COPYRIGHT INFRINGEMENT BY ADD-ON SOFTWARE: GOING BEYOND DECONSTRUCTION OF THE MONA LISA MOUSTACHE PARADIGM AND NOT TAKING VIDEO GAME CASES TOO SERIOUSLY

Richard H. Stern*

ABSTRACT

Courts are beginning to consider whether computer software "add-ons" that enhance the performance of copyrighted programs constitute the making of unauthorized derivative works. The ambiguity of the copyright statute and its inconclusive legislative history give the courts great latitude in interpreting the term "derivative work." They are thus free to interpret it in a way more, rather than less, consistent with carrying out the fundamental goal and purpose of the copyright system to promote progress of science and useful arts. This would call for interpreting preparation of a derivative work not to include what add-on programs do when they interact with target software. The Mirage and Artic decisions are apparent strong obstacles to that interpretation. Nonetheless, use of add-on programs can be addressed in a way to effectuate public policy. Their use should be considered a privileged or exempted customer use of that which the original seller sold to its customers and for which they paid. Section 117's adaption right and the doctrines of nonderogation from grants and estoppel converge to support that privilege.

Video game litigation has historically paved the way for computer software litigation. The controversy over whether copies in machine language1 are


1The term "machine language" refers to information encoded in a machine-readable medium, such as a diskette or semiconductor memory chip (such as ROM or EPROM), usually in binary object code. Such information may be utilized in a computer or similar machine (hence the term "machine readable"), but it is not readily understood by most persons, including most engineers.
protected by copyright was resolved for video games before it was resolved for ordinary computer programs. Likewise, whether copyright protects screen displays independent of the computer code used to generate them was resolved in video game cases long before the issue even surfaced for ordinary computer programs. Video game copyright law is to ordinary computer program copyright law as California is to the rest of the United States for fads and mores, as well as for legal doctrines.

Currently, one of the most avant garde computer program legal controversies is whether third party efforts to improve a copyrighted program infringe the program creator's rights. The only portion of the computer program field in which this controversy has sparked litigation is with video games such as Nintendo's "Super Mario Brothers" and "Teenage Mutant Ninja Turtle." Although, as I will show, there are important economic and social differences between the copyright infringement disputes spawned by efforts to "improve" these games and by efforts to improve other computer programs, there are significant parallels too. Moreover, it must be anticipated that courts will carry doctrines from the video game copyright arena to the computer program copyright arena, as they have repeatedly done in the past.

I. WHAT ADD-ONS DO

The genesis of the latest copyright dispute about home video games is illustrated by the frustration that my six-year-old son feels when he plays Super Mario Brothers. The protagonist Mario, operated by the player, faces death-dealing adversaries operated by the computer. Mario has a fixed number of "lives." If he manages to get to the end of an episode (a "world") without loss of all his remaining lives, he moves to a new world and gets some additional lives. His object is to rescue the Mushroom Princess from her captors at the end

Section 101 of the Copyright Act defines "copies," however, as material objects from which a work can be perceived "either directly or with the aid of a machine or device." It also defines a "computer program" as a set of instructions to be used "directly ... in a computer." Both definitions extend to machine-readable object code.


of World 8 before his lives are all extinguished. But if (I should say ‘‘when’’) Death, the Destroyer of Worlds, takes Mario’s last life, the player loses and must begin a new game. My son is not a very good player; his Mario is invariably exterminated before he gets to the end of World 2. This tends to result in rage and tears, with some risk of property damage. By now, he is so frustrated that he refuses to play the game any more despite his initial enthusiasm.

Enter the ‘‘Game Genie.’’ A San Francisco toy manufacturer, Lewis Galoob Toys, has created a device that interacts with the Nintendo games for the benefit of inept or inexperienced players like my son. The Game Genie plugs into the Nintendo equipment and imbues Mario with wizardly powers to avoid death-dealing dangers, to jump higher, and to float over obstacles. It also permits the player to increase the number of ‘‘lives’’ to any desired number.6

Nintendo sued Galoob for copyright infringement. It is concerned that the Game Genie will make the game too simple, so that players become bored and stop playing.7 Nintendo’s legal theory is that Galoob is causing players to create derivative work versions of the game without Nintendo’s authorization to do so. Galoob’s defense is that customers acquire the right to ‘‘improve’’ the way the game plays by virtue of having paid for the video game equipment. Doubtless, there will be a testimonial battle of experts to determine whether Galoob and its customers are improving the game or trashing it.

An earlier video game controversy concerned a device that functioned as the opposite of the Game Genie. It made the game harder to play, and was directed to the interests of players who had become too expert with the Galaxian video game to play it in arcades in its original form. The Seventh Circuit’s decision in this case,8 discussed in detail below, is probably the leading precedent in the field. It held that the defendant’s video game ‘‘speed-up kit’’ infringed the Galaxian copyright by causing players to create unauthorized derivative works based on the copyrighted work.

What has any of this to do with computer programs? Just as video games may have Game Genie and speed-up kits to enhance or improve their performance for their players, ordinary computer programs may have enhancement or ‘‘add-on’’ programs that modify and improve the performance of spreadsheets, data base managers, and other business or commercial software at which they are targeted.9 An add-on program may speed up the operation of the original or target program, change the appearance of its screen displays, facilitate transfer of files

7Nintendo’s vice president delphically called it ‘‘like giving candy to a baby.’’ Wall St. J., supra note 6. Some home video games have player-selectable versions of varying difficulty.
9An example of such a program is Connective Corp.’s recently announced ‘‘Masquerade,’’ a program that makes programs written for IBM mainframes appear to the user to be programs written to run on Macintosh microcomputers. Connective claims that Masquerade permits a user who owns an IBM ‘‘PROFS’’ message-sending program to operate PROFS via a screen display with Macintosh

WINTER 1991

207
from one program to another, permit an additional kind of report to be produced, or otherwise provide features not present in the original program.

Often, add-on sellers operate with the consent of the target software publishers, who apparently consider that the add-ons increase the value of and market for the target product by making it more attractive to users. At other times, however, the interests of target software publishers clash with those of add-on sellers. The original sellers sometimes assert that they desire to control the identity of their computer programs. More realistically, they want to make any money to be had from selling enhancements to their programs, regardless of who first had the ideas. In any case, disputes between add-on sellers and sellers of targeted programs are becoming increasingly common, certainly at the “jaw-boning” level, and even in actual litigation.17

The proprietors of target software charge that the enhancers are, to use conventional copyright parlance, preparing unauthorized “derivative works” based on the original computer programs, in violation of the exclusive rights of copyright owners to prepare derivative works.13 Enhancers have responded by denying that there is any derivative work in these circumstances; they have also claimed that the “first sale” rule immunizes their enhancements.14

icons and similar Macintosh features, without doing any programming or making any changes. Buerger, Masquerade Creates Mac 3270 FrontEnds, InfoWorld, Apr. 16, 1990, at 24, col. 1. Con-nective’s president stated, “This lets corporations get the benefit of the Mac’s interface without the hassle of overhauling either the mainframe or Mac code.” Id. Ordinarily, an add-on program is sold on a separate diskette or other medium. When used, it does not physically merge with the copy of the original program and does not alter it. Rather, the two programs interact only in the computer. There is thus no reproduction of a new copy of the original computer program in any permanent form.

For example, Apple authorizes approved sellers of programs that cooperate with Macintosh microcomputers or software to use Apple trademarks, such as the “bitten apple.” Advertising material for Masquerade, supra note 9, uses Apple trademarks. Microsoft Corp. recently announced publicly that 60 vendors had agreed to provide “add-on tools for C 6.0,” a new Microsoft software package. Johnston, Microsoft Unveils C, Quick C Updates and Add-On Tools, InfoWorld, Apr. 16, 1990, at 13, col. 1.

Probably the most notorious confrontation of this type in the software industry was the widely reported “Make my day” speech of Ashton-Tate’s then CEO Ed Esber at the September 1987 meeting of the Software Publishers’ Association. Invoking the spirit of Dirty Harry, the celebrated Clint Eastwood cop, Esber dared add-on sellers to continue trafficking in material using the “dBase” programming language, created for Ashton-Tate’s “dBase” data base management program, and dared them to continue in their efforts to establish a standard protocol for the dBase language. “Go ahead, make my day,” he said, threatening a barrage of lawsuits. See, e.g., Parker, Dbase Committee Seeks IEEE Support of Standard, InfoWorld, Dec. 7, 1987, at 8, col. 4.

About a year later, Ashton-Tate sued two add-on companies, Ashton Tate Corp. v. Fox Software, Inc., No. 88–6837 (C.D. Cal. filed Nov. 18, 1988). The suit was very unpopular and antagonized many in the software community. See Observers Say Esber Exit ‘‘Can’t Hurt’’ Ashton-Tate, InfoWorld, May 7, 1990, at 1, 97. It is unclear whether this as-yet unresolved suit addresses the issue of whether add-on programs create unauthorized derivative works or simply charges unauthorized reproduction of protected elements of the copyrighted work.


The first sale rule, codified at least partially in 17 U.S.C. § 109(a) (1988), permits purchasers of copies of a copyrighted work sold by the copyright owner or its licensee to resell those copies without further permission from the copyright owner.
II. THE PRIMA FACIE CASE FOR ALLOWING ADD-ONS

In an earlier article, the author addressed the emerging conflict over the legality of add-on programs. The previous article addressed the legality of add-ons by analysis and "deconstruction" of the logic of existing precedents. The conclusion drawn there was that the current trend of decision tends to favor claims by owners of copyrights in underlying target programs of a right to suppress add-ons. In earlier decisions, courts had tended to follow what might be viewed as a paradigm of writing notes in the margins of a textbook and then reselling the used book; this the courts seemed to consider permissible. In several of the most recent cases, however, the courts have appeared to follow a paradigm of painting over a copy of the Mona Lisa or partially erasing a de Kooning drawing. The principle accepted was that if the Mona Lisa were painted over so thoroughly as to be unrecognizable (or if the de Kooning were almost completely erased), there would be no preparation of a derivative work and no copyright infringement. But if the Mona Lisa just received a moustache and remained recognizable as a modified Mona Lisa, then there would be an infringing preparation of a derivative work.

The Seventh Circuit's decision in Artic Int'l, Inc. v. Midway Mfg. Co. was the first opinion of any court that attempted to analyze the economic impact of an enhancement, in the computer program field or otherwise, and to relate

---

6 This paradigm follows the ancient tradition of writing annotations and commentary around the borders of Holy Scripture, and then writing further commentary outside the margins of the first commentary. But see WGN Continental Broadcasting Co. v. United Video, Inc., 693 F.2d 622, 626 (7th Cir. 1982) (dictum to contrary, suggesting that writing the Lord's Prayer on inside cover of book to improve resale value would be copyright infringement). In Paramount Pictures Corp. v. Video Broadcasting Sys., Inc., 724 F. Supp. 808 (D. Kan. 1989), the court refused to follow WGN in a case where the defendant inserted commercials on the lead-in part of the videotape of a copyrighted motion picture. The court found no derivative work since there was neither truncation nor distortion of the motion picture itself. Id. at 821.
7 The recent Paramount decision suggests still another paradigm for derivative works of this type, based on patent law's distinction between combinations and mere aggregations. See infra note 24.

16 This paradigm follows the ancient tradition of writing annotations and commentary around the borders of Holy Scripture, and then writing further commentary outside the margins of the first commentary. But see WGN Continental Broadcasting Co. v. United Video, Inc., 693 F.2d 622, 626 (7th Cir. 1982) (dictum to contrary, suggesting that writing the Lord's Prayer on inside cover of book to improve resale value would be copyright infringement). In Paramount Pictures Corp. v. Video Broadcasting Sys., Inc., 724 F. Supp. 808 (D. Kan. 1989), the court refused to follow WGN in a case where the defendant inserted commercials on the lead-in part of the videotape of a copyrighted motion picture. The court found no derivative work since there was neither truncation nor distortion of the motion picture itself. Id. at 821.
17 The recent Paramount decision suggests still another paradigm for derivative works of this type, based on patent law's distinction between combinations and mere aggregations. See infra note 24.
that impact to whether a modification constitutes the preparation of a derivative work. The Seventh Circuit considered it a close question whether using a speed-up kit on a video game amounted to the preparation of a derivative work. The court resolved the question on the basis that speeding up a video game with which the public had become jaded created new economic value in the game. Who should enjoy the extra revenue that the speed-up kit generated? Conceivably, the court said, purchasers of the equipment had an implied license to speed up the games. But had the copyright owner intended to grant such a license? The Seventh Circuit found the answer to its question simple:

Video game copyright owners would undoubtedly like to lay their hands on some of that extra revenue and therefore it cannot be assumed that licensees are implicitly authorized to use speeded-up circuit boards in the machines plaintiff supplies.

In the earlier article, this was termed the ‘‘Bathsheeba Theory.’’ The Seventh Circuit decided that there was no license, and that an infringing derivative work was prepared on the same type of theory under which the relative interests of King David and Uriah were sorted out. But the court stopped short of explaining why its allocation scheme was superior to alternative schemes, such as those of defendants who would also undoubtedly like to lay their hands on the extra revenue. Artic was first to frame the proper question, but the court failed to give a principled answer, and no other reported decision supplies one.

Under Artic, add-on programs involve the preparation of derivative works when they modify the appearance of screen displays protected by copyright. A recent Ninth Circuit decision, Mirage Editions, Inc. v. Albuquerque A.R.T. Co., further supports expansive derivative work claims, and it is not necessarily limited to a screen-display context. As explained at more length in the earlier article, the Mirage decision found that an infringing preparation of a derivative work occurred when a picture framer cut prints out of an art book, matted them, placed the matted prints between two sheets of plastic as a passe-partout

---

19 As suggested earlier, see supra text accompanying note 9, a speed-up kit is analogous to an add-on program. The kit is a small printed circuit board in which data or a computer program is stored. It is plugged into and cooperates with the larger printed circuit board in which the original video game computer program and data are stored. The effect of the kit is to speed up the operation of the original video game and sometimes to add characters or features to it. The speed-up kit in the Artic case caused the aliens in the Galaxian video game to attack the player’s rocket ship more rapidly and in greater numbers. See 547 F. Supp. at 1004.

20 17 U.S.C. § 101 (1988) defines a derivative work as a work based on a preexisting work. It states that examples of a derivative work are, among other things, a translation, dramatization, condensation, ‘‘or any other form in which a work can be recast, transformed, or adapted.’’

21 704 F.2d at 1013.

22 2 Samuel 11. It was not the point of the appellation that the speed-up kit creator (or add-on creator) is to be analogized to Uriah and the copyright owner to King David, in the Bathsheeba story. Surely, copyright owners would claim the opposite. The point was that you cannot sensibly answer questions of this type by reference to who would like to lay his hands on the subject matter, any more than Willy Sutton properly answered the question of why he kept robbing banks by saying that that was where they kept money.

23 856 F.2d 1341 (9th Cir. 1988), cert. denied, 109 S. Ct. 1135 (1989).
frame, and sold the resulting products. In effect, placing the prints into a modified environment or setting, even though the prints themselves were unchanged, was held to be preparation of a derivative work.  

The reach of Artic and Mirage may go beyond changed screen displays. In principle, the same argument could apply to add-ons that interact with target software without generating modified visual imagery. In many instances, the interaction between add-on and target programs will simply be reflected in the results accomplished by use of the computer programs. That, in itself, will not be a copyright infringement, for the results of a work are not covered by the copyright in the work.

However, in principle, interaction may occur in the random-access memory (RAM) of the computer in a way that, even if ephemerally and transitorily, commingles code from the two computer programs while they are operating. In effect, it would be as if one crossed out a line in a book and wrote in "go to insert #1," which is pasted in at the back, except for the fact that there is no physical remnant of any such patching and commingling of two works in RAM. To be sure, ordinarily no observer perceives the commingled codes. That is

24A recent decision, Paramount Pictures Corp. v. Video Broadcasting Sys., Inc., 724 F. Supp. 808 (D. Kan. 1989), reached an opposite conclusion on similar facts or on facts arguably stronger for the copyright owner than those of Mirage. The defendant VBS placed advertisements on the lead-in videotape preceding Paramount's motion pictures in rental cassettes (which Paramount had originally sold). In some instances VBS's advertisements overwrote Paramount's own lead-in advertising and its notices threatening against public performance use. Since the copyrighted motion picture itself was unaffected, the court found no derivative work of the motion picture was created. (Apparently, Paramount had not thought to register its total tapes, with the added material that VBS overwrote, as derivative works. In that event, mutilation might have been argued, although the copyright would have a de minimis problem.)

The trivial distinction might be urged that in Paramount the public viewed the commercials and the motion pictures separately (seriatim), while in Mirage the public viewed the prints and the passe-partout frames at the same time. More realistically, the Paramount court in the Tenth Circuit simply disagreed with and declined to follow the decision of the Ninth Circuit in Mirage. Paramount fits a paradigm suggested by the distinction that patent law makes between a combination of elements and their mere aggregation. A mere aggregation, such as a telephone and a bathtub, or a pencil and an eraser, is unpatentable. Rubber-Tip Pencil Co. v. Howard, 87 U.S. (20 Wall.) 498 (1874); see Anderson's-Black Rock, Inc. v. Pavement Salvage Co., 396 U.S. 57, 60 (1969). The elements of the claimed combination must coact or interact, rather than simply exist in conjunction with one another, to support a patent. Similarly, in Mirage and Paramount, it could be said that the frame and picture or the lead-in commercial and motion picture simply coexisted without coaction. They formed a mere aggregation. Hence, there was no derivative work.

A similar concept applies to the infringement of unauthorized derivative works. An unauthorized translation of a novel cannot be protected by copyright because the original work pervades and taints the entire translation. But the creator of an anthology of poetry could sue and recover from an infringer who copied the whole anthology, even though one poem had been included in the copied anthology without authorization. H.R. Rep. No. 94-1476, 94th Cong., 2d Sess. 57-58 (1976). There is also a similar concept applied to ornamentation of useful articles. That concept is apparently borrowed from Italian jurisprudence. See Franzosi, The Legal Protection of Industrial Design: Unfair Competition as a Basis of Protection, 12 EUR. INTELL. PROP. REV. 154, 155-56 (1990) (discussion of scindibilita, criticizing it as "totally illusory" legal criterion).

Add-on programs do not fit the telephone/bathtub paradigm when, as typically occurs, the add-on pervasively interacts with the expressive elements of the target program. In such circumstances, the annotation and Mona Lisa paradigms fit better.
inessential. However, one could trace the execution of such a patched-up pro-
gram and observe the successive instructions being executed. Nevertheless, sec-
tion 106(2) of the Copyright Act, and its legislative history, do not require
permanency of fixation in copies in the case of a derivative work.

The earlier article faulted *Artic* and *Mirage* for incomplete analyses that
are counterproductive to promoting progress of useful arts because they tend to
discourage creation of enhancement programs and their availability to the pub-
lic. It agreed with the *Artic* court that the question was properly framed ulti-
mately in terms of who should get the benefit of the incremental value gener-
ated by the coaction between the subsequent work and the original work. It
disagreed with the criterion of who would like to lay his hands on the money
because that question has no direct relation to the policies and purposes of the
statute.

The proper question is which scheme for allocating revenue between the
two entrepreneurs will better effectuate the constitutionally mandated purpose
of the copyright laws to benefit the public by motivating creative activity. App-
lying that principle involves a difficult balance between the interests of au-
thors in the control of their works and society's competing interest in the free
flow of information and technology. Reward to authors is instrumental to this
end; it is not an end in itself. The question therefore is properly viewed in terms
of whether allocating the incremental value of the new technological use to the
original or to the subsequent entrepreneur will lead to more creation and mar-
keting of technological advances.

The earlier article concluded that society gains more from rewarding the
subsequent entrepreneur than the original one. At the time of creation of the
original computer program and its marketing, the original entrepreneur did not
foresee the specific add-on technology, even though everyone may suspect that
some kind of improvement is inevitable, eventually. The reward from the first
authorized sale of the copyrighted product was substantially the entire incen-
tive that could motivate the original entrepreneur. It is unrealistic to believe

---

25 In interpreted BASIC for a personal computer, one would use the TRON ("trace on") fea-
ture to do this. Trace facilitators exist for other types of program. For example, an "in-circuit
emulator" may be used to trace the execution of code in a microprocessor, such as that of a video
game printed circuit board.

26 17 U.S.C. § 106(2). The legislative history notes that § 106(2) is broader than clause
§ 106(1) "in the sense that reproduction requires fixation in copies ... whereas the preparation of
derivative work such as a ballet, pantomime, or improvised performance may be an infringement
62 (1976). This passage of the legislative history does not address works other than those exploited
or utilized in an intangible form. Thus, it does not discuss preparation of a derivative work based on
a prior book (i.e., literary work) or picture, but the loose and imprecise wording of § 106(2) would
probably by interpreted to cover them.

27 *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984), states that the purpose
of U.S. Const., art. I, § 8, cl. 8 is to give Congress power to promote knowledge by securing to
authors the exclusive rights, for limited times, to their writings.
that any substantial degree of additional motivation is provided by the possibility of being able to monopolize some unknown future add-on, for the present value of that unknown factor has to be de minimis.

On the other hand, the subsequent entrepreneur with a specific idea for add-on has to decide whether he will make enough money from the add-on to justify persevering in trying to develop and market it. If the law of the land is that the subsequent entrepreneur is liable to be shut down at the will of the original entrepreneur because the latter is legally entitled to control use of the add-on as a derivative work, then the law will be a powerful disincentive to the subsequent innovation.

The logic of Artic and Mirage applied to add-on programs sets technological progress back and contravenes the recognized policy objectives of the copyright laws. It would be more reasonable to interpret the term "derivative work"—as applied to add-on sellers—to include only those add-on programs that incorporate (reproduce) substantial portions of the code of the original programs in the diskettes that contain the new program. The difficulty is finding a specific and positive legal rationale for exempting add-ons from copyright infringement liability within the framework of existing copyright law.

An add-on seller's principal argument would appear to be that, Mona Lisa moustache paradigms notwithstanding, what an add-on program does to a target program is not covered by the statutory definition of "derivative work" in section 101 of the Copyright Act. A derivative work is a work—

based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgement, condensation, or any other form in which a work may be recast, transformed, or adapted.

The argument would be that the use of an add-on program is not a "recasting, transformation, or adaptation" of the original work. Those terms are not self-defining. They must mean something beyond what the preceding list covers or Congress would have had no reason to add them at the end. On the other hand, the things swept up by the catch-all words at the end of the definition of derivative works must be of the same general kind as the things in the preceding list. They must in some way be like translations, musical arrangements, dramatizations, fictionalizations, and so on. They must not be something radically different.

The problem with this application of ejusdem generis is that the inquiry proposed is quite frustrating and inconclusive. What add-on programs do is utterly foreign to what Congress had in mind when it addressed translations, musical arrangements, dramatizations, fictionalizations, and so on; the legislative history is uninforming. The course of least resistance is to interpret the catch-all clause as broadly as possible. While it would be a considerably better view to construe these broad terms according to the fundamental purposes un-

---

derlying the Copyright Act as they apply in this situation, it would not be prudent for an advocate to rely on this policy-oriented approach, particularly in view of *Artic* and *Mirage*.

This does not foreclose all conceivable defenses, however. An accused infringer may counter the charge on either of two branches of argument. The first branch is to argue that the challenged conduct does not fall within one of the statute's specific prohibitions, for not every unauthorized use of copyrighted subject matter is infringement. The second branch of defense is to assert that the conduct, even if *prima facie* within the reach of the statutory categories of infringement listed in section 106, is nevertheless legally privileged or otherwise shielded from liability. *Artic* and *Mirage* go only so far as to establish the *prima facie* case. Arguments of the second branch, more in the nature of affirmative defenses, still lie before us.

### III. JUSTIFICATIONS AND PRIVILEGES FOR USING ADD-ONS

The exclusionary rights described in section 106 of the Copyright Act are expressly subject to certain statutory exceptions that exempt or shield certain acts and conduct by declaring them not copyright infringements "notwithstanding section 106." The exceptions include fair use, the first sale doctrine, and computer program adaptation. The exclusionary rights of section 106 are also subject to nonstatutory, judicially established affirmative defenses, such as estoppel, laches, unclean hands, and misuse.

#### A. The First Sale Doctrine

In the *Mirage* case, the defendant argued that it was shielded from liability by the "first sale" rule. That rule stems from common-law principles that the exercise of "remote control" by a seller over his copyrighted goods is incon-

\[^{30}\text{See Sony, 464 U.S. at 447.}\]
\[^{31}\text{See 17 U.S.C. § 107 (1988). A fair use defense will not succeed predictably. The commercial context of add-ons creates a presumption against the availability of this defense. See Sony, 464 U.S. at 449. Other pertinent factors cut both ways depending on the circumstances of each case. In favor of use is the characterization of program enhancement as an activity the purchaser has already paid the copyright holder a fee to engage in, much like the Supreme Court reasoning in Sony that time-shifting of television programs merely allows the viewer to exercise the existing right to view the program; but this depends on the precise nature of the enhancement. Against use is that computer programs are not "factual" works; however, neither are they entertainment. The amount of the work "taken" is unclear. The most important fair use factor is whether the use adversely affects the market for the original work. Add-ons can increase the demand for the underlying program, but they also undercut the copyright holder's ability to sell its own enhancements, as through updates of the program. See generally W. Patry, The Fair Use Privilege in Copyright Law (1985).}\]
sistent with the purchasers’ property rights over the goods. It is therefore said
that the first authorized sale of an article protected by intellectual property
rights “exhausts” the intellectual property monopoly with respect to that arti-
cle, or takes the sold article outside the scope of the monopoly. That is a rhe-
torical way of saying that it is not infringement for the purchaser to do certain
things with the purchased article. The problem is, of course, what things?

Clearly, it is not infringement to resell the article, nor to do so at whatever
price the purchaser chooses. Section 109(a) of the Copyright Act partially codi-
fies this doctrine by expressly excluding from the reach of section 106 any re-
sale of a copyrighted article purchased from the copyright owner or its li-
censee. The question is whether the 1976 codification eliminated the
application of the doctrine to acts other than resale—for example, performance
use and preparation of derivative works. Despite sweeping language in some
earlier copyright decisions, the recent trend of decision in the courts of appeal
has been to read section 109(a) narrowly. Thus, unauthorized public perfor-

mance use of a copy of an audiovisual work, purchased from the copyright
owner, has been held copyright infringement. In *Mirage*, the court held that
the unauthorized preparation of a derivative work, made by using a copy of the
work purchased from the copyright owner, is copyright infringement. There-
fore, reliance on section 109(a) as a defense in an add-on case is unlikely to be
successful.

I come now to a cluster of arguments that are very similar. Indeed, they are
in large part different ways of saying the same thing. But some of the arguments
are judicially established doctrines, while one is based on a specific provision
of the statute. Conceptually, they are different arguments, although all share
common policy roots.

---


38Conversely, if a court refuses to characterize a defendant’s conduct as the preparation of a derivative work, it will probably hold that the defendant’s conduct is shielded by the first sale doc-

trine. Thus, in the *Paramount* case, once the court held that inserting commercials into a videotape of a copyrighted motion picture was not preparation of a derivative work, the court went on to hold that the first sale doctrine precluded the copyright owner’s claim. 724 F. Supp. at 821. Of course, since there was no act of copyright infringement absent preparation of a derivative work, the de-

fense was surplusage.
B. Implied License

Preliminary consideration should be given to the doctrine of implied license. That is the legal theory that, by selling a computer program to customers, a copyright owner by implication consents to customers’ use of the program in computers in a manner that gives the customers the benefits for which they purchased the program. By extension of the argument, third parties are constructively authorized to aid the customers in getting those benefits.

The argument of implied license is on the right track. But it may have shortcomings. A license may be implied by law or implied in fact. In the first case, the word “implied” is rhetorical, for a rule of substantive law simply addresses the problem. For there to be a license to use add-ons, implied by law, there must be a separate source for that substantive rule. In that case, however, it may well be sufficient to turn to that separate source and to ignore implied license as a separate argument. If the license is considered to be implied in fact rather than implied by operation of law, several difficulties in applying the rule may exist. First, the court may decide to consider evidence concerning the parties’ state of mind. Such evidence would probably be worthless, a source of expense, and a waste of the court’s time; it would surely add to the uncertainty and unpredictability of the outcome, and perhaps put a premium on putting together a charade. Second, it is arguable that the factual implication of license can be negated by the seller’s express disclaimer in a notice printed on diskette labels, or on a leaflet shrink-wrapped with the product. If so, the implied-license argument is readily torpedoed.

C. Estoppel and Nonderogation

An alternative legal approach is the doctrine that sellers are estopped from asserting rights that derogate from a grant. For example, it might be said that a seller of a program is estopped from preventing customers from repairing

40See Stern, Shrink-Wrap Licenses of Mass-Marketed Software: Enforceable Contracts or Whistling in the Dark?, 11 Rutgers Computer & Tech. L.J. 51 (1985). One must distinguish between the legal ineffectiveness of a notice to create copyright infringement liability in the wake of a sale, see Bobbs-Merrill Co. v. Straus, 210 U.S. 339 (1908), or to create a contract, see Vault Corp. v. Quaid Software, Ltd., 847 F.2d 255 (5th Cir. 1988), and the possible effectiveness to dispel a factual inference of intent to grant a license. Thus, the Vault case holds that § 117 overrides (or preempts) a state’s authorization of contracts of adhesion that prohibit disassembly or decompilation of a computer program. But it is not authority that a seller’s attempt to force such an agreement down its customers’ throats fails to reflect the seller’s intention not to license the customers to do what the seller is trying to stop them from doing. To the extent that factual inferences about intent are relevant, as contrasted with “constructive intent,” a notice probably must be considered to reflect the noticing party’s subjective state of mind.
Copyright and Add-On Software

"bugs" in the program to give themselves the benefit of what they have purchased. To profit by selling a "buggy" program to customers and at the same time to deny them the right to debug the program are morally inconsistent acts. Although nothing in the Copyright Act or its legislative history gives purchasers any express right to debug computer programs, surely the courts would imply that right from the copyright owner's act of sales.42

The doctrines of estoppel and nonderogation from grants have been used to support a variety of judicially-created rules in the intellectual property field. At times, the term "implied license" is used to describe the same rules, but it is usually clear that the license is implied by operation of law. Hence, the consent or authorization of the owner of intellectual property rights to the impliedly licensed conduct is entirely constructive. It is a rule of substantive law, like an irrebuttable presumption.43

Thus, the Supreme Court has said that "it is fundamental that sale of a patented article carries with it an 'implied license' to use" the article.44 It has also been held that the sale of a product useful only for engaging in conduct that, if unauthorized, would be patent infringement implies a license as a matter of law.45 The patent owner constructively authorizes the conduct by making the sale. The decisions do not articulate with precision the reason for the rule. It appears to have two bases. One is the right of property referred to earlier, in discussing the first-sale doctrine.46 The other is that the owner of intellectual property rights, having sold the article for a price considered satisfactory, cannot in fairness be permitted to molest the purchaser by an infringement suit.47

A House of Lords decision and one of our own Supreme Court decisions illustrate somewhat different doctrinal approaches toward accomplishing the same policy. The English case, British Leyland Motor Corp. v. Armstrong

41 A "bug" is a mistake made by a computer programmer, a defect that causes errors when the program executes. See C.J. Sippl, Microcomputer Dictionary 42 (2d ed. 1981). See also Stern, Section 117 of the Copyright Act: Charter of Software Users' Rights or Illusory Promise?, 7 W. New Eng. L. Rev. 459, 466 n.42 (1985).
42 Stern, supra note 41, at 465-66.
44 Aro Mfg. Co. v. Convertible Top Replacement Co., 377 U.S. 476, 484 (1964); see id. at 497.
46 See supra text accompanying notes 34-38.
47 The Aro decision, 377 U.S. 476, twice cites Adams v. Burke, 84 U.S. (17 Wall.) 453 (1873), for this proposition. Aro and Adams involved patent rights. Similar statements occur in copyright decisions. In Bobbs-Merrill Co. v. Straus, 210 U.S. 339, 351 (1908), the Court observed that the copyright owner "did sell copies of the book . . . at a price satisfactory to it." It was therefore improper to allow the copyright owner "to qualify the title of a future purchaser" by means of a notice reserving the right to sue for copyright infringement if the purchaser resold the book for less than $1. Id. See also Burke & Van Heusen, Inc. v. Arrow Drug, 233 F. Supp. 881 (E.D. Pa. 1964) (copyright owner having sold copyrighted article at price satisfactory to it had no right to prevent purchaser from deconstructing package and reselling components separately). The theory of all of these decisions is that the owner of intellectual property rights, having received its royalty for relinquishing the statutory monopoly, should be satisfied with what it got and should not further annoy the purchaser.
Stem

Pats. Co.,48 involved an automobile company’s use of its copyrights to require customers to buy their spare or replacement parts—in this case, a tailpipe—from it or its licensees. The House of Lords reversed a judgment for the manufacturer on the ground that the doctrine of nonderogation from grants prohibited the manufacturer from interfering with purchasers’ enjoyment of the goods it had sold them by imposing added expense and inconvenience on them.49 Two of the judgments expressly addressed the possibility of deciding the case on the doctrine of implied license, and rejected it.50 Apparently, the concern was that the seller might be able to negate any implied license by taking appropriate steps to disclaim it. Under the principle of nonderogation from grants, however, the right to repair a car “cannot . . . be withheld by the manufacturer of the car by contract with the first purchaser and cannot be withheld from any subsequent owner.”51 In other words, the doctrine of implied license, in the British view, involves factual inference, while the principle of nonderogation from grants is a rule of substantive law.52 The comparable Supreme Court decision, Wilbur-Ellis Co. v. Kuther,53 involved a purchaser’s modification of a patented sardine-canning machine to make it process a different size of can for which the market had more demand. The patentee objected, demanding a further royalty for consenting to the purchaser’s modification. The patentee’s theory, supported by several decisions in courts of appeals, was that the patent covered a combination of elements, that the purchaser had totally deconstructed the machine to modify it, and that therefore when the purchaser put the parts back together it was reconstructing and remaking the patented combination of elements, without any license to do so. The Court held that “adaptation for use of the machine” was within the rights that the purchaser acquired by the act of purchase because the patentee, having been paid to relinquish the patent monopoly, parted with the right to restrict the purchaser’s use of the goods.54

One may ask why this body of case law should apply to the preparation of derivative computer programs and screen displays—in the face of an explicit provision of our Copyright Act giving copyright owners the exclusive right to authorize preparation of derivative works. The short answer is that the logic of each situation is the same, the competing interests at stake and policies involved are the same, and therefore the same conclusion should apply.55 But it is still premature to explain why this short answer is correct. One more piece of the

48[1986] 1 All E.R. (H.L.) 850. Under English copyright law, a copyright in a technical drawing or blueprint may be used to prevent other persons from manufacturing the depicted product. Id.
49See id. at 863 (judgment of Lord Templeman).
50See id. at 854, 863 (judgments of Lords Bridge and Templeman).
51See id. at 863 (judgment of Lord Templeman).
52See supra text accompanying note 44.
54See supra note 47.
55The main argument against application of estoppel/nonderogation line of authority to add-on programs is that United States copyright law, unlike United States patent law, has an express statutory purpose to give copyright owners the power to control derivative works. 17 U.S.C. § 106(2). That makes our copyright law different from our patent law.
jigsaw puzzle needs to be dropped into place. It provides a longer answer, and an ever stronger positive argument in favor of permitting use of add-ons.

D. Section 117's Adaptation Right

Section 117 of the Copyright Act gives owners of computer programs a right to make an "adaptation" when it "is created as an essential step in the utilization of the computer program" in a computer.\textsuperscript{56} Congress enacted section 117 in response to the recommendations of a national commission that Congress had directed to study legal protections for rights in computer programs. In its report to Congress, the Commission on New Technological Uses of Copyrighted Works (CONTU) stated that an adaptation right was necessary to give software users "the right to add features to the program that were not present at the time of rightful acquisition."\textsuperscript{57} The commission recognized that the proposed adaptation right conflicted with the copyright owner's right to control derivative works,\textsuperscript{58} but nonetheless considered a guarantee of the right to be essential. In the next breath, however, CONTU stated that proprietors of copyrights who "feel strongly that they do not want" customers to make adaptations "could, of course, make such desires a contractual matter."\textsuperscript{59}

The courts have given section 117 a mixed reception. Some have fastened on the statutory words "essential steps" and have held that only totally indispensable adaptions are permitted.\textsuperscript{60} Others have received the section more hospitably.\textsuperscript{61} But that argument is fallacious because a copyright owner's exclusive right to prepare derivative works is no different in principle from a patent owner's exclusive right to "make," or disassemble and remake, a combination of elements comprising a patented combination.\textsuperscript{62} To whatever extent copyright law would ordinarily prohibit a person from preparing a derivative work based on a copyrighted work, patent law would ordinarily prohibit a person from making a new combination that included the elements of a patented combination. Yet, that is precisely what patent law permits the person to do if he is a direct or indirect purchaser of a machine from its patentee, and uses the purchased equipment to make the new combination.\textsuperscript{63}

It therefore follows that the doctrine that purchasers of a product are entitled to modify it to increase its utility to them should have equal force when the product is copyrighted and when it is patented. (The author should disclose that he urged the foregoing argument in Midway Mfg. Co. v. Strohon, 564 F. Supp. 741 (N.D. Ill. 1983), to support making and selling speed-up kits, and that the argument was rejected on the authority of the \textit{Artic} decision.)
If the words of the commission’s report, effectively the only legislative history of section 117, are taken at face value, owners of computer programs have a broad adaptation right unless they have expressly contracted it away.

The reference to “essential step” cannot require that use of an enhancement must be indispensable to utilization of the computer program, that is, that the computer program be utterly useless without it. If that were so, the “right to add features to the program that were not present at the time of rightful acquisition,” of which CONTU speaks, would have little or no meaning. Why would the customer purchase a copy of a computer program if the customer could not utilize the program at all without first adding nonexistent features that had not yet been devised? CONTU did not explain in detail what it meant by “essential,” but the context suggests a meaning of integral or intrinsic, as contrasted with superficial. Thus, CONTU said that “a right to make those changes necessary to enable the use for which [the computer program] was both sold and purchased should be provided.” Again, like “essential,” the word “necessary” may be said to mean “indispensable,” but the context suggests that the “use for which it was . . . purchased” means something less than absolutely indispensable, such as requisite or needful to what the purchaser wanted to accomplish, or greatly desired.

IV. CONCLUSION

Ultimately, there is room for giving section 117 a generous or niggardly construction, depending on what policy one considers paramount in adminis-

---


64As with the question of what is the function of a computer program, asked in Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240 (3d Cir. 1983), cert. dismissed by stip., 464 U.S. 1033 (1984), the generality or specificity of the response may determine what is “essential” or “necessary.” In Apple the court asked what is the function of a compiler program, in order to determine whether the defendant’s taking of code from Apple’s compiler program was justified as necessary to perform the program’s function (in which case the idea and expression of the program would have merged). The court concluded that the function of a compiler is to convert source code to object code, apparently at that level of generality, rather than something more specific such as converting FORTRAN source code into object code suitable for use with a machine using a 6502 microprocessor or the architecture of the target microcomputer. At that level of generality, there are many other possible compiler programs that would accomplish the prescribed function—e.g., compilers for converting COBOL source code into object code for a computer using 8088 microprocessor. Hence, the code taken was not necessary to carry out the function.

By the same token, if “necessary to enable the use for which” a customer bought a program such as Lotus 1-2-3 is interpreted to mean “necessary to do accounting,” at that level of generality, no enhancement is ever “necessary.” If the phrase is interpreted to mean something much more specific, such as doing the customer’s accounting in a particular way, which may include importing particular kinds of data files from dBase II and preparing particular kinds of output reports, an enhancement that enables that to be done would be “necessary,” indeed, perhaps “indispensable.”
tering the copyright system. Making the paramount consideration reward to authors and their assignees leads to one conclusion; providing benefits to the general public leads to another. Analyzing the issue simply in terms of how section 117 should properly be construed is not likely to lead to satisfactory resolution of the question of the lawfulness of add-ons, for no construction is compelled as "the" proper one. As indicated earlier, it is more appropriate to try to analyze the add-on issue in the following terms. First, will the public be better or worse off with a regime that encourages more creation of add-ons? All things being equal, more add-ons are to be preferred to fewer add-ons, for reasons already stated. Second, will allowing free creation and marketing of add-ons have a distinctive effect on creation and marketing of underlying computer programs on which add-ons operate? For reasons stated, there will not be a disincentive. Third, and now we resume where we left off, is there a legal theory on whose basis the creation and marketing of add-ons can be supported, in a principled manner, as privileged or exempted from a claim of copyright infringement?

The previously promised long answer, then, is this: appropriate doctrinal support for permitting add-ons is found in a combination of (a) the doctrine of nonderogation from grants or estoppel (or legally implied license) with (b) the "adaptation" provision in section 117. The adaptation right of section 117 declares a specific statutory policy of the copyright law, applicable only in the case of computer programs. That specific computer program policy overrides any more general copyright policy regarding derivative works based on copyrighted works other than computer programs, such as the video games involved in the Artic case. The policy of section 117 coincides with that of the Kuther case and the whole line of estoppel/nonderogation authority, specifically reaffirming it in the case of purchasers of copies of computer programs who use adaptations of such programs.

Neither the Artic nor Mirage decision addresses either branch of the proposed combination of legal doctrines. Those decisions address only whether there is prima facie infringement under section 106(2) of the Copyright Act, not whether otherwise infringing conduct is privileged or exempt notwithstanding section 106. Hence, those decisions are not obstacles to a finding of no liability for add-ons. Section 117 and the doctrine of nonderogation from grants thus converge to justify the public's right to enjoy the availability of add-on programs.

To the extent necessary, an element of moral fervor can be introduced into the legal argument. The purchaser of a copyrighted product, such as a computer program, should be entitled to obtain the most efficient and beneficial use

---

66Section 117 begins, "Notwithstanding the provisions of section 106. . . ."
66I would be satisfied to forego moral fervor, but that appears to have become a necessary constituent of any copyright analysis of the scope of rights in computer programs. See, e.g., A.L. Clapes, Software, Copyright and Competition passim (1989).
of what was bought; the seller, having been paid once already, should let the customer alone and not molest him. Other formulations of this moral/legal principle are: "One royalty to one patentee for one sale is enough" and simply "Genug ist Genug."

That video game case law may suggest different results is beside the point. The analogy of video game cases is more superficial than essential. Not only is section 117 specific to computer programs, but the public interests at stake in regard to entertaining video games differ significantly from those surrounding commercial and industrial computer programs in general. Whether video games are sped up to whet the appetites of jaded players so that more coins can be coaxed from them as in Artic may be of marginal general public interest. Whether inept players of home video games, such as my son, are relieved of frustration by Game Genie devices may also be socioeconomically marginal. But the entire public has a major concern in whether business and commercial software is utilized with improved efficiency and functionality. That is a central factor in our constitutionally recognized public interest in the promotion of science and useful arts.

---


This is the same policy as the "reward" theory—that is, having collected the demanded consideration for relinquishment of the statutory monopoly, the owner of intellectual property rights is not entitled to anything more. See supra text accompanying notes 47 and 54.