No. 0305400

United States Court of Appeals for the Sixth Circuit

LEXMARK INTERNATIONAL, INC.,
Plaintiff-Appellee,

v.

STATIC CONTROL COMPONENTS, INC.,
Defendant-Appellant.

Appeal from the United States District Court for the Eastern District of Kentucky (Civil Action No. 02-571-KSF)

AMICUS CURIAE BRIEF OF ELECTRONIC FRONTIER FOUNDATION IN SUPPORT OF STATIC CONTROL COMPONENTS, INC., SEEKING REVERSAL

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In accordance with Circuit Rule 26.1, counsel for *amicus curiae* submit this corporate disclosure statement:

1. *Amicus* is a nonprofit organization with no parent corporation.
2. *Amicus* has no stock and hence no shareholders.

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I. Interest of Amicus

Electronic Frontier Foundation ("EFF") is a nonprofit public interest organization dedicated to protecting civil liberties and free expression in the digital world. Founded in 1990, EFF represents the interests of Internet users in court cases and in the broader policy debates surrounding the application of law in the digital age, and publishes a comprehensive archive of digital civil liberties information at one of the most linked-to websites in the world, <http://www.eff.org>.

In working to ensure that the public's traditional rights are preserved as we move into the digital era, EFF has participated as counsel or *amicus curiae* in virtually all of the leading cases testing the anticircumvention provisions of the Digital Millennium Copyright Act ("DMCA").

EFF's system administrator was a declarant in the case below because after purchasing a Lexmark printer, EFF was concerned by the license that purported to govern use of its toner cartridge. EFF was unable to obtain a non-"prebate" cartridge, but was also informed that there was no binding agreement, nor any penalty for failure to return the "prebate" cartridge. These representations appear to be inconsistent with Lexmark's description of its policies in this case.

II. Introduction and Summary of Argument

Static Control Components enables "third parties [to] sell reused Prebate cartridges containing the SMARTEK microchip to consumers in direct competition with Lexmark's authorized remanufactured toner

cartridges … at reduced prices to consumers…." *Slip op*. ¶¶ 111, 112. In other words, Static Control brings competition to the aftermarket for printer toner cartridges, lowering prices and increasing choice for customers. Lexmark, objecting to this competition, attempts to use technological lock-out, copyright, and the DMCA to block customers from using these less expensive refilled cartridges. Yet copyright law and the DMCA do not support Lexmark here. Instead of raising prices and enforcing consumer lock-in, copyright law and the DMCA support access by the retail public to any legitimately purchased devices; they do not lock consumers out of their own printers.

Lexmark was able to convince the district court to adopt its theory that Static Control's SMARTEK microchip, which allows competitors to interoperate with Lexmark printers, infringed Lexmark's copyright and circumvented a technological access control under the DMCA. This theory misstates and misapplies the law. Even if Static Control copied a Lexmark program into its microchips, such copying is legal and in fact encouraged as fair use reverse engineering, both under traditional copyright law and under the DMCA's reverse engineering exception. Both expressly permit copying and reverse engineering for interoperability.

This case comes before the court as a dispute between two competitors in a multi-billion dollar industry – the market for printer toner cartridges. Yet an equally important voice is that of the consumers – the people who buy Lexmark printers. These individuals and businesses will, if

the court sides with Lexmark, be deprived of choice, forced to buy toner cartridges from Lexmark for the life of their printers at monopoly-based prices; they will likely see less innovation than they would enjoy in a competitive market for replacement cartridges. Copyright supports innovation and competition; it is fully compatible with the public interest in a vibrant, competitive market for printer toner cartridges, just as it supports the markets for replacement auto parts, replacement photocopier parts and repairs, computer peripherals (such as monitors and printers themselves), and computer games. [1]

III. Argument

Copyright strikes a careful balance between protection of expression and disclosure of ideas to the public. "In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work." 17 U.S.C. §102(b). "[F]ree exploitation of ideas will be the rule," except where they are protected by patent (having demonstrated the requisite novelty and non-obviousness through disclosure). *Bonito Boats, Inc. v.*

[1] Regarding photocopier replacement parts, *see Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451 (1992) (holding Kodak could be liable under the Sherman Act for monopolization of parts and service market for Kodak photocopiers or for tying parts and service to photocopier purchase); regarding computer games, *see Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1993) and *Sony Computer Ent. Inc. v. Connectix Corp.*, 203 F.3d 596, 601 (9th Cir. 2000), discussed *infra*.

Thunder Craft Boats, Inc., 489 U.S. 141, 151 (1989).

The availability of copyright protection for computer programs does not change this fundamental principle. Although programs may be copyrightable, their methods and processes are not, including the means of interoperating with them. Thus reverse engineering to reach those methods and processes has long enjoyed protection from copyright claims.

Reverse engineering is the time-honored practice of "starting with the known product and working backwards to divine the process which aided in its development or manufacture." *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476 (1974). Software engineers must often reverse engineer computer programs to extract their uncopyrightable elements. The software engineer then uses the functional understanding gained through this study to create programs that interoperate with the original product or technology or to create programs that compete with the original product. Such conduct is entirely legal and often results in products better than the original.

A. Reverse Engineering for Functional Interoperability Is Privileged Under Copyright Law

1. Reverse Engineering Is Often Necessary to Access Ideas, Processes, and Functions

Computer programs often contain both "idea" and "expression." While a program may be copyrightable based on its original expression, that copyright does not give a monopoly over its functional ideas. Instead, the law permits access to the function through reverse engineering, even when that involves copying. That copying is lawful whether in study of the

original copyrighted work, disassembly of the original, or creation of a new interoperable complement or substitute.

Thus in *Sony Computer Ent. Inc. v. Connectix Corp.*, Connectix engineers copied a program, the BIOS, from the Sony PlayStation console, placed it into an emulator environment, and disassembled the code. 203 F.3d 596, 601 (9th Cir. 2000). From this foundation, Connectix produced the "Virtual Game Station," a program for the personal computer capable of playing PlayStation games, and hence of replacing the PlayStation. Connectix advertised the Virtual Game Station as a PlayStation substitute, telling users they could "play 'their favorite PlayStation games' on a computer 'even if you don't yet have a Sony PlayStation console.'" *Id.*

Sony sued Connectix, claiming much as Lexmark does here, that Connectix had illegally copied its BIOS program to build a competing product that interoperated with Sony's after-market games. The Ninth Circuit explicitly rejected Sony's attempt to extend market control from games to consoles: "Sony understandably seeks control over the market for devices that play games Sony produces or licenses. The copyright law, however, does not confer such a monopoly." *Id.* at 607 (citing *Sega v. Accolade*, 977 F.2d 1510, at 1523-24 (9th Cir. 1993)). The law was clear: Connectix had legally reverse engineered its PlayStation emulator, so Sony had no legal recourse to block its sale. *Sony*, 203 F.3d at 608.

The parallels between Sony's claims and Lexmark's are clear – and as the *Sony* court rejected Sony's attempt to lock consumers out of playing

lawfully purchased games on an emulator platform, this court should reject Lexmark's attempts to lock consumers from using competing toner cartridges with their lawfully purchased Lexmark printers. Like Connectix, Static Control has lawfully reverse engineered a competing product; like Sony, Lexmark has no legal claim.

Such principles apply with greater strength in the instant case. The Toner Loading Program of which Lexmark complains is an interface between the toner cartridge and the printer's Printer Engine Program, mediating the interoperation or cartridge and printer. When copyright is claimed on an interface between two products, fair use extends further than intermediate copying. This is because reverse engineering to create an interoperable product interface requires copying of the original interface into the new product if the new product is to interoperate successfully. Thus, in order for its remanufactured toner cartridges to interoperate with Lexmark printers, Static Control had to emulate the Lexmark cartridges. When the printer sends a signal expecting a certain response, the SMARTEK chip must give the expected response (the same response as the Lexmark "authorized" cartridge) in order for printing to proceed. *Slip op*. at pages 11-14. The interface between printer and cartridge must match for the two to interoperate.

Copyright law clearly permits the copying of elements necessary for such interoperation, whether we classify the copying as non-infringing fair use of copyrighted material or find that the entire program is function

"merged" with its form, and thus that there was no copying of copyrightable expression at all. In other words, Lexmark cannot give the world a round hole, then claim that it has copyrighted all circular pegs.

This pattern of permitting copying of functional interfaces is seen from the earliest of "interface" cases, the pre-computer situation of *Baker v. Selden*, 101 U.S. 99 (1879). Baker duplicated the accounting forms, with minor variations, from Selden's work on dual-entry book-keeping. The court found no infringement of copyright – copyright would protect the expression in Selden's description of the system's use, but would not protect the forms required to implement it. "[I]n using the art, the ruled lines and headings of accounts must necessarily be used as incident to it" – i.e., they served as interfaces to an operational method of accounting. *Id.* 101 U.S. at 104.

A more recent interface case reached the same conclusion that copyright does not block copying of functional interfaces. *Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807 (1st Cir. 1995), *aff'd without opinion by an equally divided Court*, 516 US 233 (1996). Thus Borland was permitted to copy the menu commands of the Lotus 1-2-3 spreadsheet, through which users accessed and programmed the spreadsheet functions, into its competing spreadsheet program.

2. Any Expression in the Toner Microchips Merged with its Lock-Out Function

Lexmark must concede that its microchip and Toner Loading Program

are functional. It claims, however, that Static Control copied copyrightable expression as well as unprotectable function. Even if that is so, the copyright law excuses as fair use the extra copying made necessary because of Lexmark's own design.

It is no matter if Lexmark's Toner Loading Program serves dual purposes, first as an interface to the Printer Engine Program, to announce that it is a toner cartridge with which the printer should interoperate; and second to monitor the level of toner in the cartridge. It is also no matter if the second purpose has expressive content, or if there are alternative hidden methods for measuring and communicating toner level that Static Control did not discover. The possibility of "over copying" is immaterial where the "expressive" purpose is merged with a first use that is entirely functional. Lexmark's choice to merge the two functions is like Sega's choice to use its trademark as part of a scheme to lock out competitors. *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1993).

Sega had devised a "trademark security system" for its Genesis III consoles, using the SEGA trademark as part of the access control system required before game cartridges would interoperate with the console (similar to Lexmark's use of its stock ticker symbol in the Toner Loading Program). In order to make Accolade games run on the Sega console, Accolade copied the TMSS initialization code into its games. *Sega*, 977 F.2d at 1516. The Ninth Circuit rejected the claim that this use of the SEGA trademark trumped the reverse engineering exception:

> Sega's trademark security system (TMSS) initialization code not only enables video game programs to operate on the Genesis III console, but also prompts a screen display of the SEGA trademark and message. … The decision to use the SEGA trademark as an essential element of a functional device that regulates access and to cause the SEGA trademark and message to be displayed whenever that functional device was triggered compels us to place primary responsibility for consumer confusion squarely on Sega.

Sega, 977 F.2d at 1528-29. Sega had forced Accolade to use the trademark, so it could not shift blame for the false labeling.

The same principle applies directly to Lexmark's claimed copyrights. Lexmark employs the microchip not only to measure printer toner levels, but to prevent refilled cartridges from functioning in Lexmark printers. Static Control emulates the microchip in order to enable refilled cartridges to interoperate. Like Sega, Lexmark cannot be heard to complain when interoperable replacement parts also measure toner levels, since this is a side effect of Lexmark's decision to merge the two functions.

The district court further erred in holding that if Static Control could have engineered around the Lexmark copyright, the microchip program was non-functional and any copying was infringement. Copyright law's protection of reverse engineering does not drive engineers to such lengths. Holders of copyrights on functional products cannot use their copyrights as arbitrarily high barriers to entry, with the claim that with just the right stroke of luck, a would-be competitor could find an alternate interoperable implementation. Such a standard would be grossly asymmetrical – a creator could always design a puzzle with two solutions, use one itself, and hold

competitors liable for not finding the hidden second. Indeed, the *Sega* court rejected the test embraced by the district court here. A Sega expert proposed that its initialization code was non-functional because different sequences would also interoperate with the Genesis III console. The court noted: "What is also needed is proof that knowledge of the alternate method exists or is readily available to persons in the industry." *Sega*, 977 F.2d at 1531. There is no such proof here.

B. Replacement Microchips Do Not Circumvent Access Controls

1. "Access to Use" Misreads the DMCA

Lexmark has programmed microchips in its toner cartridges with the express purpose of blocking interoperability of third-party or remanufactured cartridges with its printers. Lexmark argued below, and the district court accepted, that the microchip's authentication sequence "controls the consumer's ability to make use of" programs in the printer and the toner cartridge microchip. *Slip op.* at ¶ 71. Even if the chip does control "access," Static Control's chip does not circumvent. Any user of a remanufactured toner cartridge already has a Lexmark printer and a right to use the code it contains. The SMARTEK chip gives the *printer owner* the same access to his or her own printer as given by a Lexmark cartridge. Lexmark is claiming, in essence, that its printer customers are violating the law by purchasing third-party refilled cartridges.

Access to a printer you own is already "with the authority of the

copyright owner." 17 U.S.C. § 1201(a)(3). Holding a person liable for helping owners access their own printers for purposes of replacing toner cartridges is far from the theft of copyrighted content about which the DMCA's Congressional drafters were concerned. Congress was focused on the misappropriation of a password to an online information or entertainment source or the use of "black boxes" to steal programming or content.[2] A remanufactured cartridge does not extract programs from the printer – no software is never copied outside the printer – the remanufactured cartridge simply interoperates with the printer indistinguishably from the Lexmark cartridge.

2. Interoperability is Preserved By the Reverse Engineering Exception to Circumvention

Academic commentators disagree on the scope of the reverse engineering exception in 17 U.S.C. § 1201(f). If it means anything at all, however, it must apply where the alleged access control measure blocks interoperability. It provides:

Notwithstanding the provisions of subsections (a)(2) and (b), a

[2] See Senate Judiciary Comm., S. Rep. 105-190 (1998) at 29 ("[Section 1201(a)(2)] is carefully drafted to target 'black boxes' and to ensure that legitimate multipurpose devices can continue to be made and sold."); House Judiciary Comm., H. Rep. 105-551 pt.1 (1998) at 18 (same); House Commerce Comm., H. Rep. 105-551 pt. 2 (1998) at 38 ("The Committee believes it is very important to emphasize that Section 102(a)(2) is aimed fundamentally at outlawing so-called ''black boxes'' that are expressly intended to facilitate circumvention of technological protection measures for purposes of gaining access to a work. This provision is not aimed at products that are capable of commercially significant noninfringing uses….").

> person may develop and employ technological means to circumvent a technological measure, or to circumvent protection afforded by a technological measure, … for the purpose of enabling *interoperability* of an independently created computer program with other programs, if such means are necessary to achieve such interoperability, to the extent that doing so does not constitute infringement under this title.

§ 1201(f)(2) (emphasis added).

The district court apparently rejected 1201(f) because it believed Lexmark's mistakenly broad view of Lexmark's copyrights. Once the remanufactured chips are properly seen as non-infringing of any valid copyright, it follows that they are permissible and mandatory subjects for the reverse engineering exception of § 1201(f).

Since the fair use copying of functional elements "does not constitute infringement under this title," the SMARTEK program qualifies as "independently created," *i.e.*, independent of the Printer Engine Program with which it is designed to interoperate. This exception preserves *Sony* and *Sega* even in the face of technological protection measures, to prevent a manufacturer from using control over one device to monopolize complementary markets.

C. Leveraging Manufacture of Printers into Control of Cartridges Is Anti-Competitive Copyright Misuse

Finally, Lexmark is attempting to use a copyright in printer control software not to prevent unauthorized reproduction of its printer's copyrightable elements, nor even to prevent competitors from developing functionally comparable software to monitor the level of toner in their print cartridges, but to prevent competitors from developing any toner cartridges

interoperable with Lexmark's software-containing printers. Through the joint hooks of copyright and anti-circumvention, Lexmark is attempting to leverage its copyright-granted limited monopoly in reproduction of a short computer program into a broad monopoly in the independent manufacture of compatible toner cartridges. Seen in this light, Lexmark's behavior is similar to that of the holder of a patent on canning machines who tries to monopolize the market for salt tablets used in the canning trade. *See Morton Salt Co. v. G.S. Suppinger Co.*, 314 U.S. 488 (1942) (patent infringement suit dismissed for misuse). *See also Sega*, 977 F.2d at 1523-24 ("In any event, an attempt to monopolize the market by making it impossible for others to compete runs counter to the statutory purpose of promoting creative expression."); *Miller v. Palazetti Imports & Exports*, 270 F.3d 298, 319 (6th Cir. 2001) (trademark, like copyright, cannot be used to monopolize a market for non-patented products a competitor has copied).

The anticompetitive effects of Lexmark's leveraging are clear. Customers who have bought an expensive printer are locked in, by virtue of a bit of access-controlled software that the printer contains, to buying only branded or licensed replacement parts. As the sole licensor, Lexmark claims freedom to charge monopoly prices, unconstrained by possible competition. When the replacement is a consumable such as printer toner cartridges, customers face a substantial increased cost over the lifetime of the machine, rarely apparent at the time of purchase. Customers are also deprived of the innovation pressure that competition often spurs.

Machinery manufacturers understandably prefer to control the market for replacement parts. Yet the courts have consistently refused to permit them this control, outside of limited circumstances such as patent, and with good reason; the competition that develops is good for consumers. Manufacturers should not now be able to maintain the fiction that "unauthorized" replacement parts circumvent access control devices – to work their own circumvention of healthy marketplace competition. It is not difficult to imagine automobile manufacturers, for example, extending the district court's logic and Lexmark's tactics to force purchasers to buy only brand-name tires, filters, and spark plugs. Or Lexmark itself, flush from success in limiting toner purchases, might claim that only authorized paper, with a watermark detectable by the Printer Engine Program, would henceforth interoperate with its laser printers.

Copyright misuse doctrine "forbids the use of the copyright to secure an exclusive right or limited monopoly not granted by the Copyright Office." *Practice Management Information Corp. v. American Medical Ass'n*, 121 F.3d 516 (9th Cir. 1997) (*quoting Lasercomb America, Inc. v. Reynolds*, 911 F.2d 970, 977- 79 (4th Cir.1990)). The Ninth Circuit has adopted a broad public policy version of the test that goes beyond the doctrine's origins in the patent and antitrust context: "whether plaintiff's use of his or her copyright violates the public policy embodied in the grant of a copyright, not whether the use is anti-competitive." *In re Napster, Inc. Copyright Litigation*, 191 F.Supp.2d 1087, 1103 (N.D. Cal. 2002)

(permitting discovery on misuse defense; *citing Practice Mgmt*., 121 F.3d. at 521). *See generally* Brett Frischmann & Dan Moylan, *The Evolving Common Law Doctrine of Copyright Misuse: A Unified Theory and Its Application to Software*, 15 Berkeley Tech.L.J. 865, 888-893 (Fall 2000).

In *Alcatel USA, Inc. v. DGI Techs., Inc*., the Fifth Circuit barred DGI from doing with contract and copyright what Lexmark is attempting with DMCA. 166 F.3d 772 (5th Cir. 1999). DSC had developed both an operating system and a microprocessor card for a telecommunications switch. Running the operating system required copying it into the microprocessor's memory. DGI developed microprocessor cards compatible with the DSC operating system. To test and use the DGI cards required loading the DSC operating system into the cards' memory – but the DSC license agreement prohibited the running its operating system on non-DSC cards. The jury found that DSC's license agreement constituted copyright misuse, and the Fifth Circuit agreed with its finding: "DSC has used its copyright to indirectly gain commercial control over products DSC does not have copyright, namely its microprocessor cards." *Id*. 166 F.3d at 793. Lexmark's minimal copyright in a program on the toner cartridge microchip does not lessen its overreaching.

The same public policy that forbids use of a copyright monopoly to control purchasers' use of third party materials by barring enforcement of the copyright lever should block enforcement of the anticircumvention provision when it is used to support use controls that go beyond the scope of

either copyright or access. Even if this Court finds the DMCA's operation to be justified in the abstract, the restrictive leveraging Lexmark is engaging in with respect to printer toner cartridges should deny it recourse to its provisions.

IV. Conclusion

For the foregoing reasons, the judgments of the district court should be reversed.

Respectfully submitted,

July 2, 2003

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CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) because this brief contains 3543 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii).

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July 2, 2003

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I certify that, on this 2nd day of July, 2003, a true and correct copy of Amicus Curiae Brief of Electronic Frontier Foundation in Support of Static Control Components, Inc., Seeking Reversal was served via U.S. Mail, postage prepaid, upon the following:

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