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Thermal Windows: How Well-Insulated Are Software Developers from Copying of Their Programs' Visual Displays?

*Apple Computer, Inc. v. Microsoft Corp.*¹

I. INTRODUCTION

Throughout the relatively short history of the computer industry, many disputes have arisen over unauthorized copying of computer programs.² However, in most of the earlier cases, the disputed copyright protected the actual program code as a literary work rather than the visual display of the program as an artistic work. In *Apple Computer, Inc. v. Microsoft Corp.*, the Ninth Circuit Court of Appeals confronted an alleged copyright violation resulting from copied visual displays.³ Because the disputed copyright protected the displays as artistic works rather than the program code as a literary work, the court was forced to apply established principles in copyright law to an area in which the law is not completely clear.

II. FACTS AND HOLDING

Apple Computer ("Apple") is the manufacturer of the Lisa and Macintosh computers.⁴ Each computer has a graphical user interface ("GUI") which allows the computer user to perform simple functions by manipulating easy to understand graphical images on the screen using an input device called a mouse.⁵ GUIs provide pull-down menus for various tasks and allow the computer user to organize files into folders which are represented by graphical icons. When a program is started, it runs in a window which can be resized and moved around the screen as needed. Multiple windows can be open at

1. 35 F.3d 1435 (9th Cir. 1994)

2. See, e.g., *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984); *Computer Assoc. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693 (2d Cir. 1992); *Lotus Development Corp. v. Paperback Software Int'l*, 740 F. Supp. 37 (D.Mass. 1990); *Whelan Assoc., Inc. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987).

3. *Apple Computer, Inc.*, 35 F.3d at 1438-39.

4. *Id.* at 1438. The Macintosh computer has enjoyed great success in the personal computer industry. Its predecessor, the Lisa, was discontinued in 1985. *Clunk, An Apple Falls (Macintosh XL Discontinued)*, TIME, May 13, 1985, at 55.

5. *Apple Computer, Inc.*, 35 F.3d at 1438.

once, thus allowing the user to use more than one program at a time. Apple registered the GUIs for copyright as audiovisual works.⁶

Microsoft Corporation produces various computer software packages, including MS-DOS, a popular operating system for IBM and IBM-compatible personal computers. When Microsoft released Windows 1.0, a GUI for such computers, Apple objected on the basis of the similarity between Windows and the Lisa and Macintosh GUIs.⁷ The dispute resulted in Apple granting a license giving Microsoft the right to use and sublicense derivative works of Windows 1.0 in present and future products.⁸ Subsequently, Microsoft released Windows 2.03 and Windows 3.0.⁹ In addition, Microsoft's licensee, Hewlett-Packard Company ("HP"), released NewWave 1.0 and NewWave 3.0, both of which run in conjunction with Windows to make the computer easier to use.¹⁰ Believing that these software packages exceeded the scope of the license's, Apple filed an action for infringement of its copyright.¹¹

In the suit, the district court entered judgment in favor of Microsoft.¹² In reaching its conclusion, the court went through several steps in a series of published opinions.¹³ First, the court construed the license agreement to cover the visual displays in Windows 1.0, not the windows interface itself.¹⁴ Next, the district court determined that with a few minor exceptions¹⁵, all of the visual displays of Windows 2.03 and 3.0 were in Windows 1.0.¹⁶ The court then dissected the interfaces to determine which elements of the displays were either licensed or unprotectable.¹⁷ As a result of the dissection, the court

6. *Id.*

7. *Id.*

8. *Id.*

9. *Id.*

10. *Id.*

11. *Id.* Apple based its allegation upon its view that Microsoft had made Windows too "Mac-like" and had thus exceeded the scope of the license.

12. *Id.*

13. *Id.* See *Apple Computer, Inc. v. Microsoft Corp.*, 709 F. Supp. 925 (N.D. Cal. 1989); *Apple Computer, Inc. v. Microsoft Corp.*, 717 F. Supp. 1428 (N.D. Cal. 1989); *Apple Computer, Inc. v. Microsoft Corp.*, 759 F. Supp. 1444 (N.D. Cal. 1991); *Apple Computer, Inc. v. Microsoft Corp.*, 779 F. Supp. 133 (N.D. Cal. 1991); *Apple Computer, Inc. v. Microsoft Corp.*, 799 F. Supp. 1006 (N.D. Cal. 1992); *Apple Computer, Inc. v. Microsoft Corp.*, 821 F. Supp. 616 (N.D. Cal. 1993).

14. *Apple Computer, Inc.*, 35 F.3d at 1438.

15. The only additional elements were overlapping windows and some changes in the appearance and manipulation of icons. *Id.*

16. *Id.*

17. *Id.* The process of dissection involves taking the individual elements of a computer display and evaluating each to determine whether it is protectable by a copyright. After identifying an element, the court will apply the limiting doctrines of

found that with the exception of a few elements in NewWave,¹⁸ there were no individual elements which were both unlicensed and protectable.¹⁹ Finally, the court went on to hold that it would compare NewWave and Windows Apple's GUIs using the standard of virtual identity.²⁰ Judgments in favor of Microsoft and HP were entered by the court when Apple declined to oppose motions for summary judgment.²¹

On appeal, the Ninth Circuit Court of Appeals was called upon to review the district court's dissection of the GUIs to eliminate unprotectable and licensed elements and the adoption of virtual identity as a standard of comparison.²² The Ninth Circuit agreed with the district court's analysis and upheld its decision.²³ Specifically, the court held that the district court was correct in dissecting the works to determine which similarities "lack originality, flow naturally from basic ideas, or are one of the few ways in which a particular idea can be expressed given the constraints of the computer environment."²⁴ The court added that "dissection is not inappropriate even though GUIs are thought of as the 'look and feel' of a computer, because copyright protection extends only to protectable elements of expression."²⁵ The appellate court went on to hold that based on the district court's finding that similarities between the GUIs consist only of unprotectable or licensed elements, the standard of virtual identity, not substantial similarity, was the appropriate measure for comparing the GUIs.²⁶

originality, functionality, merger, and scenes a faire in order to make the determination as to whether the element is protected. For a discussion of these limiting doctrines, see *infra* notes 27-37 and accompanying text.

18. The elements found in NewWave which were protectable included the "zooming rectangle" animation which occurs when a window is opened or closed, the dimming of a folder when that folder is opened, and the use of a trash can icon as a means of deleting files. *Id.* at 1438 n.4.

19. *Id.* at 1438.

20. *Id.* Although the court decided to compare the works as a whole using the virtual identity standard, it compared the elements of NewWave which were found to be protectable elements of the Apple GUI using the substantial similarity standard. *Id.* However, the court went on to find that the similarities between these elements were not great enough to warrant a copyright violation. *Id.* at 1439.

21. *Id.* Microsoft's motion for summary judgment alleged noninfringement due to a lack of virtual identity between the interfaces' visual displays. *Id.*

22. *Id.* at 1439.

23. *Id.*

24. *Id.*

25. *Id.*

26. *Id.*

III. LEGAL BACKGROUND

Copyright law, as applied to the area of computer software, is not significantly different from other areas of application. To support a copyright violation claim involving a computer program, the aggrieved party must show "existence, ownership, and validity of the copyright, as well as copying by the defendant."²⁷

Several doctrines may limit the validity of a copyright. First, the subject matter of the copyright must be the author's original work.²⁸ Second, a distinction is made between ideas and expression for copyright purposes.²⁹ While it is possible to obtain a copyright for the expression of an idea, it is not possible to obtain protection for the idea itself.³⁰ If the idea and the expression are inseparable, then protection of the subject matter is only extended to the extent that duplication occurs.³¹ This is known as the merger doctrine.³² Third, a closely related doctrine, known as *scenes a faire*, limits the scope of copyright protection.³³ If the possible number of ways to express a given idea is severely limited, then copyright protection does not extend to the subject matter incorporating the idea.³⁴ This doctrine is in place to prevent the first person to come up with such an idea from gaining a monopoly on the idea.³⁵ Finally, the doctrine of functionality also limits the scope of possible copyright protection.³⁶ This doctrine prevents extension of copyright protection to works which are purely functional, except to the extent that artistic aspects of such works are capable of existing separately as independent works of art.³⁷

In order to show that a defendant copied a protected work, the plaintiff must use either direct or circumstantial evidence of the alleged violation.³⁸ Because direct evidence in copyright cases is sometimes scarce, plaintiffs are generally left to use circumstantial evidence. To prove copying in this

27. Nicolas P. Terry, *Gui Wars: The Windows Litigation and the Continuing Decline of "Look and Feel"*, 47 ARK. L. REV. 93, 110 (1994).

28. *Id.* at 111.

29. *Id.*

30. *Id.*

31. *Id.*

32. *Id.*

33. *Id.*

34. *Id.*

35. *Id.*

36. William T. Rintala, *Copyright Update—Substantive Law*, 379 PLI/PAT 271 (1994).

37. *Id.*

38. Terry, *supra* note 27, at 110.

manner, the plaintiff must show that the defendant had access to the protected work and, in most cases, that there is substantial similarity between the original and the purported copy.³⁹

Computer programs consist of literal and non-literal elements. Literal elements of a program consist of such items as the source code and object code⁴⁰ of the program.⁴¹ Non-literal elements include items such as the structure, sequence and organization of a program.⁴² The non-literal element of a program most likely to receive copyright protection is its "look and feel."⁴³ Because a GUI is what the computer user sees and interacts with, the appearance of a GUI is a non-literal element.⁴⁴ Literal elements of a program are protected by federal copyright law.⁴⁵ Non-literal elements may also be afforded copyright protection, but the protection in this area is much less certain and courts have been inconsistent in their treatment of copyrights of non-literal elements.⁴⁶

One of the major problems with copyright protection for non-literal aspects of computer programs is that the look and feel of a program is made up of many different individual elements.⁴⁷ Because of the limiting doctrines of originality, merger, *scenes a faire* and functionality,⁴⁸ many of these individual elements may be unprotectable. As a result, if a program's look and feel consists largely of unprotectable elements, the use of the substantial similarity standard for the comparison of the works would be improper.⁴⁹ In cases where ideas and expression are merged or there are only a few ways in

39. Terry, *supra* note 27, at 110.

40. The source and object code of a program are the underlying instructions which cause the program to operate. The source code is the set of human readable instructions from which the object code is assembled. The object code is the set of computer readable instructions which a computer actually executes in order to run a program. For a discussion of the technical aspects of computer programs, see DAVID BENDER, *COMPUTER LAW—SOFTWARE PROTECTION* § 2.06[3] (1985).

41. Matthew E. Watson, *Trade Dress Theory and the Software Graphic User Interface: Sorting through the Gooney Mess*, 34 *JURIMETRICS J.* 251, 253 (1994).

42. *Johnson Controls, Inc. v. Phoenix Control Systems, Inc.*, 886 F.2d 1173, 1175 (9th Cir. 1989).

43. Watson, *supra* note 41, at 254 n.14.

44. Watson, *supra* note 41, at 254 n.14.

45. Watson, *supra* note 41, at 253.

46. Watson, *supra* note 41, at 253-54.

47. For instance, the look and feel of the Windows interface results from its many individual elements: The menu bar with its pull-down menus, the "windows" themselves, the file folders, and the icons which represent files and programs.

48. See *supra* notes 27-37 and accompanying text.

49. Terry, *supra* note 27, at 113.

which to express an idea, the proper standard to apply for comparison of the works is virtual identity.⁵⁰

IV. INSTANT DECISION

The court in *Apple I* was faced with a situation in which the alleged copyright violation resulted from the copying of non-literal aspects of Apple's GUI. The district court in the case found that there were few elements of the GUI which were both unlicensed and protectable.⁵¹ The few elements which did meet this criteria were compared for substantial similarity, and the programs as a whole compared for virtual identity.⁵²

The court of appeals was called upon to evaluate the lower court's application of the virtual identity standard in this case.⁵³ Apple argued that the district court erred in dissecting the programs to eliminate unprotectable and licensed elements from comparison. Apple contended that, as a result of the improper dissection, the district court incorrectly adopted the virtual identity standard rather than substantial similarity.⁵⁴

The court of appeals disagreed with Apple's view of the case.⁵⁵ In holding that virtual identity was the correct standard for comparison, the court reviewed the procedures used by the district court to arrive at its conclusion.⁵⁶ First, the court looked to the license agreement between Apple and Microsoft.⁵⁷ Apple argued that the license allowed Microsoft to use the visual displays in Windows 1.0 which were similar to its displays, but did not allow subsequent versions of Windows to look any more "Mac-like" than Windows 1.0.⁵⁸

The court found that the agreement "licensed the right to use the visual displays generated by Apple's Lisa and Macintosh graphic user interface programs which appeared as derivative works in Windows 1.0."⁵⁹ According to the court, this license authorized the use of the visual displays in later versions of Windows and NewWave.⁶⁰ The court dismissed Apple's

50. Terry, *supra* note 27, at 113.

51. *Apple Computer Inc.*, 35 F.3d at 1438. See *supra* note 14 and accompanying text for a discussion of Microsoft's license of the visual displays.

52. *Apple Computer, Inc.*, 35 F.3d at 1438.

53. *Id.* at 1439.

54. *Id.*

55. *Id.*

56. *Id.*

57. *Id.* at 1440.

58. *Id.*

59. *Id.*

60. *Id.*

argument because during negotiations with Microsoft, Apple had expressly tried, and failed, to limit the scope of the license to the visual displays contained in Windows 1.0.⁶¹ Apple argued further that the court's interpretation of the license was incorrect because Apple certainly would not give away its most valuable technology to one of its competitors.⁶² The court dismissed this argument, finding that Microsoft had provided Apple with valuable consideration in exchange for the license.⁶³

Because of this holding, many of the features of Windows 2.03 and 3.0 and NewWave were covered by the license.⁶⁴ As a result, the inclusion of those features could not serve as a basis for a copyright violation.⁶⁵

After determining the scope of the license agreement, the court went on to dissect the programs to determine which features are protected by a copyright. The court noted that although the case raises some new issues concerning GUIs, the analysis it must use is essentially similar to other copyright cases. The court set forth its procedure as follows:

(1) The plaintiff must identify the source(s) of the alleged similarity between his work and the defendant's work.

(2) Using analytic dissection, and, if necessary, expert testimony, the court must determine whether any of the allegedly similar features are protected by copyright. Where, as in this case, a license agreement is involved, the court must also determine which features the defendant was authorized to copy. Once the scope of the license is determined, unprotectable ideas must be separated from potentially protectable expression; to that expression, the court must then apply the relevant limiting doctrines in the context of the particular medium involved, through the eyes of the ordinary consumer of that product.

(3) Having dissected the alleged similarities and considered the range of possible expression, the court must define the scope of the plaintiff's copyright—that is, decide whether the work is entitled to "broad" or "thin" protection. Depending on the degree of protection, the court must set the

61. *Id.* Apple's first draft of the agreement contained the language: "at no time shall this grant extend to any appearance, look, feel, visual feature or operation other than that incorporated in Microsoft Windows." *Id.* Because Microsoft rejected this provision, it was not included in the final agreement. *Id.*

62. *Id.* at 1441.

63. *Id.* In the agreement, Microsoft agreed to allow Apple to use any new displays created by Microsoft within five years, promised to delay the release of an IBM-compatible version of its Excel spreadsheet, and promised to release an improved version of Microsoft Word for Macintosh. *Id.*

64. *Id.* at 1442. The court found that authorized copying accounted for 90% of the similarities in Windows 2.03 and 3.0, and two-thirds of the similarities in NewWave. *Id.*

65. *Id.*

appropriate standard for a subjective comparison of the works to determine whether, as a whole, they are sufficiently similar to support a finding of illicit copying.⁶⁶

Using a list of similarities provided by Apple, the court began the process of dissection by distinguishing between ideas and expression. The court noted that a copyright cannot be granted on an idea because the first to come up with an idea would have an automatic monopoly.⁶⁷ As a result, Apple cannot hold a copyright on the concept of a GUI or the desktop metaphor used by its interface.⁶⁸

Next the court applied the doctrines of merger and *scenes a faire* to the list of similarities submitted by Apple.⁶⁹ When an idea and expression are indistinguishable, or there are only a limited number of ways to express an idea, the expression will be granted protection only against duplication.⁷⁰ In this case, the court found that many aspects of the GUI fall into these categories. For instance, the icon depicting a document file is a small image shaped like a piece of typing paper. The idea is to graphically represent the document file on the desktop.⁷¹ The obvious choice for an icon would be a graphic image of a piece of paper.⁷² Therefore, the idea is inseparable from its expression, and is therefore given only limited protection.⁷³

A second example of this type of limitation is the expression of the idea of windows. In the GUI containing windows, there are only two possible ways to position multiple windows on the screen simultaneously: overlapping or tiled.⁷⁴ Because the range of possible expression of the windows concept is severely limited, any particular expression can gain only limited protection.

As a final step in its dissection, the court applied the doctrine of originality to the alleged violations.⁷⁵ The court noted that "protection extends only to those components of a work that are original to the author,

66. *Id.* at 1443.

67. *Id.*

68. *Id.* The court noted that Apple could gain protection for the creativity used in putting together the elements of the GUI. However, it licensed the visual displays which resulted from this creativity. *Id.*

69. *Id.* at 1444-45.

70. *Id.* at 1444.

71. *Id.*

72. *Id.*

73. *Id.*

74. *Id.* Overlapping windows may be moved around so that one window may be partially covering another window. In a tiled window system, the windows sit next to each other like the tiles in a floor. In this type of system, there can be no overlapping of windows.

75. *Id.* at 1445.

although original selection and arrangement of otherwise uncopyrightable components may be protectable."⁷⁶ Because the doctrine should be applied to the components of a work, the court rejected Apple's argument that its GUI meets the originality requirement as a whole.⁷⁷ The court also found that many of the elements of Apple's GUI did not meet the originality requirement because they were first developed by Xerox and later used by Apple.⁷⁸ As a result, the elements were not entitled to protection.

Because the court found that nearly all⁷⁹ of the elements of Apple's GUI were not entitled to protection, the court concluded that the virtual identity standard was the appropriate standard by which the GUIs should be compared as a whole.⁸⁰ The court summarized its holding as follows:

The district court's conclusion that the works as a whole are entitled only to limited protection and should be compared for virtual identity follows from its analytic dissection. By virtue of the licensing agreement, Microsoft and HP were entitled to use the vast majority of features that Apple claims were copied. Of those that remain, the district court found no unauthorized, protectable similarities of expression in Windows 2.03 and 3.0, and only a handful in NewWave. Thus, any claim of infringement that Apple may have against Microsoft must rest on the copying of Apple's unique selection and arrangement of all of these features. Under *Harper House* and *Frybarger*, there can be no infringement unless the works are virtually identical.⁸¹

V. COMMENT

In the competitive environment of the computer industry, it is inevitable that some software packages will be very similar in appearance and operation.⁸² Thus, the type of dispute in *Apple I* will likely arise again. The

76. *Id.* (citing *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 111 S. Ct. 1282, 1289-91 (1991)).

77. *Apple Computer, Inc.*, 35 F.3d at 1445.

78. *Id.* at 1446.

79. With the exception of the few elements found to be protectable in NewWave, none of the unlicensed elements which the court examined were entitled to protection.

80. *Apple Computer, Inc.*, 35 F.3d at 1446.

81. *Id.* (citing *Frybarger v. International Business Machines Corp.*, 812 F.2d 525 (9th Cir. 1987), and *Harper House, Inc. v. Thomas Nelson, Inc.*, 889 F.2d 197 (9th Cir. 1989)).

82. Several examples of similarities exist in the relatively short history of the computer industry. For example, Lotus 1-2-3 and Quattro Pro are popular computer spreadsheet programs which bear a close resemblance to each other. Microsoft DoubleSpace and Stacker are disk compression utilities which provide the same result

analysis of *Apple I* may play an important role in the resolution of these future cases. In addition, the court's analysis will help software developers more accurately define the boundaries of copyright protection of the visual displays in computer programs. The case is especially relevant to situations in which the developer has granted a license to use the visual displays of a program.

One of the most significant aspects of the *Apple I* decision is the way in which traditional copyright concepts were applied to the relatively new topic of computer applications. Through the use of these concepts, the court in *Apple I* avoided using the more traditional "look and feel" approach which Apple was seeking. The doctrines of originality, merger, *scenes a faire* and functionality served to severely limit the number of protectable elements in Apple's GUI.⁸³ The limited number of protectable elements led the court to adopt the difficult standard of virtual identity. Both the district court and the court of appeals in this case applied these standards broadly to limit the scope of Apple's copyright.⁸⁴ While it is possible that not every court will apply these principles so broadly, the reasoning behind the broad application may be used to similarly limit copyright protection in future cases. In addition, the court's broad application of these principles and rejection of the "look and feel" approach should prove important in future computer copyright cases.

Computer software developers who are the first to come up with an idea for a particular type of program will undoubtedly want to take note of the use of the traditional copyright limiting doctrines in *Apple I*. Developers should recognize that for some new computer applications, especially GUIs, copyright protection may be more limited than the developer might anticipate. The knowledge of a possibility that copyright protection of an application may not be as extensive as once believed will allow for better planning by these developers. Upon recognizing this possibility, the developers would be in a better position to make accurate estimates of the products' potential performance. Developers could also adjust their marketing strategies to better handle the potential competition which may result from a greater number of competing products.

Counsel for software developers should also be quite interested in the use of traditional copyright doctrines in *Apple I*. The court's analysis provides good insight into how a court may approach this type of copyright dispute. Attorneys for litigants seeking to limit the scope of an opposing party's copyright will be able to use the reasoning of the court in support of their position. These attorneys will especially want to focus on the *Apple I* court's positions that many of the ideas in computer programs have a limited number of possible expressions and many elements of computer applications,

and, from the user's perspective, operate in the same manner.

83. See *supra* notes 28-37 and accompanying text.

84. See *supra* notes 12-26 and accompanying text.

especially GUIs, are functional.⁸⁵ These attorneys will undoubtedly attempt to draw analogies between the facts of their particular case and those of *Apple I* to support their position that these doctrines should be applied in a similar manner.

Attorneys who represent copyright holders may also benefit from a close look at *Apple I*. By examining the reasoning behind the broad application of traditional copyright limiting doctrines, these attorneys may be able to formulate new arguments to limit application of these doctrines. Because the facts of each case differ, it is possible to use any difference to draw a distinction as to why the limiting doctrines should not be applied. For instance, while the idea of graphically representing a document file on the screen has a limited number of possible expressions, another programming idea may arguably have a wider range of possible expressions. Such a difference may distinguish a case from *Apple I* sufficiently to prevent application of the limiting doctrines.

Finally, developers wishing to provide more adequate protection for their computer applications may want to consider other legal avenues. One commentator has suggested that because of the unpredictable application of the "look and feel" test to GUIs, legal practitioners have begun to look to other areas of intellectual property law for protection.⁸⁶ If courts begin to move away from application of the "look and feel" test as the Ninth Circuit has in *Apple I*, this search for new methods of protection will likely accelerate. Some alternate possibilities for protection include trademark, trade dress and design patent theories.⁸⁷ For the most part, however, these theories have not enjoyed much success for developers.⁸⁸ Despite this early disappointment, it seems likely that the search for new methods of protection will continue, especially in light of the *Apple I* decision.

VI. CONCLUSION

Apple I is significant in that it marks a departure from the "look and feel" test for determining copyright infringement in computer cases. Although the facts of future computer copyright infringement cases will vary, the decision is important in that it sets forth a logical framework for evaluating such claims. It seems likely that this approach will quickly gain acceptance among courts faced with similar questions.

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85. See *supra* notes 36-37 and accompanying text.

86. Watson, *supra* note 41, at 254 n.16.

87. Watson, *supra* note 41, at 292.

88. Watson, *supra* note 41, at 292.

