

1992

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Repository Citation

Hardy, I. Trotter, "The Policy, Law, and Facts of Computer Screen Displays: An Essay" (1992). *Faculty Publications*. 1227.
<https://scholarship.law.wm.edu/facpubs/1227>

THE POLICY, LAW, AND FACTS OF COPYRIGHTING COMPUTER SCREEN DISPLAYS: AN ESSAY

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I. INTRODUCTION

Commentators in both the academic¹ and popular² press frequently debate the issue of whether the "look and feel" of a computer pro-

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1. See, e.g., Bendekgey, *Copyright Protection for Computer Software Visual Displays: Protecting a Program's Look and Feel*, 6 SOFTWARE PROTECTION 1 (1988); Bixby, *Synthesis and Originality in Computer Screen Displays and User Interfaces: The "Look and Feel" Cases*, 27 WILLAMETTE L. REV. 31 (1991); Friedman, *Copyrighting Machine Language Computer Software—The Case Against*, 9 COMPUTER/L.J. 1 (1989); Hazen, *Contract Principles as a Guide for Protecting Intellectual Property Rights in Computer Software: The Limits of Copyright Protection, the Evolving Concept of Derivative Works, and the Proper Limits of Licensing Agreements*, 20 U.C. DAVIS L. REV. 105 (1986); Menell, *An Analysis of the Scope of Copyright Protection for Application Programs*, 41 STAN. L. REV. 1045 (1989); Mueller, *Determining the Scope of Copyright Protection for Computer/User Interfaces*, 9 COMPUTER/L.J. 37 (1989); Stern, *Legal Protection of Screen Displays and Other User Interfaces for Computers: A Problem in Balancing Incentives for Creation Against Need for Free Access to the Utilitarian*, 14 COLUMBIA-VLA J. L. & ARTS 283 (1990); Note, *The Copyrightability of Computer Program Screen Displays*, 10 COMM/ENT 859 (1988); Note, *Copyrighting "Look and Feel": Manufacturers Technologies v. Cams*, 3 HARV. J.L. & TECH. 195 (1990); Note, *Defining the Scope of Copyright Protection for Computer Software*, 38 STAN. L. REV. 497 (1986); Note, *Breaking the Mold: Forging a New and Comprehensive Standard of Protection for Computer Software*, 8 COMPUTER/L.J. 389, 447 (1988); Comment, *Copyright Protection for Computer Software After Whelan Associates v. Jaslow Dental Laboratory*, 54 MO. L. REV. 121 (1989); Note, *Screen Displays Are Proper Subject Matter for Copyright Protection*, 1988 UNIV. ILL. L.J. 757; Note, *When Technology and the Law Collide—Look and Feel Copyright Evolves*, 16 WEST. ST. UNIV. L. REV. 183 (1988).

2. Burke, *Xerox Joins Technology-Licensing Fray; Campaign Centers on "Look and Feel" of Graphical User Interfaces*, PC WEEK, May 29, 1989, at 69; Cocoran, *Look But Don't Touch: Software Companies Battle Over Intellectual Property Rights*, SCI. AM., Sept., 1989, at 101; Jerome, *"Power to Programmers," Picketers Tell Lotus; Protest Over Look-and-Feel Lawsuits*, PC-COMPUTING, Sept., 1989, at 43; Samuelson, *Why the Look and Feel of Software User Interfaces Should Not Be Protected by Copyright Law*, COM. ACM, May, 1989, at 563; Veronis, *Pirates Walk the Plank in Look and Feel Case*, BOSTON BUS. J., Mar. 13, 1989, at 1.

gram—how it appears to the human user of the program—can be the subject of copyright protection. The debate will surely be fueled by recent court decisions dealing with the copyright protection of various elements of a screen display.³

As applied particularly to the visual displays of a program seen by a user on the computer's screen, this debate is unnecessary: the screen displays of computer programs are clearly and unquestionably the proper subject of copyright protection. Judicial resolution of the issue has never been necessary or desirable. The root of judicial and scholarly misconception about copyright's application to screen displays, namely that there is anything to debate at all, has been a failure to separate the distinct questions of policy, law, and fact that govern any copyright inquiry.

Whether the screen displays of a computer program are copyrightable is a question of law involving copyright's subject matter; the answer turns on an interpretation of the 1976 Copyright Act and its legislative history. Whether these displays *should* be copyrightable is a question of copyright policy; the answer to that question turns on the economics of the copyright incentive and an assessment of public benefits.

Whether a *particular* computer program's screen displays can be copyrighted turns on the tests of copyright protection, namely originality and fixation, and is highly fact dependent. Whether a given program's displays are *infringed* by another program's is similarly a fact dependent question that turns on a comparison of the two programs.

II. SUBJECT MATTER OF PATENTS AND THE COPYRIGHT ANALOGY

A distinction between policy and law is obvious, but the distinctions among copyright *subject matter*, *tests*, and *infringement* may not be so obvious. These distinctions are clearer in patent law, which offers an informative parallel.

To be patented, an invention must fit one of the categories of patentable "subject matter": it must be either a machine, an article of manufacture, a composition of matter, or a process.⁴ The invention

3. See, e.g., *Apple Computer, Inc. v. Microsoft Corp.*, Copy L. Rep. (CCH) ¶26,903, 1992 U.S. Dist. LEXIS 5986 (April 14, 1992) (denying infringement of various elements of the Apple Macintosh screen displays by the Microsoft Windows program); *Brown Bag Software v. Symantec Corp.*, 22 U.S.P.Q.2d (BNA) 1429, Copy. L. Rep. (CCH) ¶26,896, 1992 U.S. App. LEXIS 6154 (April 7, 1992) (affirming summary judgment against plaintiff claiming copyright infringement in the screen displays of an "outlining program"); *Lotus Development Corp. v. Paperback Software Int'l*, 740 F. Supp. 37 (D. Mass. 1990) (finding infringement of the "menu" of commands necessary to operate the Lotus 1-2-3 program).

4. 35 U.S.C. § 101.

must also meet a separate set of "tests" of patentability: novelty, utility, and non-obviousness.⁵ A telephone, for example, is appropriate subject matter for a patent because it is an "article of manufacture" (or a machine). So is a carburetor or a laser. The chemical compound known as nylon also fits within patentable subject matter, as does any distinct chemical compound, because it is a "composition of matter."

Despite being clearly within the category of patentable subject matter, however, none of the things just listed could actually receive a patent today because they all fail to pass one or more tests of patentability. Telephones, carburetors, lasers, and nylon all fail to meet the test of "novelty": they have been invented already and are no longer new. A brand new chemical compound with unknown properties would meet the "novelty" test, but would fail to meet the "utility" test: if it had no known use, it could not be "useful" and could not for that reason receive a patent.⁶

The key point about patent law is that to receive protection, an invention must meet both the general "subject matter" requirement and also satisfy the particular "test" requirements.

Copyright law operates similarly. Although there is some confusion over this point,⁷ copyright's "subject matter" is *works of author-*

5. *Id.* §§ 101, 102, 103.

6. See *Brenner v. Manson*, 383 U.S. 519, 528-36 (1965).

7. The Copyright Act seems to define subject matter as a concept that encompasses as one the concepts that I separate: subject matter and tests. The Act says, under the heading "The Subject Matter of Copyright," that "Copyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression . . . from which they can be perceived, reproduced, or otherwise communicated." 17 U.S.C. § 102. By including all three concepts in one undifferentiated section, the Act's text implies that subject matter, originality, and fixation constitute a unitary concept.

The House Report on the Copyright Act is more ambiguous. The Report first indicates that "subject matter" is not a unitary concept, but rather has two separate components, originality and fixation: it discusses the "General subject matter of copyright" under those two headings: "Original works of authorship" and "Fixation in tangible form." H.R. REP. NO. 94-1476, at 51, 52 (1976), *reprinted in* 1976 U.S. CODE CONG. & ADMIN. NEWS 5659-61 (hereinafter *House Report*). Yet the Report goes on to identify subject matter with originality, but not with fixation, when it notes that the "phrase . . . original works of authorship . . . characteriz[es] the general subject matter of statutory copyright protection." *Id.* at 51. This wording suggests that subject matter and originality constitute a unitary concept, different from the requirement of fixation.

If that were not enough, the Report begins the discussion of originality by referring to "[t]he two fundamental *criteria* of copyright protection" as being originality and fixation, without referring to the concept of subject matter of "work," thereby suggesting that the subject matter question is separate from the tests ("criteria") of originality and fixation as I argue. *Id.* at 51 (emphasis added).

This notion is confirmed in the discussion of section 301, the preemption provision, where the Report explicitly distinguishes copyright's "subject matter" from the originality requirement: "As long as a work fits within one of the general subject matter categories

ship.⁸ Copyright's "test" are *originality* and *fixation* in a *tangible medium*.⁹

The subject matter question applies to whole categories of things. "Novels," for example, fall into the category of "literary works" and for that reason one can say unequivocally that as literary works, novels are copyrightable subject matter. Whether a category of "things" falls within the subject matter of copyright is a legal determination because it requires an answer to a legal question: are the things "works of authorship?"

In contrast to the subject matter requirement, the tests of originality and fixation can only be assessed in regard to particular works of authorship. That is, they are primarily questions of fact, turning on the amount of originality and the degree of fixation of a given work. In practice, they are not difficult. "Originality" means no more than that a given work has not been copied.¹⁰ Fixation means merely that a work be "sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration."¹¹ Though it raises some theoretical questions,¹² the requirement of fixation seldom raises any serious questions in real cases.

Though "novels" are within the subject matter of copyright, for example, a given novel that is simply copied from someone else cannot be copyrighted by the copier because it fails to meet the test of "originality." Likewise, a novel that exists only in the mind of its author—no

of sections 102 and 103, the bill prevents the States from protecting it *even if . . . it is too minimal or lacking in originality to qualify*" for copyright protection. *Id.* at 131 (emphasis added). In other words, the Report here allows for the fact that a work may be a part of copyright's subject matter, but not be "original," clearly implying that the two concepts are distinct. The Act and the *House Report* are not, in short, models of clarity on the question of the differences between "subject matter," "originality," and "fixation."

I offer my own rationalization—that "subject matter" and the "tests" of protection, originality and fixation, are distinct—as preferable to the confusion reflected in the Act and its Report. Doing so greatly clarifies my argument, but is not essential to my conclusions.

8. The Act does not define "works of authorship," see *House Report*, at 51 ("The phrase 'original works of authorship' . . . is purposely left undefined."), but illustrates the concept with a list that includes literary works; musical works; dramatic works; pantomimes and choreographic works; pictorial, graphic, and sculptural works; motion picture and other audiovisual works; and sound recordings. 17 U.S.C. § 102.

9. "Originality" means that a work must have originated with the author. "Fixation" means that the work must be sufficiently recorded in some medium that it can be reproduced.

10. See *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239, 249-50 (1903); *Durham Indus., Inc. v. Tomy Corp.*, 630 F.2d 905, 910 (2d Cir. 1980); *Donald v. Zack Meyer's T.V. Sales & Serv.*, 426 F.2d 1027, 1030 (5th Cir. 1970), *cert. denied*, 400 U.S. 992 (1971); *Alfred Bell & Co., Ltd. v. Catalda Fine Arts, Inc.*, 191 F.2d 99, 102 (2d Cir. 1951).

11. 17 U.S.C. § 101.

12. Is a poem written in the sand of a beach for a moment "fixed?"

matter that the author can recite it word for word—cannot be copyrighted because it fails the test of fixation in a tangible medium, though it clearly meets the subject matter requirement.

The essential infringement question is whether the defendant exercised one or more of the rights granted exclusively to the plaintiff copyright owner. In practice, look-and-feel cases have invoked the two most common copyright rights: the right to reproduce and the right to distribute to the public the copyrighted work of authorship. Typically, then, screen display infringement comes down to a question of whether one display copied "too much" from another display. Like the issues of originality and fixation, this issue is largely one of fact; it can only be assessed in the context of two particular works, compared side by side.

Copyright litigation potentially raises all four issues: first, does the plaintiff's work fit into one of the categories of copyrightable subject matter? Second, if the answer to this question is uncertain, then as a matter of copyright policy, *should* the plaintiff's work fall under copyright's protection? Third, does the plaintiff's work meet the tests of copyright protection—originality and fixation? And finally, does the defendant's use of a work infringe any of the plaintiff's copyright rights?

It is crucial that courts address these questions in the order shown. The first question is whether the "thing" in issue in litigation falls within copyright's subject matter. If the statute is clear on this point, there is no warrant for undertaking a policy analysis. When Congress has decided, for example, that "literary works" are appropriate for copyright's subject matter, Congress has foreclosed courts from reconsidering this same question *de novo* in regard to something that is unarguably a "literary work."

This result seems so plainly dictated by notions of separation of powers and the need for predictability in the application of statutes that one can hardly argue the contrary. Only when a "thing" is not clearly within or without copyright's subject matter should a court address policy concerns to make its determination.¹³

For litigation over screen displays, then, the questions are first, do screen displays fall within the subject matter of the Copyright Act? Second, if that question is not clear, is it advisable that they do so? Third, do the screen displays of a given computer program meet the requirements of originality and fixation? And finally, are the screen displays of a given program so substantially copied that the copies infringe the rights of the original program's copyright owner?

The rest of this article will show that even a casual reading of the

13. Policy arguments are also appropriately made, of course, to Congress itself to change a statute whose application is clear but perhaps inadvisable.

Copyright Act answers the first of these questions affirmatively: screen displays clearly fall within copyright's subject matter. Policy arguments about displays are therefore inappropriate for judicial consideration. Even as made to Congress, however, the usual policy arguments against including screen displays within copyright's subject matter are badly flawed; they do not stack up against the strong arguments for including screen displays within copyright's protection.

A. *Issue 1: Do Screen Displays Fall Within Copyright's Subject Matter?*

Whether computer screen displays fall within copyright's subject matter is easily answered: *of course* they do. They are either "pictorial or graphic" works, or they are "audiovisual works," both of which categories of copyrightable subject matter are explicitly listed in the Copyright Act.¹⁴

Courts easily reached this conclusion for the displays of video games,¹⁵ perhaps because of their similarity to movies. But the same conclusion follows for the copyrightability of ordinary application programs like word processors and spread sheets. The legislative history of the Act shows why the conclusion is compelled. The previous Copyright Act, enacted in 1909, accorded protection to an ambiguous mixture of intangible *works* and tangible *media*. The general subject matter was "the writings of an author."¹⁶ Writings were classified for registration purposes as including not only "books . . . photographs . . . [and] prints," but also "periodicals . . . lectures, sermons . . . works of art . . . [and] dramatic or dramatico-musical compositions."¹⁷ The first group suggests tangible objects: books, photographs, and prints are different *media*. But the second group, "periodicals, lectures, sermons . . . works of art . . . [and] dramatic or dramatico-musical compositions," consists of intangible "works," which can be embodied in any medium.

Congress eventually became dissatisfied with this mixing of tangible and intangible concepts into one category.¹⁸ The principal drawback was that by emphasizing the application of copyright to the known media of expression in 1909, the old Act could not easily be applied to new technological developments, which commonly take the form of new

14. 17 U.S.C. § 102.

15. See, e.g., *M. Kramer Mfg. Co. v. Andrews*, 783 F.2d 421, 436 (4th Cir. 1986); *Atari v. North Am. Philips Consumer Elecs. Corp.*, 672 F.2d 607, 615 (7th Cir.), *cert. denied*, 459 U.S. 880 (1982); *Stern Elecs. v. Kaufman*, 669 F.2d 852, 856 (2d Cir. 1982); *Midway Mfg. Co. v. Dirkschneider*, 543 F. Supp. 466, 479 (D. Neb. 1981).

16. 1909 Copyright Act, Act of March 4, 1909, ch. 320, 35 Stat. 1075, § 4.

17. *Id.* § 5.

18. *House Report*, *supra* note 7, at 51.

means of expression—new technological media.¹⁹

Congress reacted to cases such as *White-Smith Publishing Co. v. Apollo*,²⁰ which had found that musical works embodied in the medium of player piano rolls could not be copyrighted because they could not be read directly by humans. After *White-Smith's* emphasis on the medium as the critical copyrightable entity, musical works in non-human readable form were widely copied and sold.²¹ Congress was dissatisfied with this outcome and determined for the 1976 Act "to avoid the artificial and largely unjustifiable distinctions" drawn in *White-Smith* on the basis of medium, rather than "work."²² Congress in 1976 deliberately turned away from this ambiguous focus to write a statute whose subject matter consisted not of known types of media, but on the contrary of intangible "works," which could be embodied in *any* medium "now known or later developed."²³

To be sure, copyright protection would not be complete until a particular work met the test of embodiment or "fixation" in some type of medium, but the 1976 Act's *subject matter* requirement was left "mediumless." The explicit goal of this approach was to allow for new technological means of expression to arise and embody works that would receive copyright protection without the necessity of amendments to the statute.²⁴ Plainly, then, if something is considered a "work of authorship" under the 1976 Act, it is within the subject matter of copyright without regard to whether it is embodied in the pages of a book, the tracks of a laser disk, or on a computer display.

One can hardly argue that an author who writes a novel at a com-

19. The history of copyright law has been one of gradual expansion in the types of works accorded protection, and the subject matter affected by this expansion has fallen into two general categories. In the first, scientific discoveries and technological developments have made possible new forms of creative expression that never existed before. In some of these cases the new expressive forms— . . . computer programs, for example—could be regarded as an extension of copyrightable subject matter. Congress had already intended to protect, and were thus considered copyrightable from the outset without the need of new legislation.

Id.

20. 209 U.S. 1 (1908).

21. *House Report, supra* note 7, at 21.

22. *Id.* at 52.

23. 17 U.S.C. § 102. See also *House Report, supra* note 7, at 52 ("it makes no difference what the form, manner, or medium of fixation may be—whether it is in words, numbers, notes, sounds, pictures, or other graphic or symbolic indicia, whether embodied in a physical object in written, printed, photographic, sculptural, punched, magnetic, or any other stable form . . ."). The *House Report* notes that the definitions in section 101 "reflect a *fundamental distinction* between the 'original work' which is the product of 'authorship' and the multitude of material objects in which it can be embodied. Thus . . . a 'book' is not a work of authorship . . ." but rather a "literary work." *Id.* at 53 (emphasis added).

24. See *supra* note 23.

puter keyboard has failed to create a work within the subject matter of copyright. Similarly, the artist who creates a drawing on a computer has without question created a work of authorship, a "pictorial work," that is within the subject matter of copyright. It is equally clear that a company that puts together a series of graphic images, amounts of text, animations, etc., for expression on a computer display, has created a "work of authorship," either as a literary work, as individual pictorial works, as a "collective work" of individual works, or as a single "audio-visual" work much akin to a movie. Each of these things is explicitly listed in the Act as an illustration of copyrightable subject matter.²⁵

There can be no other conclusion, in short, but that computer screen displays are pictorial, graphic, or audio visual displays, and hence fall within the *subject matter* of the copyright law. The text of the statute is perfectly clear on this point, and is confirmed by the legislative history, so that a resort to policy analysis is not called for.²⁶

B. Issue 2: Should Screen Displays Fall Within Copyright's Subject Matter?

Nonetheless, because commentators so often raise policy objections to including screen displays within copyright's subject matter, these policy arguments may eventually reach the ears of Congress, where they are appropriately raised. They therefore merit consideration.

The usually offered policy grounds for excluding displays from protection fall into four types: (1) the argument of cost savings; (2) the argument of compatibility and standards; (3) the argument of progress; and (4) the argument of functionality. None of them is persuasive.

III. THE COST SAVINGS ARGUMENT

The argument of cost savings is that protection of screen displays forces other companies, who have not authored a given screen display, to spend time and money developing new ones if they cannot copy from existing ones.

Stating the argument this way should show immediately why standing alone, it is no argument at all: it proves far too much. If we are to allow copiers free access to works on the grounds that doing so will save money, we need not stop with screen displays. Society can

25. See 17 U.S.C. § 102.

26. The rules of statutory construction provide that when a statute's meaning is clear and the legislative history supports that meaning, courts should not turn to a policy analysis to interpret it. *Blum v. Stenson*, 465 U.S. 886, 895-96 (1983); *Maine v. Thiboutot*, 448 U.S. 1, 7-8 (1980). Indeed, a judicial willingness to entertain policy arguments when a statute is obvious renders future statutes, equally obvious, uncertain, and thereby invites unnecessary litigation.

save even more money by letting copiers copy the latest novels or popular posters or advertisements or photographs or poetry or record albums or anything else. Copying is always cheaper than creating.

But the affirmative reason we have a copyright law is not to minimize the cost of re-creation; rather it is to provide an incentive for creation in the first place. Without the copyright incentive, would-be creators would be reluctant to invest in creative activity; instead of cheaper works, society would have too few. In any event, the argument of cost saving is one that could be made for hundreds of creative endeavors; but it is one that neither Congress nor the courts should accept, precisely because it undermines the very incentives that copyright law exists to foster.

IV. NEED-FOR-COMPATIBILITY-THROUGH-STANDARDS ARGUMENT

The argument about compatibility is similar to the cost savings argument, but is couched in terms of benefitting the public instead of benefitting the would-be copier. The argument is that making new programs "compatible" with accepted standards benefits consumers by reducing the time required for users to become familiar with the operation of the new program. Typical of this argument is the assertion by one commentator that not considering the value of standards in a copyright case "is to condone or even prescribe making it harder and more exasperating for the public to use software, and therefore to slow the growth of the software market."²⁷

Three points need to be made here. First, compatibility means several different things, most of which do not raise questions about screen display copyrights at all; second, standardization is a benefit, but neither courts nor Congress are well-placed to determine what degree and timing for standards is optimal; and third, the public can benefit from compatibility and standards without courts or Congress denying copyright protection for screen displays.

A. What Does "Compatibility" Mean?

Software can be compatible with other software in any of several ways: it can run "under" another software package; it can run as an "add-in" to another software package; it can use data in the same format as that used by another package; or it can run "instead of" another

27. Stern, *supra* note 1, at 311. See also Leeke, *Software Copyright Court Ruling Stirs Debate*, PC WEEK, Dec. 9, 1986, at 59, 68, *quoted in Note*, 10 COMM/ENT 859, 862 n.14, *supra* note 1 (arguing that allowing a monopoly in the screen displays originated by one company "might dangerously inhibit some good trends in our industry—the natural development of standards and the ability of people to take advantage of compatibility to sell new products that do new things.").

software package. The first three are perfectly compatible with copyright law; the fourth is not.

Some programs control the operation of other programs. These programs are referred to as "operating systems" or "operating environments." Typical of these kinds of programs are the Microsoft Corporation's MS-DOS and Windows, the Apple Corporation's Macintosh Finder, the Quarterdeck Corporation's DesqView, the Digital Research Corporation's DR-DOS and GEM, and others.

Operating system programs are conventionally spoken of as running other programs "under" them. One speaks of a program like the Aldus Corporation's "Pagemaker" as running "under" Microsoft Windows, or "Word for the Macintosh" as running "under" the Macintosh Finder operating system.

Other programs run in a sense "along side of" or "with" a given program. These programs are often referred to as "add-ins" because they add new features to another program, operating more or less as if they were a part of the latter program. Many companies make programs that cooperate with Lotus 1-2-3, for example, to add features not provided by 1-2-3. Versions of WordPerfect before 5.1, for another example, did not provide support for a "mouse" pointing device; several companies made products that grafted support for using a "mouse" onto that popular word processor.

None of these examples of programs that run "under" or "along side of" other programs constitutes copyright infringement. In the case of the programs that run under an operating system like Windows or the Macintosh or GEM, to the extent that such programs could be said to reproduce the operating system's screen display, permission is wholeheartedly extended by the operating system company. Third party software development is precisely the reason such systems are created in the first place. Apple has never, to my knowledge, contemplated suing third parties who create programs to run on the Macintosh. Neither has Microsoft sued anyone for selling Windows programs, or for that matter, programs that run under DOS.

In the case of programs that run as add-ins to an underlying program, infringement is also not a problem because these add-ins do not reproduce the underlying display. They may use it, they may take advantage of it, they may work with it, but they do not make a copy of it or perform it or distribute it or do any other infringing activities. They no more infringe the underlying program than a plastic dust jacket or book mark infringe the novel they are used with.²⁸

Compatibility is also widely achieved through reliance on common

28. In fact, superior add-in technologies may end up being licensed and distributed by the originating company. Lotus licensed "Impress," an add-in to Lotus 1-2-3 that en-

data file formats. Many database products can read and write data files that are stored in the particular format that the market leading "dBase" program stores them. Many spreadsheet programs can read and write Lotus 1-2-3 formatted data files.

This type of data compatibility is common and is not prevented by copyright law²⁹ for very good reasons. A company needs to know that it can protect a screen display so that it can determine how much of its resources to invest in display design.³⁰ One can spend next to nothing or a fortune or anything in between on screen display design. But a data format offers far fewer options, so that the range of investment levels is quite narrow. A program has to have some kind of data format, and users rarely care exactly what that format is. There is thus no need for the incentive of copyright law to protect data format designs. Companies have all the incentive they need from the sheer necessity of selling their software product.³¹

The fourth type of "compatibility" refers to something altogether different: some programs are sold as compatible with the screen display of another program because they are intended to be used *instead* of the original program. This is the category of "clone" software.³² The Mosaic company's "Twin" program, for example, duplicated the features of Lotus 1-2-3; the Softklone company's "Mirror" program at one time duplicated the screen display of Digital Communication Associates' "Crosstalk" communications program. Parts of the Windows and GEM screen displays may have duplicated some of the Macintosh display.

Clone software potentially does infringe the copyright on an original program's screen displays. Cloning's principal justification is that it reduces training time.³³ Of course it reduces training time if users already have training on the original program. It reduces other costs as well: scores of training manuals, books, templates, courses, etc. exist for Lotus 1-2-3. A clone program that has exactly the same functions and screen display as Lotus can "piggy back" on these materials at no cost.

hances spreadsheet display and printing quality, from an independent software developer. See PC MAG., July 1990, at 54.

29. Synercom Technology, Inc. v. University Computing Co., 462 F. Supp. 1003, 1012-14 (N.D. Tex. 1978) (data formats can be copied either because they are unprotectible "ideas" or because the format's "expression" has merged with its "idea" and is therefore not copyrightable); accord *Plains Cotton Co-op Ass'n v. Goodpasture Computer Servs.*, 807 F.2d 1256, 1262 (5th Cir.), cert. denied, 484 U.S. 821 (1987).

30. For a brief discussion of copyright's role in channelling investments, see 1 P. GOLDSTEIN, COPYRIGHT §§ 1.2.3.1-1.2.3.2, at 16-20 (1989).

31. This is obviously a policy argument and would not be necessary if the Copyright Act were clear about protecting formats.

32. And arguably this category includes Microsoft Windows, which is sold to a large extent as an alternative to the Apple Macintosh.

33. See Menell, *supra* note 1, at 1095.

Compatibility, when it means saving on training time, training manuals, the production of templates, etc. is nonetheless not a good reason to allow copying: this is just the "cost savings" arguments all over again and no better justified merely because it appears under a more public spirited label.

Nor is compatibility a good justification when couched in terms of "network externalities." An "externality" generally is a cost or benefit borne involuntarily, and not felt through a market's price mechanism.³⁴ The concept of "network externalities" refers to the fact that for some products and services, existing users derive a benefit not only from their own use of the product, but also from the number of other users of the product.³⁵ The best example, and one from which the term "network" evidently derives,³⁶ is the telephone network. Each telephone subscriber enjoys increasing communication benefits as the number of other subscribers to the same network reachable by phone grows larger.

Because the benefits of an increasing number of subscribers accrue to existing phone users without their paying for it or without their having a choice about it, the benefits to existing users are "external," i.e., not felt through the normal market for buying and selling phone service. New users are only willing to pay for the number of other users already on the same network at the time. They will take account, in other words, only of the benefits they receive from joining the network; they will not take account of (and will not be willing to pay for) the "external" benefits they confer on existing users. Because those benefits are real to society, the argument goes, some form of subsidy is necessary to "lure" growing numbers of users to join the network.

Applied to screen displays, the argument for standardization is that additional users for a given display bring "network" benefits to existing users by adding to the number of training materials, templates, etc.³⁷ Because it is difficult to subsidize new users of a program's screen displays directly, an indirect subsidy can be obtained by allowing other firms to copy an originating firm's screen displays.³⁸ The lower cost of the copied displays is in effect the subsidy.

34. See R. COOTER & T. ULEN, LAW AND ECONOMICS 45-46 (1988).

35. See generally the economic analysis in Katz & Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424 (1985).

36. The term appears to have been first used in Katz & Shapiro, *supra* note 35.

37. See Menell, *supra* note 1 at 1066-71; 1095-98 (1989) (discussing the externalities associated with standard user-computer interfaces); Menell, *Tailoring Legal Protection for Computer Software*, 39 STAN. L. REV. 13229, 1340-45, 1357-63 (1987) (discussing the positive externalities associated with "operating system" software).

38. Or more generally by reducing the scope of screen display protection. Menell argues, for example, that a non-standard screen display should receive copyright protection, but that the protection be forfeited if the display becomes a *de facto* standard. See Menell, *supra* note 1 at 1098-1102.

Though superficially attractive as a rationale for allowing diminished protection for screen displays, the "network externalities" argument fails. The argument as applied to screen displays is no different from saying that economies of scale can lower costs. If all food shoppers, for example, could be required to shop at two or three grocery stores instead of several, the chosen (standard) stores could grow in size and achieve economies of scale enabling them to lower prices. That is not a sound argument, however, for requiring all consumers to choose from a diminished selection of stores.

The argument is not sound because stores are free to consolidate and achieve scale economies on their own. If they think the lower prices from larger scale operations will more than offset the loss of consumers' choices in store locations, they will consolidate. In just the same way, the developer of an original set of screen displays can "consolidate" by keeping prices low initially to attract a large number of initial buyers.

Indeed, many new entrants to the software market do just that: they charge a discounted initial price, with price increases phased in as the product's market (and its value to users) grows. In economic terms, the originator of the screen displays can capture the benefits that come from economies of scale. By capturing them, the originator internalizes them, and they are no longer "externalities" and no longer justify a subsidized lower price to consumers.³⁹

A final way to look at the compatibility issue is to note that if compatibility were a good justification, it should apply in the trademark context as well: a company could argue that it needed its new trademark to be "compatible" with another company's existing trademark, so that the new company could take advantage of all the advertising that the original company had done.

It would certainly make it easier for a small start-up company to

39. Menell himself contradicts the notion that any "externalities" are present in the screen display market. He notes that "Computer-user interfaces [a broad phrase that includes screen displays] generate network externalities to the extent that standardization produces larger networks and reduces retraining and mobility costs." Menell, *supra* note 1, at 1095. But paradoxically he also observes that "The owner of a *de facto* industry standard could reap the value consumers place on standardization through monopoly pricing." *Id.* at 1094. But if the owner of the *de facto* standard can capture the value of standardization, where is the "externality?"

The fallacy in Menell's argument is that screen displays are *not* like telephone network externalities: existing telephone users receive growing benefits as new users join the network. Existing screen display users do not receive growing benefits as others also begin using the same screen displays; rather they are attracted to make their *initial purchase* because of the large number of other existing users. Because the "external benefits" are known at the time of purchase, both buyer and seller can take them into account through the price mechanism and thus they are not "external" at all.

compete in the oil business if it could call its gasoline "Exxon." Because the same advertising would apply to both the original Exxon and the copier, and hence would be spread out over a larger base of goods and services, the cost of advertising would fall. Consumers would also be spared the cost of investigating the quality of the competing Exxon company because they would already be familiar with the Exxon trademark.

The absurdity of these arguments—which are paraphrases of the arguments made to allow screen displays to be copied—show why the latter arguments are not persuasive: both trademark and copyright law are designed to prevent this sort of free riding on the success of others.

B. Standardization Is Not Well Suited To Judicial or Congressional Decision

Merely reducing training time or increasing economies of scale, then, like any bald assertion of cost savings, is not a sufficient justification for allowing screen displays to be copied at will. Nevertheless, one has a sense that standards are important; perhaps at some point, the cost savings from standardization might become so large as to overcome the loss in originators' incentives to create new screen display expressions in the first place.

That point is absolutely correct, but it in no sense justifies the denial of copyright for computer screen displays. The important questions about standardization are not the abstract ones of standardization's desirability, but rather: *who should decide* when standards are finally desirable, and how should they decide it? These are questions that neither Congress nor the courts are well placed to determine. They involve costs and benefits and the desires of computer users, and are thus best suited to a determination in the marketplace, by the aggregate purchasing decisions of thousands of individual buyers.

Happily, software publishers themselves have every incentive to reach the socially optimal decision about standardization, as long as they possess well defined and enforceable property rights in screen displays. At first blush, strong property rights in screen displays appear to be consistent with the policy of incentives for research, but inconsistent with the policy of compatibility through widely-adopted standards. In fact they are consistent with both policies for this reason: strong property rights enable widespread licensing of display technologies.

How does this work? A company that sees the value for users of a standard screen display, like that for Lotus 1-2-3, can approach Lotus and offer a royalty payment in exchange for the right to use the Lotus display. For Lotus, this is money in the bank, earned at the very nomi-

nal cost of negotiating a licensing agreement. Lotus therefore has a strong incentive to reach agreement on such a license.

Of course, Lotus might decide that it could make more money by selling its own software, worrying that a clone package would cut into its market. But two things prevent that outcome from being troublesome. First, any cut into Lotus's own market can be compensated for by the royalty arrangement. The royalty payments need only be higher than Lotus's net revenue loss to the clone market.

Second, if Lotus's calculations of an appropriate royalty amount yield a figure that is higher than any cloning company is willing to pay, then a license agreement will not be reached—but in this situation, it *should* not be reached because the public is better off with only Lotus selling the 1-2-3 screen display: Lotus can make more money from being the exclusive seller of the 1-2-3 display only if the public prefers buying the original 1-2-3 from Lotus to buying the same display from a clone maker.

If the public does prefer buying from Lotus itself, that fact strongly suggests that the Lotus screen display may function as more than a display—it could be a *trademark*.⁴⁰ Trademark significance means that the public expects a consistent level of quality from the product. In that case, Lotus could not license its screen display to others without taking steps to guarantee to the buying public the same level of quality, including technical support, from the licensee that Lotus provides its own customers.⁴¹ This guarantee would be impossible for Lotus to make on behalf of a clone company that wrote its own programming code and provided its own technical support. In that event, Lotus should not license its screen display—nor should a court or Congress compel it to do so.

In practice, as long as the screen display does not have trademark significance, it is likely that Lotus can make more money by licensing, because clone software constitutes a distinct market with distinct pricing. Users who prefer to buy clone software are those who are unable to pay the high price that market-leading software commands, but who are willing to pay a lower price for a product with less technical support and lower assurances of quality. Lotus itself would have difficulty set-

40. See generally Rudnick, *Window Dressing: Trademark Protection for Computer Screen Displays and Software*, 80 TRADEMARK REP. 382 (1990) (discussing trademarks on "operating system" software).

41. See *Transgo, Inc. v. Ajac Transmission Parts Corp.*, 768 F.2d 1001, 1017, *cert. denied*, 474 U.S. 1059 (1986); *Visa, U.S.A., Inc. v. Birmingham Trust Nat. Bank*, 696 F.2d 1371, 1377, *cert. denied*, *SouthTrust Bank of Alabama v. Visa, U.S.A., Inc.*, 464 U.S. 826 (1982); *Reddy Com., Inc. v. Environmental Action Found.*, 477 F. Supp. 936, 944 (1979).

ting separate prices for these separate markets,⁴² but by licensing clone vendors, it can achieve the effect of separate pricing.

The fact that Lotus and other software producers have chosen to sue clone makers, not license them, does not contradict this analysis. For one thing, the clone makers may not have approached Lotus initially. For another, it is possible that for some software, market segmentation is not helpful because the public greatly prefers buying screen displays from the display's originator. Lotus is, after all, in the best position to know whether licensing or not licensing is more profitable. Remember that if licensing is not more profitable, that fact is a signal to Lotus that the public puts a greater value on buying the original than on buying a clone. In that case, a license should not be granted and Lotus itself should be the exclusive seller of the 1-2-3 screen display.

Finally, Lotus may be wrong in this particular instance and actually be making less money than it might make by licensing. But that does not mean that the copyright law should be changed so that screen displays are uncopyrightable. It means rather that companies, like all of us, sometimes make mistakes. Even if this particular instance is a mistake, eventually companies like Lotus will figure out the cost effective thing to do and do it. Allowing copyright to apply to computer displays is essential for this beneficial long-run result to obtain.

Eliminating the copyright on screen displays on grounds of "compatibility" is therefore a red herring. The compatibility of application programs with operating environments is wholly encouraged by the developer of the environment; the use of add-ins to "standard" programs is not an infringement; the use of another company's "standard" data file format is not an infringement.

Selling a copied display to be used instead of a widely-used original display is infringement. If the public would truly benefit from cloned software packages that run "instead of" the original, then it will be in the originating company's best interests to reach a licensing and royalty agreement with the clone makers. If the public values screen displays more highly when they come from the originating company, then the originator will not license the display—nor should it. In no event does the public benefit from having weakened, vague, or non-existent copyright protection for computer screen displays.

V. SLOW-THE-PROGRESS-OF-SCREEN DISPLAY-DESIGN ARGUMENT

The argument is sometimes made that software companies, fearing liability, will not bother to develop improvements to others' screen dis-

42. It would have difficult setting disparate prices because buyers in the cheaper market could turn around and re-sell to the higher priced market.

play designs. "[I]f companies are afraid to go to market with what they think are incremental, but distinct, improvements on a basic design, we will become a stagnant industry bounded by the usual and comfortable."⁴³ The point made here, and echoed by others,⁴⁴ is that technology improves in incremental steps, not all of which are likely to emerge from the same company. With strong copyright protection on displays, the argument goes, non-originating companies will be reluctant to invest in these step-by-step improvements because they will face copyright liability for using them.

Once again, this argument misses the mark entirely. Suppose the Acme company creates a better design for the Macintosh in the form of an incremental improvement. Assume that copyright law prevents Acme from selling the Macintosh screen display with their improvements because too much of the protected Macintosh display must be copied to allow the improvements to operate.

Is this bad? Certainly not: if small, "incremental" changes were enough to allow a company to copy another company's entire screen display without paying royalties, then every software developer in the land would make trivial changes to popular displays and begin to clone products. The disincentive to originating software companies to invest in the development of screen display would be immense. They simply would not do it.

Is the public hurt, then, if developers' fear of lawsuits prevents them from selling screen displays with incremental changes? Not at all. Once again, if there is value in an improved screen display for the Macintosh, the public will be willing to pay for it (that is how we know it has value). If the public is willing to pay for it, then Acme can obtain a license from Apple and pay for the license with the profits from sales to a willing public.

If Apple will not license the Macintosh display to Acme, then Acme can license its incremental improvements to Apple. If there is a public demand for these improvements, there is nothing to prevent Apple and Acme from getting together and agreeing on a royalty arrangement one way or the other.

Of course, if screen displays were not copyrightable in the first place, then neither an original display *nor incremental improvements by other developers* would be protected, so that no one would have an incentive to create anything, whether fundamental or incremental. That would benefit neither originating companies, companies making improvements, nor the public.

43. Williams, *A Threat to Future Software*, BYTE, Jan. 1986, at 6.

44. See, e.g., Samuelson, *supra* note 3; Note, *Copyright Protection for Computer Screen Displays*, 72 MINN. L. REV. 1123, 1153 (1988).

VI. SCREEN DISPLAYS ARE FUNCTIONAL, NOT ARTISTIC

Lawyers writing on copyright law often raise the objection, more sophisticated than the previous objections, that computer program screen displays are functional or "utilitarian" and hence that they should not receive the same protection that, say, a painting or novel or movie would receive.⁴⁵ A variation on this argument is the assertion that displays are appropriate for patent protection, which is designed for technology, but not for copyright protection, which is designed for artistic expression.⁴⁶

These, too, are pointless arguments. Copyright protection has long been applied to functional or utilitarian works, and there is no reason to discontinue this satisfactory practice. Second, the reasons that copyright and patent protection differ have little to do with the differences between art and technology, but a lot to do with the differences between intangible information and tangible things. On either ground, screen displays fall clearly into the copyright category.

Most copyrightable things are utilitarian and receive protection without the slightest quibble: maps, car repair books, commercials and advertisements, encyclopedias, dictionaries, cook books, instruction manuals—all these are utilitarian, yet copyrightable. No one seriously argues that these things, long the subject of copyright, should be denied copyright's simple and effective form of protection.⁴⁷

Nor is the application of copyright to functional works a recent turn of events. When members of the Constitutional Convention were writing the Constitution, with its copyright and patent clauses, nearly all printed materials that originated in the United States were functional in the sense of conveying factual data, not artistic or literary expression.⁴⁸ American arts and letters were undeveloped; American

45. See Samuelson, *supra* note 3; Stern, *supra* note 1, at 311 (expressing concern that "utilitarian aspects" of screen displays might be protected); Forsten, *It Walks and Talks Like My Duck, So How Come It's Not Infringement?: The Case Against "Look-and-Feel" Protection for Computer Programs*, 70 JPTOS 639, 662 (1988) (utilitarian argument implicit in discussion of programs as "technological goods").

46. See Samuelson, *supra* note 3.

47. To be sure, the Supreme Court's decision in *Feist Publications, Inc. v. Rural Telephone Service Co.*, 111 S. Ct. 1282 (1991) eliminated copyright protection for telephone books and by implication for any utilitarian work created by labor and effort without originality of expression. Nevertheless, courts have not extended *Feist* beyond utilitarian works whose arrangement is predetermined and thus for which the creator has essentially no scope for originality whatever. See, e.g., *Kregos v. Associated Press*, 937 F.2d 700 (2d Cir. 1991); *Bellsouth Advertising & Publishing Corp. v. Donnelly Information Publishing Co.*, 933 F.2d 952 (11th Cir. 1991); and the discussion of these cases in Ginsburg, *No "Sweat"? Copyright and Other Protection of Works of Information after Feist v. Rural Telephone*, 92 COLUM. L. REV. 338, 347, 352 (1992).

48. See Ginsburg, *A Tale of Two Copyrights: Literary Property in Revolutionary*

novels barely existed;⁴⁹ poetry, painting, sculpture, drama—all these must have been far less significant to American culture than they are now.

To be sure, works of art, music, and literature were appreciated and imported from abroad. And just as surely, the writers of the Constitution could look forward to an American presence in the art world and could wisely provide for its later emergence. But in the late 18th century, American publishers already put out utilitarian works in abundance.⁵⁰

It would have been perverse indeed for the Founders to write a Constitutional provision that was intended to exclude the very functional works that made up the bulk of American intellectual property output, yet was intended to apply to artistic works, works that at the time made up an insignificant fraction of that output.⁵¹

The first Copyright statute, enacted just one year after the Consti-

France and America, 64 TULANE L. REV., 991, 1002-05 (1990). Ginsburg notes that the late 18th century record of copyright deposits featured an overwhelming preponderance of "instructive, civics-oriented works" such as newspapers, and titles in political science, history, and social science. *Id.* at 1002. Less than ten percent of the first decade's copyright deposits were for novels. *Id.* (calculated). More pointedly she observes that "copyright was sought for the socially useful, instructive works that Congress had intended to encourage." *Id.* at 1003 (emphasis added). These works were primarily textbooks. *Id.* Even two of the earliest litigated copyright cases dealt with functional works: a PHARMACOPOEIA OF THE UNITED STATES OF AMERICA, and records of Supreme Court opinions. *Id.* at 1005.

49. Although which work should be considered the "first American novel" is a matter for dispute, a prime contender for that title is William Hill Brown's *THE POWER OF SYMPATHY*, published in 1789. See P. PARKER, *EARLY AMERICAN FICTION* xiii, xv (1984). One literary historian summed up scholarly attitudes toward American literature of the late 18th and early 19th centuries this way:

The country was too young to have a literature of its own. Its inhabitants were too much preoccupied with questions of survival or with ambitious political careers or with trying to get rich quickly to write themselves or to support the efforts of the few that wrote. They had no standards and no ability to recognize good writing, not did they understand the value of a national literature.

H. PETTER, *THE EARLY AMERICAN NOVEL* 11 (1971).

The author of this observation notes that many critics have objected to this dismal characterization of American letters at the turn of the 18th century, but that these objections themselves "tended . . . to confirm the majority view [rather] than to constitute convincing counterarguments." *Id.*

One English commentator of 1820, Sidney Smith, asked scathingly "In the four quarters of the globe, who reads an American book? or goes to an American play?" 33 EDINBURGH REV. 79 (1820), quoted in H. PETTER, *supra* at 4-5. This indictment became famous enough that the Supreme Court quoted it almost a hundred years later in *United Dictionary Co. v. G. & G. Merriam Co.*, 208 U.S. 260, 264 (1908).

50. See Ginsburg, *supra* note 48, at 1002-04.

51. Foreign literature, principally English, did exist in the United States but was denied copyright protection for over a century after the first U.S. copyright enactment, until the International Copyright Act of 1891, 26 Stat. 1106.

tution,⁵² confirms that this perverse interpretation was not intended. The 1790 Act applied only to maps, charts, and books.⁵³ Two-thirds of the statute's subject matter—maps and charts—was explicitly utilitarian; the remaining one-third—books—was neither utilitarian nor artistic on its face, but as the preceding discussion shows, was markedly utilitarian in practice at the time.⁵⁴ Strikingly, much notable artistic output of the late Eighteenth century—music, painting, and drama—was *not* explicitly protected by the first copyright law.⁵⁵

The history of the American copyright system, then, flatly contradicts arguments that copyright should apply to artistic, not functional, works. If anything, copyright was designed more for the latter than for the former.

A. Copyrights Versus Patents

History is thus on the side of copyright for functional, utilitarian works. Yet, a question remains as to how to reconcile copyright protection for utilitarian works with patent protection on what appears to be the same type of works. Should these two very different forms of protection co-exist in the same work?

The answer is that they do not. We often think of copyright as applying to "art," and patents to "technology," but this view is misleading. Patent protection is primarily applicable to tangible things.⁵⁶ Copyright applies primarily (though certainly not exclusively) to "works"—intangible things that do not depend on any particular tangible medium of expression.

This distinction makes sense: in general, "works" are a form of information. Information has always been faster and cheaper to copy and use, and therefore requires a faster and cheaper means of legal protection than, say, tangible personal property. Copying, i.e., manufacturing, an invention is usually costlier and more difficult than copying books or maps. Modest inventions can be left unprotected by patent law because copying will be discouraged by the costs of a copier's going into the

52. Act of May 31, 1790, ch. 15, 1 Stat. 124.

53. *Id.*

54. See Text accompanying note 48.

55. Musical compositions were not added until 1831 (Act of Feb. 3, 1831, c. 16, 4 Stat. 436). Paintings and drawings were expressly included in copyright's subject matter only in 1870 (see Act of July 8, 1870, c. 230, 16 Stat. 198), having been *rejected* as explicit copyright subject matter by Congress when earlier proposed in 1824. See S. 77, 18th Cong., 1st Sess. (1824).

56. Of course, patent law applies to processes as well as tangible machines, articles of manufacture, and compositions of matter. Processes are intangible. But the value of a process lies in its use, and the use of a process always entails some mechanical or chemical or other tangible thing.

manufacturing business.⁵⁷ Bigger (and more profitable) advances in technology will justify a major expense by the would-be copier, and accordingly are prevented by a more extensive, and costlier, form of protection—patents.

The better way to look at the “art vs. technology” distinction is therefore to see that it is, broadly speaking, a distinction between those things that take the form of intangible works of information—relatively cheap to copy—and those that take the form of tangible objects—relatively expensive to copy.

The very sluggish pace of the patenting process also argues against patents for screen displays. Most software, whether computer programs, or screen displays, or entire user-computer interfaces, has a useful life measured in years, not decades or lifetimes. This observation seems to cut against copyright protection because of copyright’s “life of the author plus fifty years” duration. But the long tail of copyright protection has essentially no effect either way on works with short life spans like screen displays, so it is irrelevant to the issues. If a screen display is still protected twenty-five or thirty years after everyone has stopped using it, then who cares if it is still in copyright?

What is relevant and what we should care about is the amount of time it takes to get protection in the first place. With copyright, that time is negligible. With patent law, it is substantial. The average time to get a patent in the United States today is above two years. Worse, the average is not indicative of the possible upper limits. Recently, an inventor received a patent on a semiconductor computer chip after a twenty year application process!⁵⁸

If screen displays are to be protected by patent law, what is a would-be competitor/copier of displays supposed to do: gamble that a patent will not be issued on the original displays and bring out a copied display, running the risk that if a patent is in fact issued, all investments in production and marketing will be lost? Or wait to see whether a patent will be issued or not, which in practice means waiting at least two to three years *after* the time when it becomes apparent that an originating company’s displays are popular and approaching the status of a standard? Neither course of action is attractive or practical precisely because computer technology and consequently screen displays are rapidly changing.

Seen in this light, computer screen displays fall plainly on the side

57. Patent law accomplishes this through the “nonobvious” requirement, earlier cast in the form of the “invention” or “flash of genius” requirement. See 35 U.S.C. § 103, discussed in *Graham v. John Deere Co.*, 383 U.S. 1 (1966).

58. See Pollack, *Company News: A Chip Patent Is Granted That May Rewrite History*, N.Y. TIMES, Aug. 30, 1990, at D1.

of informational works and copyright protection: they can relatively cheaply be duplicated like almost any computer software,⁵⁹ and they change rapidly and so need a means for quickly-acquired protection. Applying the costly and time-consuming patent law system to these technologies makes little sense.

VII. DIFFERENCE IN SCOPE OF PROTECTION

To say that copyright applies to functional works is not to say, of course, that courts ought to be indifferent to differences in degrees of functionality. They ought not and are not: the *scope* of copyright protection that courts give to a given work depends on the extent to which the work is artistic or utilitarian. More artistic works customarily get greater protection; more utilitarian ones get less.⁶⁰ But this is not because of some prejudice in favor of the fine arts and against information technology; rather it is because functional works offer less room for individual variations in expression than artistic works.

A cook book is more constrained in its expression than a novel because a cook book *must* convey certain information; a novel's author has a wider scope for expression of plot and character. A map is more constrained in what it shows than a work of abstract art. A blueprint has less room for authorial interpretation than a sketch of an imaginary building's exterior. Because copyright protects expression, the greater an author's contribution to expression, the more extensive the copyright protection accorded it.

These observations about constraints on expression in utilitarian works are a far cry from saying that utilitarian works either do not receive or should not receive copyright protection at all. They do and they should, to the extent that they are works of information and depend for incentives to their creation on a relatively cheap and easy means of protection. Computer displays are no more nor less utilitarian or functional than maps, charts, cookbooks, or blueprints; like them, displays are easily duplicated works of information; and there is accordingly every reason to include screen displays within the bounds of the subject matter of copyright.

59. Software utilities are widely available that take "snapshots" of a computer screen, and then produce the programming code necessary to recreate that screen snapshot afresh.

60. See 2 P. GOLDSTEIN, COPYRIGHT § 8.4, at 97 & n.3 and accompanying text ("courts generally protect minimally expressive fact works against only literal or close to literal appropriation . . . [C]ourts take generally the same approach to functional works").

A. *Issue 3: Can a particular screen display be copyrighted? (the test-of-protection question)*

The third major issue arising from copyright protection on computer screen displays is not the legal one of copyrightable *subject matter*, nor the policy question of whether screen displays *ought* to fall within copyright's subject matter, but the more factual one of whether a particular display meets the copyright *tests* of originality and fixation.

Fixation is never a problem with commercial software. By definition, if a screen display is sold in the marketplace it must be fixed in the form of program code, if not in the form of drawings or video-taped images. Indeed, the Copyright Office only requires a deposit and registration for program code, and the Office will use that registration to cover the visual displays of the software as well.⁶¹

The more significant question is whether a given display is sufficiently *original* to sustain copyright protection. The answer to that question turns on several factual inquiries, including the complexity of the screen designs; the degree of originality of screen designs; the fact that ideas do not get protection; and the extent to which the screen design is dictated by functional considerations.

The complexity of the screen. A screen with nothing but a handful of words on it will not be copyrightable, just as short phrases or titles are not copyrightable in general. The addition of graphic artwork to text helps avoid the problem of too-trivial a design and is a factor in copyrightability, but is not dispositive. Fears that simple textual lists will be copyrightable in a computer screen display are unfounded; ordinary copyright principles of *originality* will prevent that result, without need for the removal of screen displays from copyrightable *subject matter*.

In short, even though "screen displays" in general are copyrightable subject matter, a particular display may be so simple that it will fail to receive protection.⁶²

61. "The Copyright Office has consistently held the view that a single registration is sufficient to protect the copyright in a computer program, including related screen displays, without a separate registration for screen displays or reference to the displays in the 'nature of authorship' description on the application. An application may give a general description such as 'entire work' or 'computer program'. This description would cover any copyrightable authorship contained in the computer program and screen displays, regardless of whether identifying material for the screens is deposited. . . . [I]n June 1988 the office announced a decision to require that all copyrightable expression embodied in a computer program owned by the same claimant, including computer screen displays, be registered on a single application form." Registration Policies for Screen Displays Clarified (opinion letter, August 25, 1989, and copyright office screen display leaflet), [1989] Copyright L. Rep. (CCH) ¶ 20,559, at 11,491 (display leaflet).

62. "[C]opyright cannot be secured for names, titles, and phrases such as column

The degree of originality. Graphic "icons" such as trash cans should receive exactly the same protection they get when reproduced in pen-and-ink drawings: if the art work is original, it is protected. Square boxes into which users insert check marks on-screen will get no protection because square boxes have long existed on paper and there is nothing original about them.

Naturally there will be a wide range of in-between cases, but the point is that drawings and text on a computer screen are drawings and text. There is simply no reasoned argument that a drawing or body of text on a screen differs in originality, and hence in copyright consequences, from the same thing on a piece of paper.

The fact that ideas do not get protection. The copyright distinction between idea and expression is too well known to bear extended discussion here.⁶³ Suffice to say that copyright applies only to the expression of ideas, not to the ideas themselves. An "idea" is something one can talk about and understand, but that still has a wide array of possible embodiments. One can speak of "a painting of a vase of flowers," for example, without conveying anything about what a particular painting of a vase of flowers looks like. Obviously, the "idea" of painting such a picture cannot be copyrighted, though particular paintings can be.

In just that same way, one can speak of a screen display that uses "icons, windows, animation, sound, and menus," without conveying anything about what such a display actually looks like. All these concepts are "ideas" because a variety of means of expressing them are available. Nearly all the features of programs that people like to talk about are liked or talked about at the level of ideas and for that reason cannot be protected by copyright. In addition to the obvious "ideas" like icons (including the idea of "three-dimensional" icons), windows, etc., other non-copyrightable ideas include "moving bar" menus as used by Lotus 1-2-3; pop-up (or down) menus; a "rubber-band box" for indicating a variable sized area on the screen; "tear-off" menus that remain on-screen and can be moved around; menus that pop-up at the location of the mouse cursor instead of at a fixed location; RAM-resident programs that overlay the current screen; and hundreds more.

As long as talking about these concepts does not determine the way

headings, simple checklists, and the like, nor can it be secured for the format, arrangement, or typography of a blank form or similar work. Thus, in general, menu screens and similar functional interfaces consisting of words or brief phrases in a particular format are not registrable." Registration Policies for Screen Displays Clarified (opinion letter, August 25, 1989, and copyright office screen display leaflet), [1989] Copyright L. Rep. (CCH) ¶ 20,559, at 11,490 (opinion letter).

63. See, e.g., *Landsberg v. Scrabble Crossword Game Players, Inc.*, 736 F.2d 485 (9th Cir.), cert. denied, 469 U.S. 1037 (1984). See generally 1 P. GOLDSTEIN, COPYRIGHT § 1.2.2.4 at 16 (1989).

they actually look on the screen, they are "ideas" and cannot be protected.⁶⁴ Nothing in the above discussion, for example, describes the way that the listed concepts appear on the screen; that means they are indeed "ideas" that can freely be used by others.

The extent to which the screen layout is dictated by functional considerations. To the extent that such concepts do sometimes dictate appearance when implemented on a computer screen, however, they cannot be protected by copyright. This result follows from the *Baker v. Selden*⁶⁵ case of over a hundred years ago. *Baker* said that the forms used in a double entry accounting system were dictated by the double entry method of accounting itself, and hence that the forms could not receive copyright protection. The case stands for the broader proposition that whenever the expression of an otherwise copyrightable work is dictated by its function, the work cannot receive copyright protection.

Baker means today that if a given feature of a screen display is dictated by functional requirements, it cannot be copyrighted. Suppose that human factors research were to show, for example, that the easiest command menus to understand are horizontal, appear across the top of the screen, begin with capital letters, and contain no more than five terms at a time. If that were a demonstrated research result, no one could copyright a menu insofar as it fit that description because the expression—horizontal menus, five terms, etc.—would be dictated by the functional requirement of ease of understanding. And when expression is dictated by functional requirements, the *Baker v. Selden* "merger"⁶⁶ doctrine prevents the application of copyright.

When screen designs are not dictated by functional considerations, that means there are a variety of designs to accomplish any given set of functions. When there are a variety of designs, that means any of them can be original and hence copyrightable.

Most, if not all, of the benefits of new ideas in screen display de-

64. Indeed, articles in the trade press that are comprehensible without the addition of accompanying screen display illustrations are almost necessarily confined to a discussion of uncopyrightable ideas, not expression.

65. 101 U.S. (11 Otto) 99 (1879).

66. "Merger" refers to the fact that when an uncopyrightable "idea" is inextricably bound up with, i.e., "merged" with, the "expression" of that idea, the expression cannot be copyrighted. To allow a copyright in that situation would provide a monopoly on the underlying idea, a protection for which the costs would exceed the benefits. For illustrations of this principle, see *Herbert Rosenthal Jewelry Corp. v. Kalpakian*, 446 F.2d 738, 742 (9th Cir. 1971); *Morrissey v. Procter & Gamble Co.*, 379 F.2d 675, 678 (1st Cir. 1967); *Matthew Bender & Co., Inc. v. Kluwer Law Book Publishers, Inc.*, 672 F. Supp. 107, 109-110 (S.D.N.Y. 1987). A similar idea is that standard literary devices (*scenes a faire*) cannot be protected by copyright. See *See v. Durang*, 711 F.2d 141, 143 (9th Cir. 1983); *Hoehling v. Universal City Studios, Inc.*, 618 F.2d 972, 979 (2d Cir. 1980), *cert. denied*, 449 U.S. 841 (1980).

sign, in other words, will be freely available to all who will take the time to design their particular appearance with some originality. Here again, routine application of the traditional copyright requirement of originality to screen displays ensures that this is so.

B. Issue 4: Is a particular screen display infringed by another particular screen display? (the infringement question)

The only really difficult issue for litigation, after the questions of subject matter and originality have been answered, is whether a given screen display is infringed by another. This question has to be answered by comparing the two displays side by side. Unlike the question of copyright's subject matter, about which the legislative history has a lot to say, the question of infringement is not worth discussing in an essay like this one precisely because it is fact dependant.

At best one can say, as noted earlier,⁶⁷ that because they are functional, screen displays will not get as broad a scope of protection as works of fine art. But at bottom, one must conclude that like all questions of infringement, the judgements called for in cases of screen display infringement may be easy or difficult, but in no event can they be made in the abstract, by talking about the copyrightability of "screen displays" in the subject matter sense.

VIII. CONCLUSION

Courts and commentators facing the question of copyright protection for computer screen displays have too often failed to distinguish copyright *policy* from copyright *law*. They have further failed to distinguish among the three essential questions inherent in any copyright litigation: what is the scope of copyright's *subject matter*; are the copyright *tests* of originality and fixation satisfied in the given case; and does the defendant's use of computer screen displays *infringe* the plaintiff's copyright rights.

Copyright policy only comes into play when the Copyright Act is not clear. The only possible statutory uncertainty regarding screen displays would concern their inclusion within copyright's subject matter: are they "works of authorship?" But even here there is no uncertainty: despite their relatively new technology, they fit very comfortably into the existing categories of copyrightable works, either as literary works (for primarily textual screen displays), or as pictorial works (for primarily graphic screens), or as audio-visual works (for sequences of graphical images).

Moreover, Congress intended that each new technological medium

67. See *supra* note 60 and accompanying text.

not require the courts to "re-invent the copyright wheel" by making determinations of copyrightability on a clean slate. Rather, Congress intended that copyright be applied to "works," not to particular media; hence each new medium that technology creates need not cause a judicial search for Congressional intent or underlying policy, but merely a determination whether some type of otherwise copyrightable *work* can be embodied in the new medium.

Even if a policy analysis were called for, that analysis would plainly show that screen displays belong within copyright's protection. The need to encourage investment in screen displays dictates some form of protection, but that protection will not be to the detriment of the public and its need for standardization. The ready availability of *licensing* for displays with royalty payments to the originator allows the public to obtain all the benefits of standardization, minimization of training costs, and familiarity, without subtracting from developers' incentives for creation.

A policy analysis is therefore not called for on the subject matter question, nor is any other copyright question of law regarding displays even remotely uncertain. The attempt by litigating parties, the encouragement of the attempt by commentators, and the acceptance of the attempt by courts, to raise fundamental policy issues regarding the scope of copyright in screen displays has only encouraged wasteful litigation on a matter that is about as certain as statute or policy can make it.

The only questions of interest regarding displays are the primarily factual ones of originality and fixation—the latter hardly worth discussion because an unfixed display is not a practical possibility—and the very factual question whether a defendant's display infringed the plaintiff's rights in its own display. These are questions that can be answered only in the context of a particular case, with a close examination of particular screen displays.

If courts would keep these distinctions of copyright policy, law, subject matter, and tests in mind, we would have greater certainty in the law, more productive investment in the development of improved screen displays, wide-spread acceptance and use of screen display standards, and far less wasteful litigation.