

PROTECTING THE 'LOOK AND FEEL' OF COMPUTER SOFTWARE

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The computer industry is poised on the threshold of a second generation of copyright issues. The first generation centered on the copyrightability of the 'languages' and codes in which software is written and read. The second generation involves determining the existence and scope of protection for the 'look and feel' of computer programs under copyright law. [FN1]

In 1980 an amendment to the 1976 Copyright Act (the 'Act') expressly included computer codes or instructions within the scope of protected literary works and effectively terminated the litigation debate over copyrightability of computer code. [FN2] The 1983 landmark decision of *Apple Computer v. Franklin Computer Corp.* [FN3] established that computer code was copyrightable irrespective of whether its purpose was to operate the hardware or perform a specific application, [FN4] whether it was written in *412 source or object code, [FN5] or whether the code was stored on software or embedded in semiconductor chips. [FN6]

While the courts have implemented Congress' desire to protect programming code under copyright law, a second generation of issues has emerged focusing on the scope of that protection. The courts must now decide which program characteristics, other than codes or instructions, copyright law protects. [FN7] The scope of protection will be of great economic significance to the computer industry, possibly even more important than the protection of the programming code itself. [FN8] For example, attractive appearance and easy access often constitute the prime selling points of computer software because they are more important to the user than the programming code. Experts predict that in the future, software manufacturers will become more concerned with protecting the 'look and feel' than the codes of their programs. [FN9] Therefore, defining the exact scope of copyright protection available for the 'look and feel' of computer programs is vitally important to the software industry. [FN10]

*413 To date, only two cases have made progress towards creating such a definition. In the recently decided case, *Whelan Associates v. Jaslow Dental Lab*, [FN11] the Third Circuit took an initial step when it extended copyright protection 'beyond the programs' literal code to their structure, sequence, and organization.' [FN12] The Northern District Court of California took a second step in *Broderbund, Inc. and Pixellite Software v. Unison World, Inc.* [FN13] That case involved a claim that 'the overall appearance, structure, and sequence of audiovisual displays in defendant's 'Printmaster' infringe plaintiffs' copyright on 'Print Shop.'" [FN14] Finding the 'total concept and feel' of these programs to be essentially identical, [FN15] the trial court extended copyright protection to the 'look and feel' of the plaintiffs' Print Shop program. *Broderbund* is not the final word, however, as the decision is being appealed [FN16] and similar cases are currently pending. [FN17] This Comment

examines the problems engendered *414 by the emergence of look and feel copyright issues in light of these cases as well as more traditional doctrine. This Comment first presents some background information, including a working definition of look and feel and a model look and feel dispute, and then addresses three unresolved issues regarding the copyrightability of look and feel: (1) distinguishing ideas from expressions; (2) determining whether look and feel falls with the statutory categories of protected works; and (3) determining copyright infringement.

The fundamental question under copyright analysis is whether the look and feel of a computer program is an expression or an idea. This issue underlies all of copyright doctrine because copyright law protects only the expressions of ideas, functions, and processes, not the ideas themselves. [FN18] Section II of this Comment outlines the importance of the idea/expression distinction and examines the difficulties that arise when distilling unprotected ideas from protected expressions.

That section argues that separating idea from expression may be impossible to accomplish within the context of look and feel for at least two reasons. First, the legal tests currently used to sift uncopyrightable ideas from copyrighted expressions were all devised before the advent of computer software and are not readily adaptable to software cases. Second, the specific nature of computer software compounds the difficulties associated with distinguishing ideas from expressions.

The next issue concerns whether look and feel satisfies the basic requirements of the Copyright Act. Since copyright is wholly statutory, look and feel will only receive protection if it falls within the categories of protected works enumerated in the Act. Inclusion in a statutorily protected subject matter category is the threshold question for determining whether copyright law applies and is discussed in detail in Section III.

Briefly, the 1980 amendment to the Act protects computer programs under the 'literary works' category in the statute. [FN19] Programs are defined as literary works when limited to their programming code. [FN20] It is unclear, however, whether the category of literary works protects the look and feel of programs. [FN21]

*415 If look and feel falls outside the scope of protected literary works, then the copyrightability of look and feel will depend on how closely a program's design, presentation, output, and user interface can be analogized to the other categories of protected works enumerated in the Copyright Act. Section III argues that particular elements of a program's look and feel are similar to protected works such as commands, [FN22] graphics, [FN23] and audiovisual works. [FN24] However, since the categories were not designed to accommodate computer software, a significant amount of procrustean stretching and sawing is necessary in order to analogize the elements of look and feel to copyrightable works of authorship.

Assuming that the protected works of authorship include copyrightable elements of look and feel does not end the inquiry. The final step presented in Section IV is a discussion of infringement issues. The two conditions for determining infringement are the imitator's access to the protected program and the substantial similarity between the look and feel of the two programs. [FN25] As Section IV describes, any comparison of the look and feel of two programs for infringement is difficult because tests for substantial similarity blur the distinction between idea and expression.

This Comment concludes that a program's total look and feel should not be granted protection under copyright law. Look and feel is a broad, descriptive term that integrates both ideas and expressions. Although certain

characteristics of the look and feel of computer programs may fall within categories enumerated by the Copyright Act, any infringement determination that relies on a direct comparison of the overall look and feel of programs inevitably fails to recognize systematically the distinction between idea and expression. Thus, copyright protection of a program's total look and feel should not be permitted because a test has not yet been formulated which simultaneously protects look and feel and distinguishes idea from expression. Specific elements of a program's look and feel, however, should be protected if they constitute distinct expressions within a protected work of authorship.

***416 I. BACKGROUND**

A. What is the 'Look and Feel' of Computer Software?

Before addressing any issues regarding protection, 'look and feel' must be more fully described. 'Look and feel' is not a legal term, but is commonly used in the literature to discuss the legal issue of copyright protection for programs. [FN26] This computer industry term of art escapes precise definition for several reasons. First, this area is so new that no judicial or other authoritative definition has yet been stated. The Broderbund opinion refers to the 'total concept and feel' of a program, but never defines the scope of that term. [FN27] Adding to the confusion, the meaning of look and feel varies from source to source in the general literature. For instance, look and feel has been discussed as both a physical characteristic of a program [FN28] and as an approach to determining infringement. [FN29] Finally, the term look and feel is vague because it embodies the user's subjective perception of a program; truly it is a term of 'art.'

This Comment adopts the following as a workable definition of the look and feel of a computer program: its 'design, presentation and output as experienced by the user,' [FN30] including the various observable attributes of a program such as commands, graphics, sounds, symbols, sequences, arrangement, and more general aesthetic qualities experienced by the user. Consequently, this Comment treats look and feel as a somewhat subjective characteristic of a program rather than as an approach for determining infringement. [FN31]

B. The Apple/DRI Dispute

In such a vague area of the law it is easy to lapse into abstraction. It is therefore prudent to anchor the copyright analysis solidly in the concrete. A recent dispute between Apple Computer ('Apple') and *417 Digital Research Inc. ('DRI') provides a good illustration of a controversy over the protection of the look and feel of a computer program. This dispute will serve as a useful paradigm for the discussion which follows.

In early October 1985, Apple and DRI reached an agreement regarding Apple's claim that DRI's Graphics Environment Manager ('GEM') programs infringed Apple's copyright on the user interface software for Apple's Macintosh personal computer. [FN32]

The Apple Macintosh performs application programs, such as MacWrite and MacPaint, as well as operating programs, such as FINDER. [FN33] FINDER is a user interface program that directs how information is displayed on the screen and controls the flow of information to and from the peripherals. [FN34] The purpose of FINDER is to insulate the user from the intricacies of the disk operating system ('DOS'). [FN35] FINDER permits easy use of the Macintosh because the user can dispense with the laborious memorization of numerous keyboard command sequences.

FINDER begins by presenting the user with a screen display depicting a desktop. [FN36] A bar on the top of the screen contains options for the user, known as a 'menu,' so that the user can 'pull down' specific command submenus and perform the commands inscribed thereon. The user can access disks as well as lower-level documents (e.g. files or application programs) by clicking a control device, known as a 'mouse,' over a representative icon which appears on the screen. Documents are deleted by using the mouse to drag the relevant icon over to a 'trash can' icon. In sum, FINDER is an operating program that is exceedingly simple to use.

The unique 'user friendly' characteristics of FINDER collectively constitute the program's look and feel. The look and feel facilitates use of the Macintosh by those who are unfamiliar with computers [FN37] which is *418 a major factor in the success of the Macintosh. [FN38] Apple has also manufactured graphics, painting, and word processing software which function similarly to FINDER. [FN39]

In the spring of 1985, DRI commenced distribution of GEM, a series of operating, graphics, painting, and word processing software designed for the IBM Personal Computer. [FN40] DRI promoted GEM as 'a system that makes an IBM PC as easy to use as that master of simplicity, the Macintosh.' [FN41] Independent software reviews also found many similarities existing between the two programs, including almost identical icons, windows, and menu bars. [FN42] The GEM screen also 'bears a striking resemblance to the Macintosh screen.' [FN43] For example, both interfaces allow users to access by clicking the mouse, to copy by superimposition, and to delete by dragging a document icon over a 'trash can' icon.

The strong similarities between the DRI and Apple programs prompted Apple to threaten DRI with legal action unless it agreed to modify GEM. [FN44] Without admitting liability, DRI agreed to stop selling its current versions of GEM after a certain date and pay Apple an undisclosed monetary settlement. [FN45] In addition, DRI agreed to provide programming services for Apple at a reduced rate and to allow Apple to examine and approve DRI's revised versions of GEM. [FN46]

Apple also required DRI to change several characteristics of GEM's look and feel. These modifications included, but were not limited to: (1) eliminating the trash can icon; (2) eliminating certain icon animation sequences; (3) using darker borders rather than inverse video to indicate activated icons; (4) rewording certain commands (e.g. replacing 'Type' with 'Typeface'); (5) relocating several command menu labels; (6) modifying *419 certain patterns in GEM Draw; and (7) using a pencil eraser icon instead of a chalkboard eraser in GEM Paint. [FN47]

Both parties refuse to divulge any further information at this time. For present purposes, however, the Apple/DRI dispute provides sufficient facts to illustrate the major issues raised by copyrighting the look and feel of computer software.

II. SEPARATING IDEA FROM EXPRESSION

The fundamental policy underlying the Copyright Act is to promote the dissemination of the arts and sciences by providing an incentive for the publication of new works. [FN48] This is accomplished by granting the original author certain exclusive rights in the work. Under copyright law, the limited monopoly granted must not be so broad that it prevents others from building upon the ideas expressed in the work. [FN49] Separating ideas from expressions is the primary means of balancing these two competing interests of--providing an incentive to create without allowing an overly restrictive monopoly. [FN50] In *Whelan v. Jaslow*, [FN51] the court declares that the

purpose of the copyright law is to create the most efficient and productive balance between protection of authors and dissemination *420 of information. The focus on efficiency and productivity is not purely economical but, rather, is informed by policy goals as well. The key is to find a balance that creates an incentive to produce works of authorship, yet promotes the spread of learning, culture, and development.

Section 102 of the Copyright Act permits the copyright of expressions but prohibits the copyright of 'any idea, procedure, process, system, method of operation, concept, principle, or discovery.' [FN52] This reflects an attempt to encourage creative expression through the attribution of limited proprietary rights, while preserving the right of others to 'use, adapt and build on an idea.' [FN53] The idea/expression dichotomy has been criticized as obsolete, [FN54] but no better formula has been devised to conceptualize 'the fundamental elements in an artistic creation and to balance the competing interests inherent in copyright law.' [FN55]

Ultimately, distinguishing an idea from its expression entails a policy judgment as to whether the promotion of arts and sciences is better served by granting protection, or by authorizing a more liberal exploitation of the original work by others. [FN56] The courts, however, usually address the issue from a mechanical perspective, and policy judgments are often only implicit. [FN57] While this approach may be acceptable for resolving copyright cases involving less technological works, it is not helpful when addressing qualitatively new questions, such as differentiating idea from expression in software's look and feel.

This Section considers four approaches to distinguishing idea and expression: Judge Learned Hand's 'levels of abstraction' test; the 'commercial value' approach; the 'program structure' analysis of *Whelan v. Jaslow*; and the 'plurality of expressions' test.

A. Levels of Abstraction Test

Judge Learned Hand's authoritative 'levels of abstraction' test is often the starting point for distinguishing ideas from their expressions. [FN58] This test was originally developed for literary works.

*421 Upon any work . . . a great number of patterns of increasing generality will fit equally well, as more and more of the incident is left out. The last may perhaps be no more than the most general statement of what the [work] is about, and at times consist only of its title; but there is a point in this series of abstractions where they are no longer protected, since otherwise the [author] could prevent the use of his 'ideas,' to which, apart from their expression, his property is never extended. [FN59]

Hand's approach to distilling idea from expression entails a comparison of the works involved, starting at a level consisting of concrete expressions and working towards the abstract idea. For instance, similarities of phraseology and details of characterization are copyrightable as expressions. [FN60] The 'plot' or 'pattern,' (defined as the sequence of events and interplay of the characters), also constitutes an expression. [FN61] As the analysis becomes more general and abstract, a level is reached where the expression converges with the idea itself, and any similarity is only of ideas, thereby precluding infringement. Thus, while 'no one could copy Shakespeare's drama concerning the star-crossed lovers of Verona merely by paraphrasing the dialogue . . . anyone could borrow *Romeo and Juliet*'s basic idea of a romance between members of two hostile families.' [FN62]

In the context of computer software, look and feel can be examined two different ways under the levels of

abstraction test; either based on the look and feel of the software or based on the design structure of the software. However, neither approach supports the conclusion that look and feel is copyrightable.

First, a hierarchy of levels of abstraction can be constructed focusing on look and feel. The concrete computer code or instructions form the least abstract layer of such a hierarchy. The next layer of abstraction includes specific elements of the user interface, such as the windows, menu bars, commands, and icons in the FINDER program. Look and feel is even more abstract because it is subjective and essentially depends upon the user's perception of the software's operation. Thus, at a very abstract level, the program can be characterized as the entire user interface or its total look and feel. Ultimately, the most abstract level is the fundamental idea or function of the program. Viewed as part of this ***422** hierarchy, the look and feel of a program should not receive copyright protection because it is positioned at the abstract end of the hierarchy.

Second, an alternative hierarchy focuses on the design structure of computer software. The bottom layer again consists of the programming code. At a somewhat more abstract level, a program is described by the specific structure of the subroutines. Even more abstract, a program is characterized by a flowchart. Finally, a program can be represented by an algorithm and, ultimately, by its basic idea or purpose. Under this analysis, the programming code of a word processing program, for example, is clearly protected, [FN63] while the idea of using a computer to input, store, and edit text is not protected. [FN64] Unfortunately, look and feel does not fit within this hierarchy because it consists of the program's output and user interface which does not directly correspond with the design structure. The concept of look and feel is not a flowchart, algorithm, or any other design stage; look and feel conceptually permeates several layers of this hierarchy. Thus, overall, neither hierarchy supports copyright protection of a program's look and feel.

Another difficulty is that, even assuming look and feel can be pinned to a particular level of a hierarchy, this test does not provide any guidance for determining which intermediary levels of abstraction are protected expressions and which levels are unprotected ideas. The levels of abstraction test is only a starting point in understanding the idea/expression distinction because it does not easily differentiate between an idea and its expression. On the other hand, '[n]o court or commentator . . . has been able to improve on Judge Learned Hand's famous abstractions test.' [FN65] The test is useful in conceptualizing the problem, but is not a means of drawing the line between ideas and expressions in any given work. [FN66] Judge Hand himself admitted: 'nobody has ever been able to fix that boundary between idea and expression and nobody ever can.' [FN67] Therefore, 'the test for infringement is of necessity vague . . . Obviously, no principle can be stated as to when an imitator has gone beyond copying the 'idea,' and has borrowed its 'expression.' Decisions must therefore inevitably be ad hoc.' [FN68]

***423** The problem is even more acute when facing a new copyright issue such as the proper scope of protection for the look and feel of computer software. Deciding which levels deserve protection is more difficult in the realm of computer programs because, unlike literary works, computer programs are functional, utilitarian creations. Professor Raymond Nimmer explains: '[t]he software environment uniquely blends idea, expression, and process in a manner that cannot be compared readily to books or articles that describe systems. Computer programs not only describe a process or idea, but in an appropriate form directly implement it.' [FN69] The function of the program pervades every level of the hierarchy because the function can be viewed as either very concrete or very abstract. Therefore, the problem of distinguishing idea from expression is even more complicated in the area of functional computer software. Although the failure of the levels of abstraction test to provide a mechanism for determining which levels should be protected may not be so critical in the area of literary works, this failure limits use of the test in the area of computer software.

In short, the levels of abstraction test is difficult to apply to look and feel of software. Even if applied, this test yields the result that total look and feel should not be protected.

B. The 'Commercial Value' Approach

The 'commercial value' approach focuses on the 'substantive value' of the plaintiff's work. [FN70] ' The method is to identify the commercially or artistically central elements of the first work and then to inquire what the effect of protecting these would be on subsequent works.' [FN71] Advocates for the protection of look and feel often try to justify copyright protection based on the commercial value of software development expenditures. [FN72]

Exclusive reliance on the commercial value approach, however, raises mercantile concerns which have not been part of traditional copyright analysis. [FN73] The courts have rejected the argument that an otherwise ***424** uncopyrightable process should be given protection simply 'because the plaintiff has expended a large amount of money, time, and effort in promoting, developing and . . . market ing its system.' [FN74] Moreover, the test is premised on the erroneous assumption that dollar value and creativity are synonymous.

Finally, such an approach overly protects the original author at the expense of idea dissemination. The application of this approach to the Apple/DRI conflict, for example, would extend Apple's potential copyright protection to monopolistic proportions. The commercial value of Macintosh resides primarily in the unique user friendly environment of FINDER, the heart of the program's look and feel. [FN75] Thus, using the commercial value approach, menu bars, windows, desktop, and animation sequences would all be protected since these characteristics make Macintosh easy to use, and hence commercially valuable. [FN76]

However, allowing Apple to copyright these features would also stifle subsequent creativity. [FN77] Although the commercial value test provides some economic incentive to produce commercially valuable works, it does not optimally encourage productivity because it creates monopolistic property rights. The FINDER animation sequence, [FN78] for example, is so basic that allowing copyright protection would severely hamper competing operating systems. Although certain video screen arrangements are copyrightable, [FN79] extending protection to Macintosh's animation sequence would, in effect, confer a monopoly over a simplified process of inputting (or outputting) data on a computer. So characterized, the sequences constitute ideas and must remain available to other computer manufacturers. [FN80]

***425** From a policy standpoint, granting Apple a copyright in FINDER's look and feel would not only stifle subsequent creativity, but it would also delay beneficial standardization. For instance, users could more easily adapt to different programs if the menu bars were always located at the top of the screen, yet Apple requested that DRI move its menu to the left side of the screen to avoid copying the overall look and feel of the Macintosh desktop. [FN81] These modifications do not protect creative expression and are counterproductive. As Michael Scott, executive director of the Center for Computer Law in Manhattan Beach, California explains: ' d o you really want 20 different user friendly concepts? You would have to learn each one, which defeats the whole purpose.' [FN82] The commercial value approach probably would permit look and feel components to be classified as copyrightable 'expressions,' however that would be counterproductive to the public.

C. The 'Program Structure' Analysis of Whelan v. Jaslow

The 'program structure' analysis of *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*, [FN83] is equally problematic. There the Third Circuit extended copyright protection to include the 'structure' of the program as well as the source and object code. [FN84] Whelan alleged that Jaslow Labs had copied its dental laboratory accounting program. Although there was no substantial evidence of direct line by line copyright, at trial Whelan argued that Jaslow's file structure and screen outputs were virtually identical. [FN85]

***426** The Whelan court defined the protected 'expression of an idea' in software as 'the manner in which the program operates, controls and regulates the computer in receiving, assembling, calculating, retaining, correlating, and producing useful information either on a screen, printout or by audio communication.' [FN86] In other words, the court held that copyright law protects the program 'structure.' [FN87]

If a court applied this definition of expression broadly, then a software's design, presentation, output, and user interface all would receive copyright protection. However, such extensive protection overemphasizes the goal of protecting authors and neglects the need for free dissemination of facts. Within the context of the Apple/DRI paradigm it is easy to see that the command menus, windows, and the icon animation sequences, as well as FINDER's desktop, all determine 'the manner in which the program operates . . . the computer in . . . producing useful information.' Thus, the look and feel of Apple's program would receive full protection under a broad reading of the analysis in Whelan. [FN88]

Courts should reject this notion of protected expression as overly inclusive. [FN89] Indeed, the 'manner in which the program operates, ***427** controls and regulates the computer' is indistinguishable from the very function or process the creator designed the software to perform. Whelan's broad approach ultimately fails because it does not address the critical issue in copyright analysis: distinguishing between a program's expression and its underlying process or function. [FN90]

Moreover, there is an alternative, narrow interpretation of the Whelan holding which is less problematic. One might read Whelan as extending copyright protection to the structure of the programming code only. [FN91] Given the problems implicated by the broad reading, Whelan should be limited to this narrow, more practical holding. [FN92]

D. The 'Plurality of Expressions' Test

The useful 'plurality of expressions' test first appeared in the famous Third Circuit decision *Apple Computer v. Franklin Computer Corp.* [FN93] Apple filed suit alleging that Franklin was liable for copyright infringement of several operating programs. Franklin claimed that extending copyright protection to Apple's operating system would violate § 102(b) which precludes protection of ideas. The court ruled 'if other programs can be written or created which perform the same function as Apple's operating system program, then that program is an expression of the idea and hence copyrightable.' [FN94] The central focus is whether the idea can be expressed in a plurality of ways; if so, then that particular expression is copyrightable. [FN95]

***428** An almost identical approach consists of denying copyright protection when the idea and expression merge, that is, when only a few ways of expressing an idea are possible. [FN96] A similar concept, called *scenes a faire*, is used in the field of literary works. *Scenes a faire* are incidents of plot which necessarily follow from a common theme or setting. [FN97] A *scene a faire* is not copyrightable since the similarity between two works results from the fact that a common idea is only capable of expression in a more or less stereotyped form. [FN98]

The plurality of expressions test combines several distinct advantages. First, the test is clear and relatively easy to apply. Instead of determining a cutoff between levels of abstraction, this test simply asks whether an idea (e.g. deleting a file) can be expressed in a plurality of manners (e.g. a trash can icon or other representation). Thus, the test is based on tangible and discrete factors instead of vague abstractions.

Second, this test is likely to yield more consistent and predictable results. By focusing attention on the various ways to express an idea, one generally reaches only a few possible conclusions. If only one way to express an idea exists then the law provides no copyright protection. When the list of possible expressions is infinite, [FN99] copyright law should permit protection, but when there are limited possibilities, [FN100] the law should not provide copyright protection.

Most importantly, the plurality test incorporates the idea/expression analysis and other underlying policies of copyright law. [FN101] A copyright is a limited monopoly over a particular expression. [FN102] Therefore, even if *429 the author monopolizes one expression, the plurality test allows healthy competition because viable, alternative ways to express the same idea still exist. [FN103]

Applying the plurality test to the programs involved in the Apple/DRI dispute indicates that only some of GEM's characteristics infringed Apple's software. For example, the trash can icon is only one of many ways to express the delete function. [FN104] In contrast, methods of expressing activated icons are few. [FN105] Likewise, there is only a limited number of ways to express certain commands such as 'edit,' 'search,' and 'type.' Therefore, simply because Apple chose 'type,' the plurality test would not require DRI to use only alternative commands such as 'typeface.' The same analysis applies to the location of the command bar labels on the video screen. The necessity of saving the center of the screen for applications use as well as the dimensions of the screen itself limit the command bar labels to a few functional positions.

Copyright law cannot protect look and feel as a global concept because the law requires ideas to remain freely transferable. Yet look and feel broadly defines a program and includes both expressions and ideas. Therefore, instead of looking at the program as a whole, a court should analyze and dissect the look and feel of a program into its component elements to determine which features the law should protect and which are unprotectable ideas.

As demonstrated, a court faces enormous conceptual and practical difficulties when distinguishing ideas from expressions. Judge Learned Hand's levels of abstraction test is extremely vague and inconclusive. The commercial value approach also fails because it is too broad and focuses on mercantile concerns foreign to traditional copyright analysis. Likewise, Whelan's broad structural analysis proves to be too overprotective and difficult to apply in a consistent manner. The plurality of expressions test, on the other hand, more properly accounts for the *430 competing interests inherent in the look and feel of computer software. By not protecting look and feel as a global concept the plurality test balances the competing policies of the copyright law: encouraging innovation while stimulating the free flow of ideas.

III. LOOK AND FEEL AND SECTION 102(a) WORKS OF AUTHORSHIP

In addition to separating look and feel into its component ideas and expressions, a court must determine if the allegedly protected work falls within the precise provisions of the Copyright Act. Since copyright property rights

are wholly statutory, [FN106] the elements of a computer program's look and feel must satisfy the subject matter requirements of section 102(a) in order to receive copyright protection. [FN107]

Section 102(a) limits copyright protection to seven enumerated works of authorship. [FN108] The question is whether a computer program's look and feel falls within any of these categories. Although Congress did not intend the seven categories to exhaust the limits of authorship, [FN109] practitioners who wish to extend copyright protection to new types of works usually search for analogies from among these categories.

A. Literary Works

The 1980 Amendment to the Copyright Act treats computer programs as works of authorship under the literary works category. It can be argued that look and feel should be protected as a literary work because it is a characteristic of a protectable program.

Such simplistic reasoning offers little guidance in analyzing whether look and feel falls within the statutory categories. The scope of rights derived from copyright protection vary depending on whether the work is classified as a literary work, audiovisual work, or another work of ***431** authorship. [FN110] For instance, a motion picture film will generally consist of a series of related images and words. Thus, a motion picture can possess both an audiovisual portion and a literary portion, [FN111] and the scope of copyright protection will vary accordingly.

Similarly, a computer program embodies both a literary portion expressed by the programming code, and a non-literary portion. While courts treat the programming code as a literary work, [FN112] it does not follow that the courts must treat the look and feel also as a literary work or as a protectable characteristic of a literary work. Therefore, this Comment seeks to identify carefully which categories of works conform to the peculiar nature of look and feel. [FN113]

The 1980 Amendment to the Act defines a computer program as a 'set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result.' [FN114] Since literary works are composed of 'statements and instructions,' [FN115] the literary work category easily includes the computer program's 'set of statements or instructions.' However, as one moves away from the statements and instructions toward the design, presentation, output, and user interface, the literary work category no longer encompasses the total breadth of the computer program.

The 1980 amendment deliberately limits the definition of a computer program to its 'statements or instructions' instead of defining a program broadly to include its attributes of look and feel. This amendment incorporates nearly verbatim the recommendations of the National Commission of New Technological Uses of Copyrighted Works ('CONTU'), a group that Congress established in 1974 for the purpose of revising the Copyright Act. Therefore, courts and commentators regard CONTU's final report as particularly authoritative. [FN116] The CONTU Report declined to address the issue of copyright protection for a software's design, presentation and output, preferring to leave that matter to the courts. [FN117] Although the question is an open one because ***432** no explicit answers exist within the report, a close reading of the report suggests that CONTU did not intend to extend copyright protection beyond the program's computer code. [FN118]

The peculiar nature of computer software suggests that a court should limit the category of literary works to a

program's code. As one legal practitioner points out: '[v]irtually every other type of copyrighted work involves creation of a form of expression which is eventually reproduced for the user in substantially the form in which it was created. . . . Yet computer programs . . . never look the same on the computer screen [or print-out] as they were originally programmed.' [FN119] The design, presentation, output, and user interface of software radically differ from the programming code. They bear little resemblance to literary works, thus the proper analysis treats the elements of look and feel as non-literary works of authorship. [FN120]

Finally, computer programmers can emulate a program's look and feel without copying the precise programming code in which it is written. [FN121] This fact demonstrates that as a practical matter the programming code and the look and feel of a program cannot be treated identically under the Act. Look and feel is neither intuitively nor rationally definable as a literary work merely because the Act affords protection to the programming code of a computer program as a literary work.

***433 B. Commands**

Subsection A above argues that a court should not automatically consider the look and feel of software as a literary work, simply because the programming code is a literary work. Each of the software's menus, symbols, labels, and commands, however, might be included individually within the literary works category. According to the definition in § 101 of the Act, literary works are 'works other than audiovisual works expressed in words, numbers, or other verbal or numerical symbols or indicia.' [FN122]

Commands composed of 'mere' words probably lack sufficient originality to merit protection. Generally, the Copyright Office prohibits the copyright of simple commands such as '[w]ords and short phrases such as names, titles, and slogans; familiar symbols or designs; mere variations of typographic ornamentation, lettering or coloring; mere listing of ingredients or contents.' [FN123] Although some authority exists for protecting the original arrangement and selection of uncopyrightable words or symbols, [FN124] courts will probably refuse to extend copyright protection to short lists of common words such as file, edit, search, format, font, and style; or to symbols like arrows or boxes. For example, in the Apple/DRI dispute, Apple's use of 'type' does not involve a unique, protectable command within the meaning of § 101 such that Apple should require DRI to use an alternative such as 'typeface.'

Although commands are probably not expressly protected as literary works, a court might treat the commands as an integral part of another type of copyrighted work. In *WGN Continental Broadcasting Co. v. United Video, Inc.*, the Court of Appeals for the Seventh Circuit held that '[teletext] intended to be viewed with and as an integral part of [an audiovisual] program' would be protected by the copyright on an audiovisual work. [FN125] It follows that commands and screen symbols that are related to the screen output are protected, but only if the output is protected as another type of copyrighted work. [FN126] Hence, it is necessary to examine whether look and feel falls within another protected category.

***434 C. Pictorial or Graphic Works**

Pictorial and graphic works are defined as 'two-dimensional and three-dimensional works of fine, graphic, and applied art, photographs, prints and art reproductions, maps, globes, charts, technical drawings, diagrams, and models.' [FN127] An author may copyright his graphics [FN128] as 'pictorial and graphic' works which constitute one of the protected subject matter categories enumerated in § 102 of the Act. [FN129]

In *John H. Harland Co. v. Clarke Checks, Inc.*, the Eleventh Circuit Court of Appeals held that an author may copyright the artistic background design on a check even though the author cannot copyright the form of the check. [FN130] The Seventh Circuit Court of Appeals observed that a creator could not copyright a game, but the creator could seek protection for 'the pattern or design of the game boards and playing cards as pictorial or graphic works.' [FN131]

The look and feel of software may also fall within the category of pictorial or graphic works. For example a court might extend protection to the individual windows, icons, and menu bars as graphics in the Apple/DRI conflict. [FN132] Section 101 of the Act, however, contains the following caveat:

[Pictorial and graphic works] shall include works of artistic craftsmanship insofar as their form but not their mechanical or utilitarian aspects are concerned; the design of a useful article . . . shall be considered a pictorial or graphic, or sculptural work only if, and to the extent that such design incorporates pictorial, graphic, or sculptural features that can be identified separately from, and are capable of existing independently of, the utilitarian aspects of the article. [FN133]

***435** This same section defines a useful article as 'an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or convey information.' [FN134]

If a court stringently applied this caveat, the graphics of a program may not be capable of copyright protection. In general, 'if an article has any utilitarian function, it can be denied copyright protection except to the extent that its artistic features can be identified separately and are capable of existing independently as a work of art.' [FN135] Within the context of computer software, the aesthetic qualities of the windows, icons, and menu bars are inseparable from their utilitarian functions. For instance, a change in the graphics of an icon indicates the active or inactive status of the icon.

In *Broderbund*, by contrast, the district court found that artistic and aesthetic considerations, not utilitarian or mechanical ones, dictated the structure, sequence, and layout of the audiovisual displays in the plaintiff's protected program. [FN136] Since the imitator in *Broderbund* had a wide range of expressions to choose from, the choice was 'governed predominantly by artistic and not utilitarian considerations.' [FN137] In other words, those elements of a program's look and feel which are utilitarian are more likely to be expressible in only a limited number of ways, and hence unprotectable. Thus, the *Broderbund* conclusion complements the plurality of expressions analysis. [FN138] A potential rebuttal to the utilitarian/aesthetic dichotomy rests upon the assertion that the utilitarian aspects reside within the computer program and the hardware, while the aesthetic appeal rests in the graphics displayed on the screen. [FN139] This distinction is too simplistic for modern, sophisticated software. In a user interface, for instance, the graphics are intrinsic to the program's usefulness because they replace the utilitarian typed commands that direct traditional disk operating systems, thus liberating the user from memorizing tedious commands. [FN140] Thus, the utilitarian purpose of certain elements of the program's graphics will foreclose copyright protection.

***436 D. Audiovisual Works**

The most promising subject matter category for the look and feel of software is 'audiovisual works.' [FN141] Section 101 defines audiovisual works as 'works that consist of a series of related images which are intrinsically

intended to be shown by the use of machines.' [FN142] This section, and the cases involving video games, provide a framework for analyzing look and feel. However, even if look and feel properly fits within the audiovisual works category, [FN143] the distinction between idea and expression still determines which components are ultimately protected.

Although there are problems with the analogy to video games, these problems can be overcome. The audiovisual display analysis of the video game cases constitute a legal foundation on which to rest the partial protection of look and feel. [FN144]

Copyright law now protects the audiovisual display of video games. [FN145] Before arriving at this result, the leading video game case *437 examined three arguments against protection: (1) that the ephemeral images of the video games failed to satisfy the requirement of section 102(a) that the work is 'fixed in any tangible medium of expression;' (2) that the creative participation of individual players gave each game the character of an original audiovisual work substantially different from the original display embedded on the game's circuit boards, and therefore, the images could not be copyrighted by plaintiff; and (3) that player interaction with the game prevented the formation of 'a series of related images' as required by § 101's definition of audiovisual work. [FN146] The Second Circuit ultimately rejected these arguments, primarily because a 'substantial portion' of the sights and sounds of the game were repetitive. [FN147] The repetitive nature of video games supports the conclusion that the computer program is fixed in a tangible medium, [FN148] that each game is not wholly dependent on the creative participation of the user, and that the game consists of a series of related images. Thus, video games are protectable as audiovisual works and, by analogy, one could argue that the visual aspects of computer software are also protectable.

However, one might criticize the analogy to video games because a software user typically expends a great amount of creative energy when using application and operating programs. In contrast, video games usually involve a repetitious format with little more than a reactionary response from the user. [FN149] The user also has much less control over the sequence of the audiovisual images in video games, [FN150] than in application programs. [FN151]

*438 These criticisms are not entirely persuasive. While look and feel is less repetitive than the audiovisual images of video games, the images constituting look and feel recurrently appear and are arguably fixed in the display monitor. In fact, the court in *Broderbund* chose to protect software as an audiovisual display without even addressing these criticisms. [FN152]

Unfortunately, categorizing look and feel as an audiovisual work does not resolve the problem of distinguishing idea from expression. The analysis used to separate ideas from expressions in video games provides little guidance for making this distinction with look and feel. In the area of video games software courts invoke the traditional rule that while the rules of a game are ideas that are not copyrightable, the design of the game board or playing cards are copyrightable as artistic works. [FN153] According to this rule, the shapes, colors, arrangement, size, and sequence of the images, as well as the sounds are copyrightable, while the idea of a maze chase game or a spaceship firing on aliens is not. [FN154]

Such an approach proves little help in the context of operating systems and application software, such as *FINDER* or *MacWrite*. Since these programs are not games, they cannot benefit from the traditional precedent that distinguishes between the rules of a game and the artistic expression contained in the game's physical

components.

Moreover, the shapes, colors, arrangement, size, and sequence of the images, as well as the sounds, are more subordinate to the utilitarian functions and processes in application programs than in video games. That is, the creator of a video game has significant discretion in choosing the colors, shapes, and sounds of a video game, whereas a word processor's colors and shapes are more or less dictated by the program's function--word processing. This difference is perceptible in several elements of the look and feel involved in the Apple/DRI dispute including the commands, the use of inverse video to indicate activated icons, and the icon animation sequences. [FN155] By contrast, the distinction between idea and expression in video games is not overly complex. (The *439 audiovisual display is almost pure expression.) As a result, the analysis used in the video game cases is not helpful in a look and feel dispute such as the Apple/DRI dispute, where the utilitarian and interactive aspects of the work blur the distinction between idea and expression.

Even if a particular program's look and feel is held to be copyrightable, an issue still remains: what is the scope of protection the author enjoys in relation to subsequent infringement?

IV. INFRINGEMENT

In order to maintain an infringement claim, the plaintiff must prove ownership of a valid copyright and copying by the defendant. [FN156] Since it is often impossible to obtain direct evidence of copying, [FN157] a court may infer copying where: (1) the defendant had 'access' to the copyrighted work; and (2) the allegedly infringing work is 'substantially similar' to the copyrighted work. [FN158]

A. Access

Proving access is easy [FN159] because the plaintiff need only prove that the defendant had a reasonable opportunity to view the original work. [FN160] In the domain of literary works, publication is usually sufficient to establish access. [FN161] This standard is also applied to software. In *Midway Mfg. Co. v. Bandai-America, Inc.*, [FN162] the court held that the defendant's awareness of the existence of a widely distributed *440 copyrighted video game constituted proof of access to that game. [FN163] Applying this rule to the Apple/DRI dispute, a court would conclude that DRI had access to the distributed Macintosh software. Every user of a program, by definition, has access to the program's look and feel. [FN164] Thus, access is of minimal importance in look and feel infringement cases.

B. Substantial Similarity

Once the plaintiff establishes access, the plaintiff must then prove that there is 'substantial similarity' between the two programs. [FN165] Most of the difficulties in this area arise because this inquiry confronts the troublesome idea/expression issue. [FN166] As Professor Melville Nimmer explains, the distinction between idea and expression 'constitutes not so much a limitation on the copyrightability of works, as . . . a measure of the degree of similarity which must exist as between a copyrightable work and an unauthorized copy, in order to constitute the latter an infringement.' [FN167] As a result, there is no method to determine the substantial similarity of two programs' look and feel without first undertaking an idea/expression analysis.

1. The 'Audience' Test

Proponents of extending blanket copyright protection to the look and feel of software base substantial similarity on the two programs' overall design, presentation, output, and user interface, otherwise referred to as their total look and feel. [FN168] In other words, such proponents use the term 'look and feel' to describe an approach for determining infringement. [FN169]

***441** They usually rely on two Ninth Circuit cases as support. [FN170] In *Roth Greeting Cards v. United Card Co.*, [FN171] the plaintiff alleged that the defendant had copied his greeting cards. [FN172] The Ninth Circuit agreed, holding that even though the wording of the plaintiff's cards was in the public domain, 'proper analysis required that all elements of each card, including text, arrangement of text, art work, and association between art-work and text, be considered as a whole.' [FN173] Applying this approach, the court found that 'in total concept and feel' the defendant's cards were the same as the plaintiff's. [FN174] The Ninth Circuit later cited with approval the Roth analysis in *Sid & Marty Krofft Television Products, v. McDonald's Corp.*, [FN175] in which the court held that the defendant had infringed on the plaintiff's television show character. [FN176]

This 'total look and feel' language merely reformulates the 'audience' test found in the 1886 case of *Daly v. Palmer*. [FN177] According to the audience approach, the two works should be compared globally to test for substantial similarity.

[T]he question really involved in such comparison is to ascertain the effect of the alleged [infringing work] upon the public, that is, upon the average reasonable man . . . If there had been literary piracy of the story, [the reasonable man] should detect that fact without any aid or suggestion or critical analysis by others. The reaction of the public to the matter should be spontaneous and immediate. [FN178]

Likewise in *Arnstein v. Porter*, the court explained that 'the test is the response of the ordinary lay [person]; accordingly . . . 'dissection' ***442** and expert testimony are irrelevant [to the determination of substantial similarity].' [FN179]

2. Rejecting the 'Audience' Test

The audience test incorrectly determines the degree of substantial similarity between two works. Not only is the test of dubious origin, [FN180] but it suffers from three critical weaknesses. First, the audience test misunderstands the Copyright Act's purpose which is to protect an author from the theft of his work, not from the 'public's 'spontaneous and immediate' impression that the fruits of her labor has been stolen.' [FN181] Second, courts have difficulty applying a test that replaces doctrinal legal analysis with subjective first impressions. In the video game case of *Midway Manufacturing Co. v. Bandai-America, Inc.* [FN182] the court, while purporting to be 'spontaneous,' nevertheless engaged in a detailed comparison of the works at issue. [FN183]

These failings are venial in comparison to the audience test's main flaw: it fails to systematically address the crucial distinction between ideas and expressions. Roth and Arnstein both fail to deal with this issue in a systematic fashion because the lay person's global first impressions inherently fail to separate the uncopyrightable ideas from the protected expressions. Such an omission fails to vindicate the fundamental policies underlying the Act and dooms the audience test as an analytical tool. [FN184]

Furthermore, a court would face nearly insurmountable difficulties reconciling the idea/expression analysis with

the audience test. In *443 Midway Manufacturing Co., for instance, the court buried its examination of the idea/expression question in the middle of its comparison of the programs under the audience test. [FN185] Krofft exhibits similar 'mashed potatoes reasoning.' [FN186] Such confusion is a consequence of the impossibility of distinguishing between ideas and expressions without submitting the work to some form of analytical dissection. [FN187] Thus, determining substantial similarity based upon the total look and feel of two programs fails to address the central issue of the Act.

Conceptually, a substantial similarity test based upon look and feel fundamentally conflicts with any effort to distinguish idea from expression. Look and feel implicitly assumes a macroscopic or Gestalt view of the protected work. [FN188] In contrast, the Act requires a microscopic, analytical method of separating ideas from expressions. [FN189] Ultimately, infringement based upon look and feel as a global concept is not useful and is potentially misleading in the realm of complex computer programs.

3. The Atari v. North American Approach

The audience test is more appropriate, however, when used in a limited fashion in conjunction with a more thorough idea/expression analysis. In *Atari v. North American Philips Consumer Electronics Corp.*, [FN190] in which the defendant's video game, 'K. C. Munchkin,' allegedly infringed the plaintiff's 'PAC-MAN,' the Seventh Circuit restricted its comparison of substantial similarity to those elements of the work that are properly protected by copyright, i.e., the expressions. [FN191] In a first step, the *Atari v. North American* court 'dissected' the work, carefully distinguishing the ideas from the expressions. [FN192] While the idea of *444 a maze chase game was not copyrightable, the court did extend protection to the sizes, shapes, colors, and sequences of the images as well as the sounds as expressions. [FN193] In a second step, the court compared the expressive elements of the two games at issue and determined that these elements were substantially similar. [FN194] Although the court essentially disregarded the audience test, [FN195] the court did use it as a means of dismissing the defendant's laundry list of minor differences between the two games. [FN196] Restricted to this subordinate role, the audience test serves the useful function of preventing the plagiarist from avoiding liability by inserting minimal variations from the original work. [FN197]

The *Atari v. North American* doctrine has the advantage of placing the issues in their proper sequence: first, the idea/expression analysis; second, a judgment as to substantial similarity. [FN198] When a court performs the substantial similarity analysis first, it is incapable of determining in retrospect whether the adjudged similarity was based on similar ideas or similar expressions. The *Atari* doctrine allows a court to compare only the protectable expression in the two works for similarity. Thus, courts confronting look and feel cases should initially distill the ideas from expressions and then determine the extent of similarity between the works.

CONCLUSION

The Copyright Act seeks to infuse the arts and sciences with creative vigor by providing a solid incentive for publication of new works and by maintaining competition through a free zone of discourse. *445 The tension between these two efforts mandates that the Act distinguish between ideas and expressions so that only expressions receive copyright protection. This policy directs a court to treat the look and feel of computer software as an unprotectable concept because look and feel merges ideas and expressions. This Comment concludes that courts should dissect look and feel into its component parts and identify which element deserve copyright protection.

Drawing a line between ideas and expressions remains a delicate exercise, especially with respect to the amorphous notions that characterize the look and feel of a program. Of all the methods for separating ideas and their expressions, the plurality of expressions test most appropriately balances the interests within the computer industry by providing an incentive for developing new software without overly restricting subsequent creativity.

Much of this Comment's preceding analysis devotes itself to the technical meandering of the Copyright Act in a search for a proper analogy to a currently protected category of works of authorship. Unfortunately software simply does not fit within the Act's basic framework. The limitations of the old concepts fail to reconcile the competing commercial and scientific interests of a modern industry. [FN199] When innovation forces new issues to the forefront--issues that arise beyond the narrow wording of the amendments specifically designed for software--the Act's basic concepts provide little concrete guidance. [FN200]

The courts must confront the challenging issues posed by rapid technological change. Before undertaking complex legal reasoning, however, they must make a concerted effort to understand the technology and the implications of their rulings. Fortunately, when armed with the plurality of expressions test, the courts can pursue the policies of the Copyright Act by protecting only those elements of look and feel that constitute an expression and not an idea.

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[FN1]. 'Look and feel' describes the manner in which the software interacts with the user. See *infra* notes 26-31 and accompanying text; see generally Siegel & Derwin, Copyright Infringement of the 'Look and Feel' of an Operating System by its Own Applications Programs, 4 *COMPUTER LAW.*, Jan. 1987, at 1. This article addresses the question of whether a program's 'look and feel' can receive copyright protection, not patent protection. See Sumner, The Versatility of Software Patent Protection: From Subroutines to Look and Feel, 3 *COMPUTER LAW.*, June 1986, at 4-5. Sumner argues that, '[A] patent can protect the 'look and feel' of software where the features sought to be protected are functional.' *Id.* at 4. See also Note, Defining the Scope of Copyright Protection for Computer Software, 38 *STAN. L. REV.* 497, 503-04 (1986).

[FN2]. 17 U.S.C. § 101 (Supp. 1986). See 1 M. NIMMER, *NIMMER ON COPYRIGHT* § 2.04[C], at 2-44 (1986).

[FN3]. 714 F.2d 1240, 1249 (3d Cir. 1983), cert. dismissed, 464 U.S. 103 (1984). Accord *Stern Elecs. v. Kaufman*, 669 F.2d 852 (2d Cir. 1982).

[FN4]. Application programs direct the computer to perform specific data processing activities required for the solution of business, scientific, and other problems faced by computer users. Examples include word processing, spreadsheets, and data base creation. In contrast, operating programs control the execution of computer programs and provide scheduling, debugging, input/output control, accounting compilation, storage assignment, data

management, and related services. Examples include MS DOS, UNIX, and FINDER.

[FN5]. Source code is a set of computer instructions written in a language (e.g. BASIC, COBOL or PASCAL) that is input to a translation process. In contrast, object code is a set of compiled or assembled machine instructions that can be directly executed by the computer.

[FN6]. Programming code is often stored in Read-Only Memory (ROM) which is a basic type of semiconductor memory used for permanent storage.

[FN7]. On the other end of the technological spectrum is the issue of the protectability of microcode. District Judge William Ingram has ruled in a currently pending case that microcode is a protectable software program. The infringement portion of the case has not yet been decided. *NEC Corp. v. Intel Corp.*, No. 84-20799 WAI (N. D. Cal. Sept. 22, 1986) (plaintiff's motion to reopen issue of infringement granted). See Laurie & Everett, *The Copyrightability of Microcode: Is It Software or Hardware or Both?*, 2 *COMPUTER LAW.*, Mar. 1985, at 1.

[FN8]. The 'look and feel' of a computer program often involves much more creativity and greater commercial value than the program code which implements the product. Russo & Derwin, *Copyright in the 'Look and Feel' of Computer Software*, 2 *COMPUTER LAW.*, Feb. 1985, at 1.

In producing a product that does not have any connection with the actual code of the popular program but has similar appearance, identical command sets, and perhaps improved features for a more reasonable price, the competition can often capture a large portion of the market that would otherwise belong to the first company by default.

Davis, *'Look and Feel' Isn't Everything in This Case*, *BYTE*, July 1986, at 24 (letter to the editor).

[FN9]. 'Computer and copyright lawyers at the Protecting and Marketing Computer Software and Semiconductor Chips in the Pacific Rim Conference agreed that [look and feel] will be the primary component that manufacturers will wish to protect--overshadowing even computer code.' Ranney, *'Look and Feel' Discussed as Major Copyright Issue*, *INFOWORLD*, Nov. 11, 1985, at 13. See also Mace, *Some Firms Drop Copyright Protection*, *INFOWORLD*, Sept. 30, 1985, at 16.

[FN10]. Note, *supra* note 1, at 502.

[FN11]. 797 F.2d 1222 (3d Cir. 1986), cert. denied, 55 U.S.L.W. 3473, No. 86-675 (Jan. 12, 1987).

[FN12]. 797 F.2d at 1248. See *Copyright Protection Extends to 'Structure, Sequence and Organization' of Computer Program*, 3 *COMPUTER LAW.*, Sept. 1986, at 23-4.

[FN13]. No. C-85-3457 WHO (N.D. Cal. Oct. 8, 1986), appeal docketed, No. 221 (9th Cir. Dec. 30, 1986) [hereinafter *Broderbund*]. See *Plains Cotton Cooperative Assoc. v. Goodpasture Computer Service, Inc.*, No. 86-1126 (5th Cir. Jan. 21, 1987) (LEXIS, Genfed library, Fedcir file). In *Plains Cotton*, the court of appeals affirmed the denial of a preliminary injunction concerning two similar software packages that provide information regarding cotton prices, availability, and accounting functions. The court did not 'accept the contention that the

District Court ignored the evidence of organizational copying and focused exclusively on evidence of direct copying.' Id. Furthermore, the court 'decline[d] to embrace Whelan' stating that 'market factors play a significant role in determining the sequence and organization of cotton marketing software and we decline to hold that those patterns cannot constitute 'ideas' in a computer context.' Id.

[FN14]. Broderbund, *supra* note 13, at 2.

[FN15]. Id. at 20.

[FN16]. Appeal docketed, No. 221 (9th Cir. Dec. 30, 1986). See Calbreath, Key Decision on Software Law, *The Recorder*, Oct. 14, 1986, at 4.

[FN17]. *Cadam, Inc. v. Adage, Inc.*, No. C-86-2146-T (D. Ma. July 21, 1986) (software vendor claims that look and feel of its software is its distinguishing feature and ought to be protected) (transferred from Northern District of California to Judge Tauro in the U.S. District Court in Boston); *Lotus Development Corp. v. Mosaic Software*, No. 87-0074-k, and *Lotus Development Corp. v. Paperback Software*, No. 87-0076-k (D. Ma. Jan. 12, 1987) (suits charge defendants with deliberately recreating the interface and look and feel of Lotus' 1-2-3 program); *Manufacturers Technologies, Inc. v. CAMS, Inc.*, No. N-85-253 TFGD (D. Conn. June 7, 1985) (dispute concerns whether defendant's Quickcost and Rapidcost programs infringe on the copyright of plaintiff's Costimator program) (preliminary injunction denied, but numerous motions pending before trial); *Microstuf, Inc. v. Softklone Distrib. Corp.*, No. C-86-128A (N.D. Ga. Jan. 27, 1986) (alleges that Softklone's Mirror communication program too closely duplicates the appearance and operation of Microstuf's Crosstalk XVI program); *Plains Cotton Cooperative Assoc. v. Goodpasture Computer Service, Inc.*, No. 86-1126, slip op. (5th Cir. Jan. 21, 1987) (denial of preliminary injunction affirmed on appeal). See generally Davis, Special Problems In 'Look and Feel' Copyright Cases, in *COMPUTER LAW INSTITUTE* 1986, 741 (1986).

[FN18]. See R. NIMMER, *THE LAW OF COMPUTER TECHNOLOGY* p 1.02[3], at 1-5 (1985); *Apple Computer v. Franklin Computer Corp.*, 714 F.2d at 1252-53.

[FN19]. 17 U.S.C. § 101 (Supp. 1986); M. NIMMER, *supra* note 2, § 2.04[C], at 2-43 to -44.1.

[FN20]. 17 U.S.C. § 101 (Supp. 1986).

[FN21]. See *infra* notes 110-21 and accompanying text. A precise determination of the scope of the literary works category is crucial because an imitator can copy a program's design, presentation, and output without copying the underlying code. For the converse situation where a court held that, despite dissimilarity in output, similarity in object code constituted infringement, see *Midway Mfg. Co. v. Strohon*, 564 F. Supp. 741 (N.D. Ill. 1983).

[FN22]. 17 U.S.C. § 102(1) (1982); commands are protected under the 'literary works' category.

[FN23]. 17 U.S.C. § 105(5) (1982).

[FN24]. 17 U.S.C. § 102(6) (1982).

[FN25]. R. NIMMER, *supra* note 18, p 1.06, at 1-42.

[FN26]. E.g., Davis, *supra* note 17, at 741.

[FN27]. Broderbund, *supra* note 13 at 20. Although the opinion is unclear, the court presumably equated the 'total concept and feel' with 'the overall appearance, structure, and sequence of the audiovisual displays.' *Id.* at 2.

[FN28]. E.g., Russo & Derwin, *supra* note 8, at 1.

[FN29]. E.g., 5 COMPUTER L. REP. 55 (1986) (although one court found inadequate evidence of infringement, it apparently adopted the 'look and feel' approach to determining substantial similarity).

[FN30]. Russo & Derwin, *supra* note 8, at 1.

[FN31]. This Comment argues that using look and feel as an approach to determining the substantial similarity between two programs merely reformulates the 'audience test' and fails to address the concerns of the Copyright Act. See *infra* note 168 and accompanying text.

[FN32]. Davidson, The Blackbox Approach to Software Copyright Infringement, 3 COMPUTER LAW., Mar. 1986, at 25, 28; Foster & Ranney, Apple Forces GEM Change, INFOWORLD, Oct. 7, 1985, at 1; Note, *supra* note 1, at 524 n.132.

[FN33]. See *supra* note 4 for an explanation of operating and application programs.

[FN34]. D. CLAPP, MACINTOSH COMPLETE! 12 (1984).

[FN35]. Thompson, Bringing the Macintosh to the PC, INFOWORLD, June 10, 1985, at 43; Warfield, The New Interface Technology: An Introduction to Windows and Mice, BYTE, Dec. 1983, at 218, 220; White, The Desktop Metaphor, BYTE, Dec. 1983, at 220 (a revolution is occurring in computing based on techniques for controlling computers by pointing to video symbols instead of typing commands on keyboards).

[FN36]. See generally D. CLAPP, *supra* note 34, at 19-68.

[FN37]. Tim Turnpaugh, Senior Vice President of Technology Services at Seattle First National Bank, commented that 'the difference in learning to use the Mac[intosh] compared to learning an MS-DOS machine is about 8-to-1 in the Mac's favor.' LaPlante, Apple Offers Alternative to MS-DOS Machines, INFOWORLD, Oct. 13, 1986, at 15.

[FN38]. According to a recent report by the research firm of Frost and Sullivan, by the end of the decade the Macintosh will be firmly entrenched as a second standard to the IBM personal computer with \$1.3 billion in software sales annually. MICRO MARKETWORLD, Apr. 28, 1986, at 33.

[FN39]. These programs are MacDraw, MacPaint, and MacWrite, respectively.

[FN40]. An indication of GEM's planned similarity to the Macintosh software is the fact that the names of the DRI programs are GEM Desktop, GEM Graph, GEM Paint, and GEM Write. GEM has great strategic importance to DRI, whose performance has been poor over the past two years. Foster, A 'Roller Coaster' Year for Former Front-Runner DRI, INFO WORLD, Sept. 9, 1985, at 35.

[FN41]. Digital Research Inc., GEM Desktop Sales Brochure (1985).

[FN42]. E.g., Thompson, *supra* note 35, at 43.

[FN43]. *Id.* Thompson concluded his review by noting that 'imitation is the sincerest form of flattery.' *Id.* at 45.

[FN44]. See generally Foster & Ranney, *supra* note 32, at 1.

[FN45]. 4 COMPUTER L. REP. 338 (1985).

[FN46]. *Id.*

[FN47]. Forbes, DRI Says New GEM Meets Apple's Terms, INFO WORLD, Nov. 11, 1985, at 1, 8.

[FN48]. Intellectual property law is based on the Constitutional mandate to: 'Promote the Progress of Science and the Useful Arts by securing for limited times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.' U.S. CONST. art. I, § 8, cl. 8. This mandate is difficult to fulfill since a delicate balance must be maintained between two antagonistic policy goals: encouraging creation by awarding some form of proprietary right; and maximizing the free flow of new ideas and inventions. The Patent and Copyright Acts form the two pillars upon which Congress has decided to rest this policy balance. Under this scheme an inventor must fulfill the relatively stricter requirements embodied in the Patent Act in order to receive a proprietary interest in an idea or process because the grant of even a limited monopoly over a process interferes with the free flow of ideas. Protection of the expression of the idea poses a lesser threat to the dissemination of ideas and will therefore receive protection if the relatively lenient conditions of the Copyright Act are fulfilled. Hence, it is crucial to distinguish between the expression of an idea which receives copyright protection, and the idea itself which cannot receive protection under the Copyright Act. See 1 M. NIMMER, *supra* note 2, § 1.03[A], at 1-31 to -32.2.

[FN49]. In the Broderbund-Unison dispute, Unison has also charged Broderbund in another suit with attempting to restrain trade. According to David Schachter, an attorney for Unison, '[w]e were arguing that their copyright cannot protect the appearance of the screen, because to do that gives them a virtual monopoly.' Clark, Software's 'Look' Ruled Copyrightable, San Francisco Chron., Oct. 14, 1986, at 27, col. 5.

[FN50]. See Hemnes, The Adaptation of Copyright Law to Video Games, 131 U. PA. L. REV. 171, 210-12 (1982); Reback & Siegal, Toward a Computer Test for Software Infringement, 1 COMPUTER LAW., Dec. 1984, at 5.

[FN51]. 797 F.2d 1222, 1235 (3d Cir. 1986), cert. denied, 55 U.S.L.W. 3473, No. 86-675 (Jan. 12, 1987).

[FN52]. 17 U.S.C. § 102 (1982). See *Mazer v. Stein*, 347 U.S. 201, 217 (1954). This restriction prevents an overlap with the Patent Act which was enacted to address these matters. 35 U.S.C. § 101 (1982); see R. NIMMER, *supra* note 18 p 2.01, at 2-2.

[FN53]. R. NIMMER, *supra* note 18, p 1.02[3], at 1-5; Note, *supra* note 1, at 498.

[FN54]. *Sid & Marty Krofft Television Products v. McDonald's Corp.*, 562 F.2d 1157, 1163 n.6 (9th Cir. 1977).

[FN55]. *Id.*

[FN56]. R. NIMMER, *supra* note 18, p. 1.06, at 1-43.

[FN57]. See *Krofft*, 562 F.2d at 1163; *Warner Bros. v. American Broadcasting Co.*, 720 F.2d 231, 240 (2d Cir. 1983). See also R. NIMMER, *supra* note 18, p. 1.06, at 1-43 (author argues for explicit policy balancing).

[FN58]. See, e.g., *Krofft*, 562 F.2d at 1163.

[FN59]. *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930).

[FN60]. See 3 M. NIMMER, *supra* note 2, § 13.03[A], at 13-29 to -30.

[FN61]. The majority rule is that a 'plot' so defined is copyrightable. *Id.*, § 13.03[A], at 13-29. See also Chafee, *Reflections on the Law of Copyright: I*, 45 COLUM. L. REV. 503, 514 (1945).

[FN62]. 3 M. NIMMER, *supra* note 2, § 13.03[A], at 13-25 to -26.

[FN63]. See *supra* note 2-3 and accompanying text.

[FN64]. See *supra* note 52 and accompanying text.

[FN65]. *Krofft*, 562 F.2d at 1163.

[FN66]. 3 M. NIMMER, *supra* note 2, § 13.03[A], at 13-20.1.

[FN67]. *Nichols v. Universal*, 45 F.2d at 121.

[FN68]. *Peter Pan Fabrics, Inc. v. Martin Weiner Corp.*, 274 F.2d 487, 489 (2d Cir. 1960). See *Atari v. North American Philips Consumer Elecs. Corp.*, 672 F.2d 607, 615 (7th Cir.), cert. denied, 459 U.S. 880 (1982); *Reback & Siegal*, *supra* note 50, at 4-5 (test is subjective).

[FN69]. R. NIMMER, *supra* note 18, p 1.03, at 1-10.

[FN70]. Atari v. North American, 672 F.2d at 619; Universal Pictures Co. v. Harold Lloyd Corp., 162 F.2d 354, 361 (9th Cir. 1947).

[FN71]. R. NIMMER, supra note 18, p 1.07, at 1-49.

[FN72]. For example, Leon Williams, president and chief executive officer of Micropro International Corporation stated in reference to the Broderbund decision, '[p]eople who are blazing new trails in software need this kind of protection. A lot of people are spending a lot of money and time to develop advanced software.' Court backs 'Look & Feel' Copyright, INFOWORLD, Oct. 20, 1986, at 1, 8. See supra note 9 and accompanying text. Meanwhile, opponents of copyright protection for look and feel argue that protection 'could curtail development of software built on the features of existing products.' LaPlante, Suits Trigger Debate Over Ramifications, INFOWORLD, Jan. 19, 1987, at 1.

[FN73]. 'The decision should and will turn even more explicitly on a balance that involves issues of commercial utility and market access with which copyright has not commonly dealt.' R. NIMMER, supra note 18, § 1.08[1], at 1- 54.

[FN74]. Affiliated Enter., Inc. v. Gruber, 86 F.2d 958, 961 (1st Cir. 1936).

[FN75]. See supra text accompanying note 38.

[FN76]. See supra notes 34-35 and accompanying text.

[FN77]. '[These lawsuits] probably will have somewhat of a dampening effect on competition because it will mean that companies won't find it quite so easy to come out with a competing product' Warner & LaPlante, Lotus Considers Action Against Clone Makers, INFOWORLD, Nov. 11, 1986, at 1, 8 (quoting Richard Bernacchi, a computer law specialist in the Los Angeles law firm of Irell & Manella).

[FN78]. The FINDER's animation sequence is based on the concept of an office. The disk is like a file cabinet. Typically, when the disk is opened on the desktop, several file folders appear. When the file folders are opened, either more subfile folders or the documents contained within the folders appear.

[FN79]. Russo & Derwin, supra note 8, at 6, quoting Norton Painting Co. v. Augustana Hospital, 155 U.S.P.Q. (BNA) 133, 135 (N.D. Ill. 1967). The copyrightability of literary plots might provide a useful analogy for an argument in support of protection. 3 M. NIMMER, supra note 2, § 13.03[A], at 13-29.

[FN80].

[I]f order and sequence is the expression, the skilled effort is not separable, for the form, arrangement and combination is itself the intellectual conception involved. . . . This is because in the usual case sequence, choice, and arrangement have only stylistic significance, rather than constituting as they would here, the essence of the expression.

Synercom Tech., Inc. v. U. Computing Co., 462 F. Supp. 1003, 1014 (N.D. Tex. 1978) (paper input formats not

copyrightable).

[FN81]. 'Many software designers try to make their menus look like those in other programs to make it simpler for users to move between different programs. If they can't apply consistency, software developers worry that they will have to design needlessly complex screens and instructions just to avoid other companies' copyrights.' Bulkeley, *Courts Expand the Copyright Protection of Software, but Many Questions Remain*, *Wall St. J.*, Nov. 18, 1986, at 37, col. 4.

[FN82]. Ranney, *supra* note 9, at 13. 'These user-friendly interfaces are important mostly for people who want an automatic entry into new programs. If each user interface is different from each other, not much is accomplished. If, on the other hand, there are similarities where they would be helpful and innovations when they are needed, users would be much better off.' Davis, *supra* note 8, at 388.

[FN83]. 797 F.2d 1222 (3d Cir. 1986); cert. denied, 55 U.S.L.W. 3473, No. 86-675 (Jan. 12, 1987).

[FN84]. Whelan does not limit copyright protection to the literal aspects of a computer program, but rather extends protection to 'the overall structure of a program, including its audiovisual display.' Broderbund, *supra* note 13, at 9.

[FN85]. 797 F.2d at 1228. On these facts the court created the following test for distinguishing idea from expression: 'the purpose or function of a utilitarian work would be the work's idea, and everything that is not necessary to that purpose or function would be part of the expression of that idea.' *Id.* at 1236. This test requires the court to make two difficult findings. First, the court must determine the purpose or function of a program. This analysis is somewhat circular because how the court chooses to define a program's purpose will dictate the scope of protection. For instance, the Whelan court stated that 'the purpose of the [protected] program was to aid in the business operations of a dental laboratory.' *Id.* at 1238. Alternatively the court could have described the purpose as providing order entry, invoicing, accounts receivable, end of day procedure, and end of month procedure for a dental prosthetic laboratory. This definition limits the program's idea and hence narrows the extent of copyright protection. Second, this test requires the court to determine if certain elements are 'necessary' for the program's purpose. This factually difficult determination involves substantial judicial discretion. It is doubtful that an approach based on such subjective findings would lead to consistent results.

[FN86]. *Id.* at 1239 (quoting *Whelan Assocs. v. Jaslow Dental Labs.*, 609 F. Supp. 1307, 1320, 225 U.S.P.Q. (BNA) 156, 165 (E.D. Pa. 1985)).

[FN87]. 'By analogy to other literary works, it would thus appear that the copyrights of computer programs can be infringed even absent copying of the literal elements of the program.' 797 F.2d at 1234.

[FN88]. Apart from the idea/expression issue, Whelan can be distinguished from look and feel cases on another basis. In Whelan, the issue was whether the defendants violated the copyright by translating the source code. This issue is not pertinent in look and feel cases because look and feel can be reproduced without access or copying the source code. See Davis, *supra* note 8, at 24 (letter to the editor).

[FN89]. Davis, *Computer Software--the Final Frontier: Clones, Compatibility and Copyright* (pt. 1), 2 *COMPUTER LAW.*, June 1985, at 3; Liebman, Katsch & Leitch, *Back to Basics: A Critique of the Emerging*

Judicial Analysis of the Outer Limits of Computer Program Expression, 2 COMPUTER LAW., Dec. 1985, at 4 [hereinafter Liebman]. But see Note, supra note 1, at 528 (author advocates a more restrictive reading of Whelan.) See *Plains Cotton Cooperative Assoc. v. Goodpasture Computer Service, Inc.*, No. 86-1126 (5th Cir. Jan. 21, 1987) (LEXIS, Genfed library, Fedcir file).

[FN90]. Davis, supra note 89, at 2; Liebman, supra note 89, at 4.

[FN91]. In describing the development of a computer program, the court noted the first task is to identify the problem the program seeks to solve. Whelan, 797 F.2d at 1229. The programmer may construct a flowchart composed of 'subroutines' or 'modules' each of which deals with elements of the larger problem. *Id.* at 1230. The structure of the subroutines and modules within a program is important because one internal arrangement may be more efficient than another. This definition of a program's structure--the program's particular subroutines or modules--would still be protected in a narrow reading of the Whelan holding.

[FN92]. A better approach which fulfills the purpose of the Copyright Act is to deny copyright protection unless the second creator actually copies the computer code or transposes the original code in another programming language. Accord Liebman, supra note 89, at 5. This more restrictive view obtains the result reached in Whelan without adhering to the overly inclusive language therein.

[FN93]. 714 F.2d 1240, 1253 (3d Cir. 1983), cert. dismissed, 464 U.S. 1033 (1984). See generally, 1 M. NIMMER, supra note 2, § 2.18[J], at 2-220 to - 222.

[FN94]. *Apple v. Franklin*, 714 F.2d at 1253. See also Whelan, 797 F.2d at 1236 n.28, 1237; Davidson, supra note 32, at 26.

[FN95]. In *Broderbund* the defendant argued that idea and expression were indistinguishable in the plaintiff's program because there was 'no other conceivable way to structure such a program.' *Broderbund*, supra note 13, at 7. The court rejected this contention by pointing to the existence of another program with the same function or idea as the plaintiff's program, but with a different expression of that idea. 'Yet the expressions of those ideas are very different. The menu screen and sequence of screens in the two programs are different. The entire structure and organization of the user interfaces are different. In short, the existence of [another program] proves that there do exist other, quite different ways of expressing the ideas embodied in [the plaintiff's program].' *Id.* at 7-8. 'Because there are a variety of program structures through which [the idea or function of the protected program] can be expressed, the structure is not a necessary incident to that idea.' Whelan, 797 F.2d at 1240.

[FN96]. 'If there is only one way to express the idea, 'idea' and 'expression' merge and there is no copyrightable material.' *M. Kramer Mfg. Co. v. Andrews*, 783 F.2d 421, 436 (7th Cir. 1983); see *Morrissey v. Proctor & Gamble Co.*, 379 F.2d 675, 678 (1st Cir. 1967); *Herbert Rosenthal Jewelry*, 446 F.2d 738, 742 (9th Cir. 1971). See also Russo, supra note 8, at 7.

[FN97]. *Schwartz v. Universal*, 85 F. Supp. 270, 275 (S.D. Cal. 1945).

[FN98]. 3 M. NIMMER, supra note 2, § 13.03[A], at 13-32 to -33.

[FN99]. See *infra* note 104 and accompanying text.

[FN100]. See *infra* note 105 and accompanying text.

[FN101]. Whelan, 797 F.2d at 1237 (test would advance basic purpose underlying idea/expression distinction--preserving balance between competition and protecting expression). The test also reconciles the apparent anomaly that video game images are protected expressions. For example, there are an unlimited number of creatures which could be depicted running through a maze chase game. Therefore, the particular type of creature (e.g. a yellow circular PAC-MAN with a chomping mouth) could be protected while the idea of a maze chase game could not.

[FN102]. A copyright is the exclusive right held by the author or developer of an original work of authorship to make copies of such work and utilize them for commercial purposes. S. ELIAS, *INTELLECTUAL PROPERTY LAW DICTIONARY* 42 (1985).

[FN103]. Corporate counsel for Kyocera Unison stated that the ruling in *Broderbund* went too far in giving an unfair advantage to developers who bring their products to market first, locking out similar products which follow. Lach, *Court Backs 'Look and Feel' Copyright*, *INFOWORLD*, Oct. 20, 1986, at 1, 8. This 'locking out' is impossible, however, if expressions are only protected when they can be represented in a plurality of ways. See *supra* note 101 and accompanying text.

[FN104]. For example, a delete function could be expressed with a garbage bin, dump yard, eraser, sink, garbage truck, black hole, spittoon, bit bucket, or toilet. Still it is not clear that Apple should be the only company eligible to use a trash can icon. Perhaps as long as the competing trash can icon was not identical in appearance to the original, it would be deemed a different expression.

[FN105]. The limited means of indicating activated icons include: inverse video, darker borders, lighter borders, and blinking icons.

[FN106]. *Freeman v. Trade Register*, 173 F. 419 (W.D. Wash. 1909).

[FN107]. In addition to limiting protection to specified works of authorship, the operative language of § 102(a) also limits copyright protection to 'original works of authorship fixed in any tangible medium of expression.' This imposes three conditions on copyright protection: authorship, originality, and fixation in a tangible medium. Assuming the existence of authorship, originality is a *de minimis* requirement. It is well established that only a modicum of creativity suffices for a work to be protected. *Universal Athletic Sales Co. v. Salkeld*, 511 F.2d 904, 908 (3d Cir.), cert. denied, 423 U.S. 863 (1975). The fixation condition is discussed *infra* note 148 and accompanying text.

[FN108]. 17 U.S.C. § 102(a) (1982). The categories are: '(1) literary works; (2) musical works, including any accompanying words; (3) dramatic works, including any accompanying music; (4) pantomimes and choreographic works; (5) pictorial, graphic, and sculptural works; (6) motion pictures and other audiovisual works; and (7) sound recordings.'

[FN109]. 1 M. NIMMER, *supra* note 2, § 2.03[A], at 2-25 n.7.

[FN110]. See *id.*, § 2.04[B], at 2-40.

[FN111]. *Id.*

[FN112]. *Id.*, § 2.04[C], at 2-44.1.

[FN113]. Another analogy is to a book which contains musical compositions, maps, reproductions of a work of art, photographs, prints, and pictorial illustrations. If the works collected in book form have been published in a different form or medium, the copyright for the book merely protects the collection as such but will not extend to the length and scope of the individual works contained therein. See M. NIMMER, *NIMMER ON COPYRIGHT* § 13.2, at 53-54 (1971).

[FN114]. 17 U.S.C. § 101 (1982).

[FN115]. *Id.*

[FN116]. National Commission on New Technological Uses of Copyrighted Works, *Final Report 12* (1979) [hereinafter *CONTU Report*]. See Liebman, *supra* note 89, at 6.

[FN117]. *CONTU Report*, *supra* note 116, at 22-23. See Davis, *supra* note 89, at 6. *CONTU* never reached the issue of copyrightability of a program's output. Liebman, *supra* note 89, at 6.

[FN118]. '[I]t can be argued that a strict construction of *CONTU*'s recommended (and subsequently adopted) definition of a computer program-- limiting protection to machine executable statements or instructions--best accords with *CONTU*'s intent.' Liebman, *supra* note 89, at 6-7, arrives at this conclusion after a detailed analysis of the report.

But see, Whelan, 797 F.2d at 1241: '[t]he *CONTU Report* never suggests that copyright protection should be limited to the literal code. . . . [T]he second part [of the Report]--particularly the reference to the compatibility of flowcharts--demonstrates that the Commission intended copyright protection to extend beyond the literal code.' However, the fact that *CONTU* defined a flow chart as a 'graphic representation . . . for the solution of a problem' weakens this Whelan analysis of the report. This language suggests that *CONTU* intended a court to treat a flow chart version as a graphic work under § 102(a)(1), but not as a computer program/literary work. According to Professor Arthur Miller of Harvard Law School, a member of *CONTU*, '. . . flow charts and logic diagrams do not fit the definition of 'computer program' in § 101 and hence cannot qualify for protection as a literary work under § 102(a)(1).' Liebman, *supra* note 89, at 7-8. Similarly, look and feel is a particular representation of a program that does not fit the § 101 definition.

[FN119]. Davis, *supra* note 89, at 7-8.

[FN120]. But see Note, *supra* note 1, at 499, 533.

[FN121]. For instance, in the Apple/DRI dispute, DRI wrote its programming code based on the look and feel of Apple's programs but without copying Apple's literal program. Thus, the source code and object code of DRI's programs do not infringe the programming code of Apple's programs.

[FN122]. 17 U.S.C. § 101 (1982); see Russo & Derwin, *supra* note 8, at 8.

[FN123]. 37 C.F.R. § 202(a) (1985).

[FN124]. See the cases cited in 1 M. NIMMER, *supra* note 2, § 2.04[B], at 2- 41 n.15.1. See also Russo & Derwin, *supra* note 8, at 9.

[FN125]. WGN Continental Broadcasting Co. v. United Video, Inc., 693 F.2d 622, 628 (7th Cir. 1982).

[FN126]. Accord, Note, *supra* note 1, at 522.

[FN127]. 17 U.S.C. § 101 (1982).

[FN128]. See Russo & Derwin, *supra* note 8, at 6.

[FN129]. 17 U.S.C. § 102 (1982).

[FN130]. John H. Harland Co. v. Clarke Checks, Inc., 711 F.2d 966 (11th Cir. 1983).

[FN131]. Atari v. North American Philips Consumer Elecs. Corp., 672 F.2d 607, 615 (7th Cir.), cert. denied, 459 U.S. 880 (1982) (quoting 1 M. NIMMER, *supra* note 2, § 2.18[H][3], at 2-12).

[FN132]. Protecting individual elements of a program as graphics could be particularly important should a court deny protection for the whole look and feel as an audiovisual work. See *infra* text accompanying notes 141-55.

[FN133]. 17 U.S.C. § 101 (1982). See also Durham Industries, Inc. v. Tomy Corp., 630 F.2d 905, 913 (2d Cir. 1980). This case involved copyrights to two mechanically-operated children's games featuring Walt Disney characters. The court held that the counterclaimant failed to specify 'aesthetic elements' of the games that could be identified separately from and exist independently of the utilitarian aspects of the work. The shapes, dimensions, and configurations of the toys were dictated 'primarily by utilitarian considerations.' *Id.* at 915.

[FN134]. 17 U.S.C. § 101 (1982) (emphasis added).

[FN135]. Fabrica Inc. v. El Dorado Corp., 217 U.S.P.Q. (BNA) 698, 700 (9th Cir. 1983) (emphasis in original).

[FN136]. Broderbund, *supra* note 13, at 12.

[FN137]. *Id.*

[FN138]. See *supra* text accompanying notes 93-105 for a discussion of the plurality of expressions test.

[FN139]. 'In a video game, the audiovisual aspects of the game that appear on the screen are conceptually separable from its utilitarian aspects--a computer program and hardware.' *Williams Elecs., Inc. v. Bally Mfg. Corp.*, 568 F. Supp. 1274, 1281 n.15 (N.D. Ill. 1983).

[FN140]. See *supra* note 35 and accompanying text.

[FN141]. See *Russo & Derwin*, *supra* note 8, at 5. In *Broderbund*, the Court held that the defendant 'infringed the copyright of plaintiff Pixellite Software on the audiovisual displays of the computer program known as *The Print Shop*.' *Broderbund*, *supra* note 13, at 1.

[FN142]. 17 U.S.C. § 101 (1982).

[FN143]. An initial objection to the protection of look and feel as an audiovisual display is that a court could characterize the desktops and windows of *FINDER*, for example, as a series of blank forms. Ever since the Supreme Court case of *Baker v. Selden*, 101 U.S. 99 (1879) (denying copyright for a set of bookkeeping forms). See 1 *M. NIMMER*, *supra* note 2, § 2.18[B], at 2-199 n.21. See also *R. NIMMER*, *supra* note 18, § 1.03[4][a], at 1-19.

The Court in *Baker* based its holding on a distinction--copying for use verses copying for explanation--that was later explicitly rejected in *Mazer v. Stein*, 347 U.S. 201 (1954). For a vigorous critique of the *Baker v. Seldon* doctrine see 1 *M. NIMMER*, *supra* note 2, § 2.18[C], at 2-201 n.28.

Thus, the only limit to copyrighting forms should be a *de minimis* originality requirement. See *supra* note 107 and accompanying text. See also *Whelan*, 797 F.2d at 1243 (blank forms may be copyrighted if sufficiently innovative that their arrangement of information is itself informative); *Continental Casualty Co. v. Beardsley*, 253 F.2d 702, 704 (2d Cir.), cert. denied, 358 U.S. 816 (1958); 1 *M. NIMMER*, *supra* note 2, § 2-18[C], at 2-201 n.28. The generally cautious Copyright Office Regulations bar the copyright of blank forms that do not convey information. 37 C.F.R. § 202.1(c) (1985).

There is little doubt that a user interface such as *FINDER* or *GEM* conveys information if only by providing 'dialog messages' when the computer malfunctions or when the user commits an error. Thus, the restrictions which apply to forms should not ban copyrightability of complex programs that interact with the user. See *Russo & Derwin*, *supra* note 8, at 7. But see *R. NIMMER*, *supra* note 18, p 1.03[4][a], at 1-19 (output of a spreadsheet program not copyrightable because of insufficient originality).

[FN144]. See e.g., *Broderbund*, *supra* note 13, at 1; the court tried the case as an audiovisual copyright infringement claim.

[FN145]. *Atari v. Amusement World, Inc.*, 547 F. Supp. 222, 226 (D. Md. 1981) (video game copyrightable as video work and motion picture); *Atari v. North American*, 672 F.2d at 615; *M. Kramer Mfg. Co. v. Andrews*, 783 F.2d 421 (4th Cir. 1986); *Midway Mfg. Co. v. Artic Int'l, Inc.*, 704 F.2d 1009, 1010 (7th Cir.), cert. denied, 464 U.S. 823 (1983); *Midway Mfg. Co. v. Bandai-America, Inc.*, 546 F. Supp. 125, 139 (D. N.J. 1982); *Midway Mfg.*

Co. Dirkschneider, 543 F. Supp. 466, 479 (D. Neb. 1981), aff'd, 775 F.2d 70 (3d Cir. 1985), cert. denied, 106 S. Ct. 1265 (1986); Stern Elecs., Inc. v. Kaufman, 669 F.2d 852, 857 (2d Cir. 1982) (video game copyrightable as an audiovisual work). See also Hemnes, supra note 50, at 179-80, 182.

[FN146]. Stern Elecs., Inc. v. Kaufman, 669 F.2d at 855-57.

[FN147]. '[M]any aspects of the sights and the sequence of their appearance remain constant during each play of the game. . . . The repetitive sequence of a substantial portion of the sights and sounds of the game qualifies for copyright protection as an audiovisual work.' Id. at 856.

[FN148]. The court also argued that the display was fixed in the computer program. Id. See Kramer v. Andrews, 783 F.2d at 433.

[FN149]. Davis argues vigorously that the rule in the video game cases cannot be applied to applications software in Amici Curiae Brief filed in Broderbund and reprinted in 5 COMPUTER L. REP., July 1986, at 126. Professor Raymond Nimmer seems to agree, at least for spreadsheets. R. NIMMER, supra note 18, p 1.03[4], at 1-15 to -16.

[FN150]. The Seventh Circuit, in rejecting identical arguments as those made by the defendants in Stern, explicitly distinguished playing a video game from creative activities such as painting or writing, which is precisely the function of MacWrite and MacPaint. Midway Mfg. Co. v. Artic Int'l, Inc., 704 F.2d 1009, 1011-12 (7th Cir. 1983).

[FN151]. '[I]f the program merely provides tools to convey the user's expression, the program output is not copyrightable by the program author.' R. NIMMER, supra note 18, p 1.03[4][c], at 1-22.

[FN152]. Broderbund, supra note 13, at 1.

[FN153]. See, e.g., Atari v. North American, 672 F.2d at 615.

[FN154]. Id.; Kramer v. Andrews, 783 F.2d at 435.

[FN155]. An argument can be made that idea and expression are distinguishable for the trash can icon used in FINDER because its expression as a trash can is not completely dictated by functional considerations. The same is true for the chalkboard eraser used in MacPaint. See supra note 104 and accompanying text. Realize, however, that an argument for protection of particular attributes does not justify protecting look and feel as a broad, inclusive concept.

[FN156]. 3 M. NIMMER, supra note 2, § 13.01, at 13-3; Reback & Siegal, supra note 50, at 2. Another preliminary issue concerns display of copyright notice. The defendant in the Broderbund case argues that plaintiffs' copyright notice fails to provide reasonable warning to others that the audiovisual displays, and not just the literal aspects of the program are copyrighted. The court rejected this argument stating:

[i]t would be unreasonable to expect copyright holders to list on each copy of their works every single aspect or element of the work for which they claim protection. It would also be unreasonable to expect copyright holders to

know at any given time the exact state of law on the scope of copyright protection.

Broderbund, *supra* note 13, at 15.

[FN157]. The facts in Broderbund differ from the Apple/DRI model in that they justify a determination of infringement because the plaintiffs produced 'sufficient direct evidence of copying.' *Id.* at 15-16.

[FN158]. Warner Bros. v. American Broadcasting Co., 654 F.2d 204, 207 (2d Cir. 1981); 3 M. NIMMER, *supra* note 2, § 13.01[B], at 13-6.

[FN159]. See Reback & Siegal, *supra* note 50, at 10.

[FN160]. Furgeson v. National Broadcasting Co., 584 F.2d 111, 113 (5th Cir. 1978). In Broderbund, the court held that access to the literal aspects (source code and object code) are not necessary to copy the plaintiff's program. Plaintiff need only prove 'that defendant had access to the protected work.' Broderbund, *supra* note 13, at 17.

[FN161]. Strachborneo v. Arc Music Corp., 357 F. Supp. 1393, 1403 (S.D.N.Y. 1973).

[FN162]. 546 F. Supp. 125 (D. N.J. 1982).

[FN163]. *Id.* at 145; see also 3 M. NIMMER, *supra* note 2, § 13.02[A], at 13-12.

[FN164]. In the first generation of copyright cases access was a more critical issue because the programming code, which is inaccessible to the average user, contains the technical instructions that operate the program.

[FN165]. See *supra* note 158 and accompanying text.

[FN166]. See *supra* Section II.

[FN167]. 1 M. NIMMER, *supra* note 2, § 2.03[D], at 2-32 to -33.

[FN168]. Some literature refers to this as the 'look and feel approach' to determining infringement. See Russo & Derwin, *supra* note 8. However, Russo and Derwin's terminology is confusing because look and feel also describes the attributes of the user interface. Furthermore the 'look and feel approach' to infringement is essentially the same as the audience test.

[FN169]. See *supra* note 29 and accompanying text.

[FN170]. See Reback & Siegal, *supra* note 50, at 3, where the authors state that the most recent copyright cases have emphasized the totality of the work-- the 'total concept and feel' or the 'total perception' (quoting Krofft, 562 F.2d 1157, 1167 (9th Cir. 1977)). 'The substantial similarity of expression standard should be applied to computer programs . . . with emphasis on the overall structure, substance, concept and techniques of the

work . . . ' Russo & Derwin, *supra* note 8, at 7, citing *Krofft and Roth Greeting Cards v. United Card Co.*, 429 F.2d 1106 (9th Cir. 1970).

[FN171]. 429 F.2d 1106 (9th Cir. 1970).

[FN172]. *Id.* at 1110.

[FN173]. *Id.* at 1109.

[FN174]. *Id.* at 1110.

[FN175]. 562 F.2d 1157 (9th Cir. 1977).

[FN176]. *Id.* at 1167. See also *Evans Newton, Inc. v. Chicago Systems Software*, No. 81-C-3564 (N.D. Ill. Sept. 11, 1984).

'In such products [as greeting cards and television shows] the look and feel is everything. In computer software the look and feel is only one component of the total package.' *Davis*, *supra* note 8, at 387.

[FN177]. *Daly v. Palmer*, 6 F. Cas. 1132 (C.C.S.D.N.Y. 1868) (No. 3,552). See 3 M. NIMMER, *supra* note 2, § 13.03[E], at 13-48.

Both Roth and Krofft expressly refer to this audience test. Roth, 429 F.2d at 1110; Krofft, 562 F.2d at 1164.

[FN178]. *Harold Lloyd Corp. v. Witwer*, 65 F.2d 1, 18 (9th Cir. 1933) (emphasis added).

[FN179]. *Arnstein v. Porter*, 154 F.2d 464, 468 (2d Cir. 1946) cert. denied, 330 U.S. 851 (1947). Actually Arnstein purported to transform the audience test into a two pronged standard. 154 F.2d at 468. Under the Arnstein doctrine, the plaintiff must first establish that the defendant copied from its work. This question is answered by 'dissecting' the two works and resorting to expert testimony. The second prong asks whether the defendant's copying went so far as to constitute an illegal appropriation of the plaintiff's work. This question is answered by applying the audience test. See also *Universal Athletic Sales v. Salkeld*, 511 F.2d 904 (3d Cir. 1975), cert. denied, 423 U.S. 863 (1975). Not content with the dubious modifications in Arnstein, Krofft muddied the waters even further by proposing its own bifurcated test. Krofft, 562 F.2d at 1164. The Krofft court determined that substantial similarity existed when there was both similarity of ideas and similarity of expression between the works. According to Krofft, similarity of ideas can be determined by dissection and expert testimony, while similarity of expression is determined by using the audience test.

[FN180]. Professor Melville Nimmer convincingly argues that the audience test is really a misinterpretation of dicta found in *Daly*. 3 M. NIMMER, *supra* note 2, § 13.03[E], at 13-48 to -49.

[FN181]. *Id.* at 13-49 (emphasis in original); see Note, *supra* note 1, at 514.

[FN182]. 546 F. Supp. 125 (D. N.J. 1982).

[FN183]. *Id.* at 134-38, 144-53.

[FN184]. See *supra* notes 48-50 and accompanying text.

[FN185]. *Midway Mfg. Co.*, 546 F. Supp. at 148.

[FN186]. *Krofft*, 562 F.2d at 1157.

[FN187]. See *Davis*, *supra* note 89, at 7. The court in *Whelan*, 'joined the 'growing number of courts' that have abandoned the bifurcated test of substantial similarity in complex copyright actions such as those involving computer programs.' *Broderbund*, *supra* note 13, at 17-18. Instead *Whelan* adopted an integrated substantial similarity test in which both lay and expert testimony would be admissible. *Id.* at 18; *Whelan*, 797 F.2d at 1233. This approach is subject to the same criticisms as *Roth* and *Krofft* as long as the infringement determination occurs without prior examination of the idea/expression distinction.

[FN188]. See *supra* notes 26-31 and accompanying text.

[FN189]. See *supra* text accompanying notes 93-105 (discussion of the plurality test).

[FN190]. 672 F.2d 607 (7th Cir.), cert. denied, 459 U.S. 880 (1982).

[FN191]. *Id.* at 615. See also *Williams Elecs., Inc. v. Bally Mfg. Corp.*, 568 F. Supp. 1274, 1277 (N.D. Ill. 1983); *Atari v. Amusement World, Inc.*, 547 F. Supp. 222, 228 (D. Md. 1982). For other examples of the same approach see *Atari v. Amusement World, Inc.*, 547 F. Supp. at 227.

[FN192]. *Atari v. North American Philips Consumer Elecs. Corp.*, 672 F.2d 607, 615-18 (7th Cir.), cert. denied, 459 U.S. 880 (1982).

[FN193]. *Id.* at 617.

[FN194]. *Id.* at 618.

[FN195]. *Id.* at 614.

[FN196]. *Id.* at 618.

[FN197]. The court in *Broderbund* employed a similar approach. First, the court identified the idea of 'Print Shop' as the creation of greeting cards, banners, posters, and signs; while the expressions included the structure and organization of the user interfaces that contain infinitely variable combinations of text, graphics, and borders. *Broderbund*, *supra* note 13, at 10. Following this analysis, the court addressed the substantial similarity question and listed numerous examples of expressions that were substantially similar even though the defendant could have expressed them in a plurality of alternative ways. *Id.* at 19-20. However, the court should have linked the

specific details in these two areas more directly.

Overall, the holding in *Broderbund* should not stand for the proposition that the total look and feel of software is protected by the copyright laws. Rather, this decision stands for the importance of distinguishing ideas and expressions, and limiting copyright protection to expressions that can be represented in a plurality of ways.

[FN198]. Accord *Warner Bros. v. American Broadcasting Cos.*, 530 F. Supp. 1187, 1190 (S.D.N.Y. 1982), *aff'd*, 720 F.2d 231 (2d Cir. 1983) (to resolve the issue of substantial similarity the court must first distill the protected parts from the unprotected).

[FN199]. See R. NIMMER, *supra* note 18, p 1.03[1], at 1-10. Cf. Reback & Siegal, *supra* note 50, at 1.

[FN200].

It's not at all clear to either 'trained copyright counsel' or the man at the keyboard to what extent 'look and feel' will be copyrightable. Copyright law is extremely malleable, and in gray areas such as this, the legal outcome turns largely on the federal judiciary's ad hoc judgments about net social utility.

Ryland, To the Editor, *INFOWORLD*, Jan. 26, 1987, at 37.

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