer programs, such as visual displays." 864 F.Supp. at 1578-79.

If the district court did apply the substantial identity standard in performing the comparison portion of the abstraction-filtration-comparison test, then it erred in doing so. Our circuit, in applying the *Altai* test, employs the substantial similarity standard in comparing what remains after the abstraction and filtration steps with respect to noncompilation copyrighted works. See *Bateman*, 79 F.3d at 1541-45. We are not convinced, however, that the district court incorrectly applied the substantial identity standard, because in the comparison section of the opinion, the district court stated that:

Having distilled the Plaintiffs' programs to their core of protectable expression, the Court now must compare these elements to the Defendant's program. If any of the core elements have been copied, the Court will look at the relative importance of the copied elements to the overall program to determine whether or not the Aces Layout Programs are *substantially similar* to the Arc[E] Program....

The Court finds that of the five protectable elements identified in the Aces Layout Programs, four are *substantially similar* to elements in the Arc[E] programs.

MiTek, 864 F.Supp. at 1584 (emphasis added). Based on its comparison, it appears that the district court used imprecise language regarding "substantial identity" in an earlier portion of its opinion and later correctly compared for substantial similarity in reaching its ultimate conclusion. There is no indication that it applied a substantial identity standard in its comparison analysis; in fact, the language of the district court's opinion leads us to conclude that it correctly compared for substantial similarity. Thus, there is no merit to *MiTek*'s

contention that the district court erred in comparing the protectable elements of the ACES program to elements in TrussPro.

6. *Copying of the Copyrightable Elements of the ACES Program was De Minimis*

MiTek argues that the district court erred in concluding that the copying by ArcE of the protectable elements of the ACES programs was *de minimis* and therefore not actionable. In its comparison analysis, after concluding that of the five protectable elements of the ACES programs, four in TrussPro were substantially similar, the district court concluded that:

A finding of a substantial similarity [of certain program elements] does not end the Court's inquiry, however. To find infringement, the Court must also determine that the Arc[E] Program has appropriated substantial elements of the Aces Layout Programs. The Court has reviewed the programs and concludes that these five elements are not significant in the context of the Aces Layout Programs as a whole.

864 F.Supp. at 1584. Based on this finding, the court concluded that the copying was *de minimis* and not actionable.

MiTek cites to a treatise on copyright law, *Nimmer on Copyright*, for the proposition that "even a quantitatively small amount of copied material may be sufficiently important to the operation of plaintiff's program to justify a finding of substantial similarity." 3 Melville B. Nimmer & David Nimmer, *Nimmer on Copyright* § 13.03[F][5] at 13-146 (1996) (footnote omitted) (hereinafter "Nimmer"). Certainly even a quantitatively small amount of copied material may justify a finding of substantial similarity, but, as Nimmer correctly observes, "[i]n some cases, the amount of material copied will be so small as to be *de minimis*, and will not justify a finding of substantial

similarity."²⁶ *Id.* (footnote omitted). We agree with the district court that the elements that were considered original and appropriated were not of such significance to the overall program to warrant an ultimate finding of substantial similarity and hence infringement. The burden is on the copyright owner to demonstrate the significance of the copied features, and, in this case, MiTek has failed to meet that burden.

IV. CONCLUSION

For the foregoing reasons, the district court's determination that the TrussPro program does not infringe the ACES programs is AFFIRMED.

APPENDIX A (R3-144-Pl. Exh. 18C)

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²⁶Nimmer, in using the term "substantial similarity," is referring to the program as a whole, not constituent elements of the program. The district court concluded that, in TrussPro, four of the five protected ACES elements were substantially similar. However, its ultimate conclusion was that since these elements lacked significance in the ACES program as a whole, the two programs as a whole were not substantially similar; therefore, there was no finding of infringement.