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Marvin N. Benn

Richard J. Superfine

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§ 117—THE RIGHT TO ADAPT INTO THE FOURTH GENERATION AND THE SOURCE CODE GENERATOR'S DILEMMA

by MARVIN N. BENN *and* RICHARD J. SUPERFINE

I. THE RIGHT TO ADAPT

Owners of copies of copyrighted computer programs have the right to adapt the programs and use them in their computers.

Computer software is currently being written in what is referred to as a fourth generation of languages which utilizes multiple databases and relates them to one another. Such use of the relational database environment allows companies to forecast and understand changing markets quickly and allows them to fine tune and respond to these changes promptly, in essence, to compete in the highly technical competitive marketplace. Many companies are finding it difficult to stay abreast of the increasing changes in technology and many have retained third party facility managers to take over the Management Information Systems (MIS) departments of their companies to maintain a competitive edge. Large and small corporations have become dependent upon their current system which has become the "heart" of the company. Should anything material affect a company's computer system, the company can be severely damaged. The company generally purchased its software two-to-five years ago with the introduction of Intel's 286 through 486 microprocessor chip technology, at a substantial cost to the company, as well as a time commitment to learn the software and to become familiar with it throughout the company. As a result, companies are reluctant to upgrade to new software written in this fourth generation of languages. In addition, many of the software vendors who had produced the software for these companies are no longer in business or have stopped providing updates.

In order to take advantage of this fourth generation of software, and the advantages of relational database management systems, many of these companies are forced to upgrade their current software so it can be used on new operating systems that allow relational database software operations.

There are a number of companies that provide tools to emulate and reconstruct source codes to meet the rigors of fourth generation languages, but in the process of converting a company's software, the software licenses must be reviewed to see whether or not this reconstruction is permitted. Many companies do not wish to install all new software because, it will require an enormous amount of training and time to familiarize all employees with the new system. The best of all worlds would be if one could "adapt" the old software to this fourth generation language so that there is relatively no change at the user interface.

There are a number of software companies that have become expert at this upgrading procedure. Some companies were originally retained by a client to upgrade an old software system and then retained by a second party with the same software to upgrade its software, usually at a reduced cost since the first client had already paid for the "education" of the software company. Can this software company now go out and "vend" its new expertise? There are other questions that are raised by these conversions to the fourth generation of software. For example, does the process violate the vendor's copyright rights? Does an owner of a copy of copyrighted software have the right to "adapt" its software to these new systems? How does one advise a client who is in the business of upgrading software with regard to the protection he must take and what red flags exist that may subject him and his clients to substantial liability? To answer these questions one must first look at the history of recent changes in the copyright laws.

The Final Report of the National Commission on New Technological Uses of Copyrighted Works (CONTU), states "[T]he 1976 Act . . . makes it clear that the placement of any copyrighted work into a computer is the preparation of a copy and, therefore, a potential infringement of copyright."[1]

The "Act" referred to is 17 U.S.C. § 101 et seq. or the "Copyright Act".[2] Congress amended the Act in 1980 and followed CONTU recommendations. Congress amended Act § 117(1). Section 117 pertinently provides that an *owner* of a copy of a copyrighted computer program does not infringe through inputting its program into hardware. Section 117 states:

> Notwithstanding the provisions of § 106, it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided:

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1. NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT (hereinafter "CONTU Final Report") 12 (1978). *See also* 2 DAVID NIMMER AND MELVIN B. NIMMER, NIMMER ON COPYRIGHT § 8.08 at § 8-103 n.5 (1993).

2. The Copyright Act of 1976, 17 U.S.C. §§ 101-18 (1978).

(1) that such new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other matter, or

(2) that such new copy of adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

Any exact copies prepared in accordance with the provisions of this section may be leased, sold or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner.[3]

"One who rightfully possesses a copy of a program. . .should be provided with a legal right to copy it to that extent which will permit its use. . ."[4] Further,

.. a right to make those changes necessary to enable the use for which it [the program] was both sold and purchased should be provided. . .[including] the right to add features to the program that were not present at the time of rightful acquisition. . .[but this right of adaptation] could only be exercised so long as they did not harm the interests of the copyright proprietor [thus unless the owner] tries to copy and vend that work [the modifications], the copyright owner is unlikely to be very concerned. *Should proprietors feel strongly that they do not want rightful possessors of copies of their programs to prepare such adaptations, they could. . .make such desires a contractual matter.*[5]

Courts are divided as to whether CONTU is legislative history,[6] or is not.[7]

The privilege to adapt may be limited by the language of CONTU. In other words, the § 117 "privilege" is solely for the act of making a copy by inputting a program into a computer under the language of § 117.[8]

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3. 17 U.S.C. § 117 (1988).

4. CONTU Final Report at 13.

5. CONTU Final Report at 13-14. (emphasis added).

6. Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240, 1252, 219 U.S.P.Q. (BNA) 113 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033, 104 S.Ct. 690 (1984); Sega Enterprises Ltd. v. Accolade, Inc., 977 F.2d 1510, 1520 n.5, 24 U.S.P.Q.2d (BNA) 1561, 1567 n.5 (9th Cir. 1992); *See also* Midway Mfg. Co. v. Strohon, 564 F. Supp. 741, 750, 219 U.S.P.Q. (BNA) 42, 50 n.6 (N.D. Ill. 1983); Micro-Sparc, Inc. v. Amtype Corp., 592 F. Supp. 33,35 n.7, 223 U.S.P.Q. (BNA) 1210, 1212 n.7 (D.C. Mass. 1984).

7. Lotus Dev. Corp. v. Borland Int'l, Inc., 788 F. Supp. 78, 93, 22 U.S.P.Q.2d (BNA) 1641, 1651 (D.C. Mass. 1992).

8. *See Micro-Sparc*, 592 F. Supp. 33; Vault Corp. v. Quaid Software, Ltd., 655 F. Supp. 750, 755, 7 U.S.P.Q.2d (BNA) 1281 (D.C. La. 1987), *aff'd*, 847 F.2d 255 (5th Cir. 1988).

II. THE LIMITS OF THE RIGHT TO ADAPT

A. ADAPTATION FOUND TO BE OUTSIDE § 117

In *Hubco Data Products Corp. v. Management Assistance Inc.,*[9] the seller of a software package intended to "upgrade" an operating system program, the copyright of which was owned by another. However, the seller was held ineligible for this program input exemption of § 117 because the seller was not the "owner" of the program copies which were to be upgraded. In this case, Management Assistance Inc. (MAI), was marketing several differently priced versions of its operating system with its hardware. The operating systems were the same except that "governors" had been installed to slow down the lowest priced systems, with the number of such governors being reduced as the price increased to the highest level which had no governors. Plaintiff, by reverse engineering, had broken defendant's security code and was able to remove the governors for clients on-site using a tool called Nilsson Method II. Plaintiff was planning to start marketing that tool to licensees who could use it themselves to remove the governors.

The main issue in *Hubco* was whether plaintiff was copying defendant's copyrighted software when using Nilsson Method II to conduct on-site upgrades of MAI's operating system. When using Nilsson Method II the operating system with governors would be copied out, the governors removed, and the operating system copied back in. The Court held that the package created a copy of the defendant's higher level operating code which the ultimate computer owner desired. The placement of that software into the computer owner's computer constituted an unauthorized copying of a copyrighted work. The Court also held that Hubco could not avail itself of the § 117 adaption exemption, because Hubco was not the "owner" of the high-level object code copied into the Nilsson Method II software. This user's software was to be provided to the computer owners. A close reading of the case reveals another reason the seller could not avail itself of § 117. In order for the program to perform, the customer's program would be copied, adapted, and the program would be re-inputted into the computer in its new form. In *Apple Computer Inc. v. Formula International, Inc.*, the court stated that "[t]he placement of that software in a computer owner's computer constitutes an 'unauthorized input of a copyrighted work into a computer.' "[10]

Courts continue to apply § 117 restrictively against those who claim its privilege. The § 117 term "essential step" is interpreted to mean that the copy (or reproduction) "[m]ust be no more permanent than is rea-

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9. 1983 WL 1130, 219 U.S.P.Q. (BNA) 450 (D.C. Idaho 1983).

10. Apple Computer, Inc. v. Formula Int'l, Inc., 594 F. Supp. 617, 224 U.S.P.Q. (BNA) 560, 563 (C.D. Cal. 1984).

sonably necessary. . ." For example, recording a program on a chip rather than on non-permanent random access memory (RAM) exceeds the § 117 privilege.[11]

In *Midway Manufacturing Co. v. Strohon*,[12] the ultimate operator and owner of a Pac-Man game altered the copyrighted visual and text programs to enhance players' interest in playing the altered game. *Sui generis* the court considered whether the operator had such a privilege under § 117 and stated the section "[i]s not authority for Slayton's sales of reproductions of [plaintiff's] program as adapted."[13] The court referred to § 117's last two sentences which include "Adaptations so prepared may be transferred only with the authorization of the copyright owner."[14]

In *Micro-Sparc, Inc. v. Amtype Corp.*,[15] the plaintiff, Micro-Sparc, was the publisher of a magazine which contained copies of plaintiff's copyrighted computer programs. A purchaser of the magazine requested that the defendant, a specialized typing service owner, type plaintiff's programs contained in the magazine and place the program on a disk that the purchaser could insert into his computer for use. The issue was whether the purchaser may authorize the defendant under § 117 to make another copy of the program. The court held the defendant was not so privileged based upon a narrow reading of the statute.[16] The court reasoned that because the defendant is not inputting the program, it is making a disk copy. Thus, only inputting a program is privileged under § 117.

B.   ADAPTATIONS FOUND TO BE WITHIN § 117

A less restrictive reading of § 117 appears in *Vault Corp. v. Quaid Software Ltd.*,[17] in which plaintiff had developed a protective device for its disks enabling its customers to only use the purchased disk in the customer's equipment. Thus, a copy of the original disk bought from plaintiff would not work in other equipment. Defendant overcame the protection by loading the plaintiff's disk onto defendant's computer. Plaintiff sued defendant for unauthorized copying, but defendant successfully used § 117 as its defense. The court reasoned that § 117(1) allowed the owner of the program to load the program on its own equipment in order to use the program, with no further restrictions. This type of program inputting is all defendant did with plaintiff's disk.

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11. *Id.*

12. 564 F. Supp. 741, 219 U.S.P.Q. (BNA) 42 (N.D. Ill. 1983).

13. *Id.*

14. *Id.* at 745 n.2, 219 U.S.P.Q. at 45 n.2.

15. 592 F. Supp. 33, 223 U.S.P.Q. (BNA) 1210 (D.C. Mass. 1984).

16. *Id.* at 35, 223 U.S.P.Q. at 1212.

17. 847 F.2d 255, 7 U.S.P.Q.2d (BNA) 1281 (5th Cir. 1988).

The purpose of such loading is irrelevant. To avail itself of § 117, the owner who is inputting the program need not comport with the program use intended by the copyright owner.[18] It should be noted, as the court held in *Allen-Myland, Inc. v. IBM Corp.*,[19] that *Vault Corp.* did not address whether § 117 permitted copying when the facts included "[m]aking copies on tape and on a hard disk to build a library of different versions of the program and to supply with [sic] a computer other than the one with which the program originally was supplied".[20]

III. THE CONSULTANT'S DILEMMA

Software consulting firms are routinely retained to correct, adapt and modify the software of unsophisticated clients. Some consultants become very adept at providing such modifications. However, a fine line exists which if unknowingly crossed could result in substantial liability to both the client and the consultant.

A. Enhancements by Copy Owner - Skipping the Contract

In *Foresight Resources Corp. v. Pfortmiller*,[21] defendant altered a program for a lawful owner of the program in which the plaintiff had a copyright. The owner only used the program and adaptations "in-house." The court reviewed *Hubco*[22], *Micro-Sparc*[23] and *Midway Manufacturing*[24] and found them distinguishable. In those cases the alterations "were designed for widespread marketing to third parties".[25] The court found a broader privilege in § 117 than applied in the earlier cases because (i) § 117 allows users to enhance software without fear of infringing the rights of the copyright owner; and (ii) in-house use of enhancements preserves the copyright holder's market for software improvements.[26] Further, the court held that notwithstanding a license agreement between the plaintiff and the software owner, § 117 allowed the owner to authorize defendant to adapt the software.[27]

Notwithstanding the *Foresight Resources* court's interpretation of

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18. *Id.* at 261, 7 U.S.P.Q.2d at 1287.

19. 746 F. Supp. 520, 16 U.S.P.Q.2d (BNA) 1817 (E.D. Pa. 1990).

20. *Id.* at 536, 16 U.S.P.Q.2d at 1828.

21. 719 F. Supp. 1006, 13 U.S.P.Q.2d (BNA) 1721 (D. Kan. 1989).

22. Hubco Data Prod. Corp. v. Management Assistance Inc., 1983 WL 1130, 219 U.S.P.Q. (BNA) 450 (D.C. Idaho 1983).

23. Micro-Sparc, Inc. v. Amtype Corp., 592 F. Supp. 33, 223 U.S.P.Q. (BNA) 1210 (D. Mass. 1984).

24. Midway Mfg. Co. v. Strohon, 564 F. Supp. 741, 219 U.S.P.Q. (BNA) 42 (N.D. Ill. 1983).

25. *Foresight*, 719 F. Supp. at 1009, 13 U.S.P.Q.2d at 1723.

26. *Id.* at 1010, 13 U.S.P.Q.2d at 1724.

27. *Id.* (contrary to CONTU).

§ 117, the court enjoined defendant from selling "these particular enhancements of plaintiff's products to other entities,"[28] or further enhancing plaintiff's product for entities other than the rightful owner who was the subject of the law suit.[29]

Accordingly, it is not an infringement for an owner of a copy of a computer program to make or authorize the making of another copy or adaptation of their computer program.[30] However, such new copy or adaptation must be created as an essential step in the utilization of the computer program in conjunction with the machine that is used in no other manner.[31]

Scholarly commentary has suggested that § 117 should not be restricted to prohibit owners from authorizing custom-made enhancement by third parties to their copies of copyright software, since the overwhelming majority are not capable of making their own adaptations. Such users are not computer programmers, and they lack the skill to make the adaptations as stated in the discussion of the *Hubco* case. The few cases that have been decided under § 117 have held that it is a copyright infringement for a third party to adapt or copy a computer program for the owner of the program copy. Such interpretation of § 117 effectively makes § 117 an illusory promise.[32] The court in *Foresight Resources Corp. v. Pfortmiller*[33] agreed with Stern and allowed the third party to adapt the software, regardless of the contractual restrictions. However, after stating that a copyright owner does not have the exclusive right to improve or enhance its products, the court did enter an injunction preventing the "adaptor" (Defendant) from selling these particular products to third parties.[34] Therefore, widespread marketing to third parties of § 117 adaptations will be enjoined.[35]

In *Dickerman Associates v. Tiverton Bottled Gas, Inc.*,[36] the defendant violated a confidentiality provision with the defendant and misappropriated plaintiff's trade secrets because the court found that there

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28. *Id.*

29. Foresight Resources Corp. v. Pfortmiller, 719 F. Supp. 1006, 1010, 13 U.S.P.Q.2d (BNA) 1721, 1725 (D. Kan. 1989).

30. *Id.* at 1008, 13 U.S.P.Q.2d at 1722-23.

31. *Id.*

32. Richard H. Stern, *Section 117 of the Copyright Act Charter of Software Users' Rights or an Illusory Promise?*, 7 W. NEW ENG. L. REV. 459 (1985).

33. 719 F. Supp. 1006, 13 U.S.P.Q.2d (BNA) 1721 (D. Kan. 1989).

34. *Id.* at 1010, 13 U.S.P.Q.2d at 1724.

35. *Accord.* Hubco Data Products Corp. v. Management Assistance Inc., 219 U.S.P.Q. (BNA) 450 (D.C. Idaho 1983); Micro-Sparc, Inc. v. Amtype Corp., 592 F. Supp. 33, 223 U.S.P.Q. (BNA) 1210 (D. Mass. 1984); Midway Mfg. Co. v. Strohon, 564 F. Supp. 741, 219 U.S.P.Q. (BNA) 42 (N.D. Ill. 1983).

36. 594 F. Supp. 30, 22 U.S.P.Q. (BNA) 529 (D. Mass. 1984).

was great similarity between plaintiff's programs and those of defendant.

The courts have recognized that an overwhelming majority of computer program owners are not capable of making their own adaptations to their computer programs.[37] Therefore, the courts have held that § 117 of the Act should not be read narrowly to restrict an owner from authorizing custom made enhancements to their copies of copyright programs.[38]

B.   ENHANCEMENTS BY CONSULTANT

Attempts to utilize a trade secret provision to prevent a § 117 adaptation by a third party consultant have failed. State regulation of trade secrets and unfair competition have been held to be pre-empted by the Copyright Act, whether or not ownership of the copy is in the user or retained by the licensor.[39]

In *Allen-Myland, Inc. v. International Business Machines Corp.*,[40] when applying § 117, the court took a more restrictive view than in *Vault Corp. v. Quaid Software Ltd.*[41] or *Foresight Resources Corp. v. Pfortmiller*[42]. For many years, plaintiff had been engaged in the business of providing engineering services to owners of IBM large scale mainframe computers and had performed "splits" (of systems) and reconfigurations (of code) on the mainframe computer lines which IBM sold prior to the 3090 (program which was subject of law suit). Plaintiff had performed numerous reconfigurations and four splits of 3090 computer systems. To support these activities, plaintiff had compiled a library of 3090 microcode tapes (some altered by plaintiff, some not).[43] In a counterclaim, IBM sued plaintiff for copyright infringement respecting the copyrighted 3090 microcode.

In accumulating and preparing its library of 3090 microcode, which software plaintiff obtained lawfully from numerous sources, plaintiff copied and recopied the 3090 microcode. To satisfy customer needs, plaintiff would modify the customer's 3090 software, making various copies of 3090 software, and would send out the modified software, using its library, and, further, copy the modified software, placing it in its

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37. *Foresight*, 719 F.Supp. at 1010, 13 U.S.P.Q.2d at 1724.

38. *Id.*

39. Computer Associates Int'l Inc. v. Altai, Inc., 982 F.2d 693, 23 U.S.P.Q.2d (BNA) 1241 (2d Cir. 1992); Vault Corp. v. Quaid Software Ltd., 847 F.2d 255, 7 U.S.P.Q.2d (BNA) 1281 (5th Cir. 1988).

40. 746 F. Supp. 520, 16 U.S.P.Q.2d (BNA) 1817 (E.D. Pa. 1990).

41. 847 F.2d 255, 7 U.S.P.Q.2d (BNA) 1281 (5th Cir. 1988).

42. 719 F. Supp. 1006, 13 U.S.P.Q.2d 1721 (D. Kan. 1989).

43. *Allen-Myland*, 746 F. Supp. at 529, 16 U.S.P.Q.2d at 1821.

library.[44]

One of plaintiff's defenses was its privilege under § 117. The court held that § 117(1) did not apply to plaintiff's adaptations and cited both *Micro-Sparc* and *Vault Corp.*. The court held that § 117(1) is available for " 'inputting' " programs, citing *Micro-Sparc*.[45] The court distinguished *Vault Corp.* because it did not address plaintiff's activities, "i.e., making copies on tape and on a hard disk to build a library of different versions of the program and to supply with a computer [sic] other than the one which the program originally was supplied."[46]

Further, the court held that plaintiff was not protected by the adaptation privilege in § 117(1), relying on *Foresight Resources*[47] to allow adaptation of an in-house program, because plaintiff's modified versions of the 3090 microcode were not adaptations of the 3090 microcode permissible under § 117(1).

> [T]he evidence establishes that [plaintiff] produces copies of the 3090 microcode for use on reconfigured and split 3090 systems by making rainbow [blended] copies from 3090 microcode copies taken from various 3090 systems, or by making changes in the 3090 microcode provided with one 3090 system to produce a partial duplicate of a copy from another system. (citations omitted). . .[S]uch activity is not permissible adaptation under § 117, since it produces modified 3090 microcode only by making partial duplicates of two or more different versions of the 3090 microcode produced by IBM.[48]

In a footnote, the court expatiates:

> [N]o evidence was presented that [plaintiff] had made adaptations to the 3090 microcode for a 3090 system without copying in one way or another the 3090 microcode supplied with at least one other 3090 system. Adaptations produced without such copying might be permissible under § 117, though I do not resolve that question, since the circumstances of this case do not require me to do so. Whether or not it is feasible economically for [plaintiff] to perform reconfigurations and splits if required to modify the 3090 microcode by trial and error without duplicating other copies is irrelevant to the question of what is a permissible adaptation under § 117.[49]

Another defense by plaintiff was estoppel. IBM had not objected to similar activities by plaintiff for IBM's 308X copyrighted microcode, software which is similar to 3090. The Court held that this fact does not preclude IBM from enforcing its rights respecting one program and not

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44. *Id.* at 529, 16 U.S.P.Q. at 1822.

45. *Id.* at 536, 16 U.S.P.Q.2d at 1828.

46. *Id.*

47. Foresight Resources Corp. v. Pfortmiller, 719 F. Supp. 1006, 13 U.S.P.Q.2d (BNA) 1721 (D. Kan. 1989).

48. *Allen-Myland*, 746 F. Supp. at 537, 16 U.S.P.Q.2d at 1828.

49. *Id.*

another. [50]

In *ISC-Bunker Ramo Corp. v. Altech, Inc.*, [51] the plaintiff designed and sold computer systems for financial institutions. The defendant serviced computers and also bought and sold used computer equipment. Plaintiff owned copyrighted programs which were also trade secrets.[52] Defendant copied plaintiff's diagnostic software.[53] Defendant knew its customers who possessed plaintiff's copyrighted software were licensees of plaintiff.[54] The court held that every time the defendant loaded plaintiff's computer programs onto a computer it infringed because that is copying under the Act.[55] The court held § 117 was not a defense to infringement because (i) defendant was not the lawful owner of the software;[56] (ii) § 117 allows only a certain type of copying;[57] (iii) adaptation must be for "internal use" only;[58] and (iv) the copying must be on the machines of the owner of the software. This court holds permissible copying under § 117 is restrictive; however, it did not specifically discuss adaptation as did the *Allen-Myland* court.

In *Sega Enterprises Ltd. v. Accolade, Inc.*,[59] plaintiff developed and marketed video game systems that included hardware consoles and game cartridges. It developed a program that would prevent others from manufacturing cartridges that could be purchased for use in its consoles. Defendant manufactured game cartridges and reverse engineered plaintiff's program to render its cartridges compatible with plaintiff's console. Accordingly, among other things, plaintiff sued defendant for copyright infringement and one of defendant's defenses was § 117.

The court did not treat adaptation, and only decided whether the defendant's acts were impermissible copying under § 117. The court held § 117 was not a defense. The court cited CONTU which allows a program owner to load its program onto its computer. In the case, that is what the defendant did. However, the court held:

> [W]e think it is clear that [defendant's] use went far beyond that contemplated by CONTU and authorized by § 117. Section 117 does not

50. *Id.* at 548, 16 U.S.P.Q.2d at 1838.

51. 765 F. Supp. 1310 (N.D. Ill. 1990).

52. *Id.* at 1323.

53. *Id.* at 1326.

54. *Id.*

55. *Id.* at 1332.

56. *But Cf.* Foresight Resources Corp. v. Pfortmiller, 719 F. Supp. 1006, 13 U.S.P.Q.2d (BNA) 1721 (D. Kan. 1989).

57. *See* Micro-Sparc, Inc. v. Amtype Corp., 592 F. Supp. 33, 223 U.S.P.Q. (BNA) 1210 (D.C. Mass. 1984) (for discussion of inputting).

58. *Cf.* Foresight Resources Corp. v. Pfortmiller, 719 F. Supp. 1006, 13 U.S.P.Q.2d (BNA) 1721 (D. Kan. 1989).

59. 977 F.2d 1510, 24 U.S.P.Q.2d (BNA) 1561 (9th Cir. 1992).

purport to protect a user who disassembles object code, converts it from assembly into source code, and makes printouts and photocopies of the refined source code version.[60]

In a footnote the court stated "We need not decide whether § 117 protects only the use intended by the copyright owner, as [plaintiff] argues."[61]

Although the facts are not available, the court in *RAV Communications v. Philips Bros., Inc.*,[62] distinguished *Apple Corp. v. Formula International* and *Micro-Sparc* because the adaptations in *RAV Communications* were not made for "unrestricted duplication of computer programs for distribution to third parties."[63]

In the related preemption area, citing *Foresight Resources* respecting § 117, the court in *Data Products Inc. v. Raport* stated, "The existence of federal copyright law does not in itself preempt the protections accorded under state trade secrets statutes."[64]

Several articles have attempted to explain § 117. One author believes that if the only way to adapt is to disassemble the program, § 117 may grant the software owner that right.[65] This is so because a competitive program is not being created. CONTU does not "connote an intent to provide a defense to defendants whose purpose is other than to make lawful use of a program that they rightfully own in conjunction with its implementation on their own machine."[66] "It will be necessary for courts to examine a defendant's purpose in copying to decide if it was intended to be permitted."[67] To apply this standard the author believes the § 107 (fair use) factors may be used, e.g., was the purpose for copying a commercial one.[68] The author cited *RAV Communications*. The author could not have cited *Foresight Resources* where intention is not at issue yet the court will not have the copyright holder damaged.

One author cites *Vault, Foresight Resources* and *RAV Communications* to argue that application of the § 107 factors to § 117 may be feasible.[69] The author reviewed *Lewis Galoob Toys, Inc. v. Nintendo of*

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60. *Id.* at 1520, 24 U.S.P.Q.2d at 1568.

61. *Id.* at n.6. *See* Vault Corp. v. Quaid Software Ltd., 847 F.2d 255, 261, 7 U.S.P.Q.2d (BNA) 1281, 1287 (5th Cir. 1988) (citing § 117(1) for the proposition that authorization is not limited to use intended by copyright owner).

62. No. 87 CIV. 3366, 1988 WL 36174, at *2 (S.D.N.Y. Apr. 1988).

63. *Id.*

64. 18 U.S.P.Q.2d (BNA) 1058, 1063 (D. Kan. 1990).

65. Robin Mitchell, Note, *17 U.S.C. Section 117: Is the Amendment to the Copyright Act Adequate to Regulate the Computer Software Market?*, 7 COMP. L. J. 227, 242 (1986).

66. *Id.* at 242.

67. *Id.*

68. *Id.* at 242-43.

69. Christopher A. Kester, Note, *Galoob v. Nintendo: Derivative Works, Fair Use &*

America[70] and, among other points, noted the court did not consider defendant's § 117 argument because the court found defendant did not create a derivative work. In the alternative, defendant was not liable as a contributory infringer since home users of defendant's program, which temporarily altered plaintiff's video games, were protected under a fair use § 107 analysis.

The author opined that defendant was eligible under § 117 because it was the owner of defendant's product (an adaptation of plaintiff's video game) that performed the inputting and he/she would be protected under either § 107 or § 117. Defendant merely provided the tools to the consumer - a putative defendant - to do the adaptation on his/her own video game programs.[71]

The author applied the fair use factors to § 117 and concluded § 117 allows owners to adapt only for themselves, thus eradicating the commerciality of the adaptations (which, if vending, statutorily requires the copyright owner's approval in any case) even when there are similarly situated persons.[72] The author did not analyze the court's holding in *Foresight Resources* that specifically prevented adaptations for those similarly situated. In continuing his § 107 analysis, the author states that the adaptation does not supplant the demand for the original work. He does state the adaptations cannot be transferred without the copyright owner's approval. But that does not treat the facts in *Galoob* wherein the adaptor was a third party. Also, the author does not consider CONTU's decree that § 117 eligibility requires no harm to the copyright holder while attempting to allow software owners the chance of adaptation instead of less desirable alternatives. Clearly the court in *Foresight Resources* would consider the adaptation, not the original work, in a § 117 analysis. If the adaptor would compete with the copyright holder, the *Foresight Resources* court would not consider the adaptor eligible under § 117. The author goes on to note that the nature of the work is one of being published, thus favoring a finding of fair use; licensing, especially if, as is the case, quite restrictive, would militate against the publication in *Galoob* involving video games. Further, since the owner was entitled to use the entire work (as would a software licensee), that factor also favors a finding of fair use. But the author's analysis is too glib, as the work on which to focus is the adaptation. Nevertheless, absent a restriction, the whole adaptation would be usable under § 117 in any case.[73]

Section 117 in the Realm of Computer Program Enhancements, 22 GOLDEN GATE U. L. REV. 489, 500-01 (1992).

70. Nos. 90-1586 & 90-1440, 1991 WL 149826 (N.D. Cal. 1991).

71. *Id.* at 511.

72. *Id.* at 512.

73. *Id.*

Interestingly, although the author concludes that an adaptation protected under § 117 would also be protected under § 107, he believes the courts should give effect to § 117, grappling with that section in copying and adaptation cases in a way that supersedes an analysis under § 107.[74]

Notwithstanding the foregoing, in his article, Professor Raskind believes § 117 will arise in contract cases involving licensing, and is not similar in application to § 107 which is an affirmative defense to § 501 infringements under § 106.[75]

Further, Professor Davidson in *Common Law, Uncommon Software*[76] reviewed *Micro-Sparc* and found it consistent with preventing commercial exploitation outside the privacy context of internal use by an individual owner of a program.

Although neither professor had the advantage of reviewing the more "liberal" holdings, e.g. *Foresight Resources*, such holdings still are bottomed upon the issue of commerciality.

IV. OWNERSHIP OF THE GENERATED SOURCE CODE FROM A SOURCE CODE GENERATOR AND COPYRIGHT INFRINGEMENT

(§ 117 VS. CONTRACTUAL LIMITATION)

Source code generators are a programming tool which allow a programmer to easily put together a series of subroutines and generate source code which is an integral compilation of the subroutines with modifications integrally contained within the generated source code. Specific formulas are followed which were "created" by the author of the source code generator. Therefore, is any source code generated by such a program "authored" by the person using the generator or the person who "created" the source code generator? Is such generated source code a "derivative work"? Can the owner of the source code generator copyright contractually own all source code generated by the source code generator?

When interpreting a copyright license, ambiguities will not be construed contrary to federal copyright policy which prohibits any use not authorized.[77]

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74. *Id.* at 513.

75. Leo J. Raskind, *The Uncertain Case for Special Legislation Protecting Computer Software*, 47 U. PITT. L. REV. 1131, 1176 (1986).

76. Duncan M. Davidson, *Common Law, Uncommon Software*, 47 U. PITT. L. REV. 1037, 1094 n.141 (1986).

77. Cohen v. Paramount Pictures Corp., 845 F.2d 851, 854, 7 U.S.P.Q.2d (BNA) 1570 (9th Cir. 1988); *Accord.*, SOS, Inc. v. Payday, Inc., 886 F.2d 1081, 1088, 12 U.S.P.Q.2d (BNA) 1241 (9th Cir. 1989).

As argued by Professor Samuelson in *Allocating Ownership Rights in Computer Generated Works* ("Samuelson")[78], a licensee of software should get the benefit of its bargain. Samuelson argues that the licensor has enough protection and should not overly restrict the end user's use of the licensed material and courts should treat such a license as a disguised sale, thus allowing the licensee to take advantage of the first sale doctrine under 17 U.S.C. § 109(a) of the Copyright Act.[79]

Most of the recent cases that have dealt with source code generation have been in favor of the copyright owner. There is the requirement that the infringing software copied major portions of the copyrighted work. When interpreting a license agreement, ambiguities will be construed against the drafter of the agreement.[80] The contract, however, must be construed in accordance with the purposes underlying the Federal Copyright Act.[81]

The rights of a copyright owner are contained in the Act. Section 501 prohibits a person from violating one of "the exclusive rights of a copyright owner as provided by §§ 106 through 118.[82] Section 106 grants the copyright owner the exclusive right "to reproduce the copyrighted work in copies . . .; [and] to prepare derivative works based upon the copyrighted work."[83] Section 101 defines a derivative work as a work *based upon* a pre-existing work in which the work is recasted, transformed, or adapted.[84] A derivative work may be copyrighted unless the pre-existing material was used unlawfully.[85] The copyright will pertain only to the original portion of the derivative work.

A copier may infringe a copyrighted work by making a derivative work from the copyrighted work, but the derivative work must be substantially similar to the copyrighted work. It is the burden of the copyright owner to prove a valid copyright and proof of copying. If there is not actual proof of copying, the copyright owner may substitute evidence that the alleged copier had access to the copyrighted work and that the accused's work is substantially similar to the copyrighted work, in its entirety, as to the copyrighted protectable matter.[86]

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78. Pamela Samuelson, *Allocating Ownership Rights in Computer Generated Works*, 47 U. PITT. L. REV. 1185 (1986).

79. *See also* Thomas Lee Hazen, *Contract Principles as a Guide for Protecting Intellectual Property Rights in Computer Software*, 20 U. C. DAVIS L. REV. 105, 150-51 (1986).

80. Wilmot H. Simonson Co. v. Green Textiles Assoc., Inc., 755 F.2d 217, 220 (1st Cir. 1985).

81. 17 U.S.C. §§ 101-18 (1988).

82. 17 U.S.C. § 501 (1988).

83. 17 U.S.C. § 106 (1988).

84. 17 U.S.C. § 101 (1988).

85. 17 U.S.C. § 103 (1988).

86. Stillman v. Leo Burnett Co., 720 F. Supp. 1353, 1358, 13 U.S.P.Q.2d (BNA) 1203 (N.D. Ill. 1989).

To constitute a violation of § 106(2) (the derivative right), the infringing work must incorporate in some form a portion of the copyrighted work.[87] In *Synercom Technology, Inc. v. University Computing Co.*,[88] the court held no derivative work infringement when the defendant prepared a FORTRAN preprocessor program from descriptions in a manual so long as there was no copying of the plaintiff's FORTRAN program as it was described in the manual. In *Service & Training, Inc. v. Data General Corp.*,[89] the plaintiff, in an attempt to invalidate Data General's copyright, argued that Data General failed to disclose in its copyright application that the copyrighted software was "derived" from a pre-existing software. The court held the copyright software was six times the size of the alleged pre-existing software, and therefore, was an original, not a derivative work.[90]

Samuelson concludes that the copyright for the code generated by a code generator is owned by the programmer on the condition that the generated work does not incorporate large blocks of expression from the copyrighted generator program. If, in fact, this does occur, then there is either copying or a derivative work created from a copyrighted work.

Congress, in drafting the amendments to the Copyright Act, relied upon CONTU. Consequently, the courts, in interpreting the Act, have relied upon CONTU as an expression of legislative intent.[91] Samuelson citing CONTU[92] argues that the user of a source code generator is usually a licensee and usually does more than merely press a button in order to obtain the code from the generator program. The licensee paid for the use of the generator. The generator program does not fix the output the user obtains. The output is not derivative, but an original work.[93] Copyright owners have no control over the use of the copyrighted material unless the output is a derivative work under 17 U.S.C. § 101. Congress referred the matter to CONTU. The Act merely restates earlier law requiring appropriation by the second author from the first author. Substantial similarity is still required to be a derivative work. The second author must incorporate protected items from the first work. However, in general, computer-generated "new works" do not incorporate recognizable blocks of expression from the underlying

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87. Litchfield v. Spielberg, 736 F.2d 1352, 222 U.S.P.Q. (BNA) 965 (9th Cir. 1984), *cert.* *denied*, 470 U.S. 1052 (1985).

88. 462 F. Supp. 1003, 1013 n.5, 199 U.S.P.Q. (BNA) 537 (N.D. Tex. 1978).

89. 963 F.2d 680, 23 U.S.P.Q.2d (BNA) 1102 (4th Cir. 1992).

90. *Id.* at 688-89.

91. *See* Vault Corp. v. Quaid Software Ltd., 847 F.2d 255, 7 U.S.P.Q.2d (BNA) 1281 (5th Cir. 1988).

92. Samuelson, *supra* note 78, at 1213.

93. Samuelson, *supra* note 78, at 1212.

program. For instance, if the generator programmer had written a book on what to do to generate code, someone implementing the steps would be the owner of the resulting code. In the Act, § 106 gives certain rights to the copyright owner, but not to the use of the copyrighted work.

Samuelson reasons that, if code from a generator were to be protected as in § 106, such code would automatically be a derivative work. Finally, the purpose of the generator program is to generate code and so cannot give rise to a derivative work as could, for instance, a novel upon which a screenplay could be based, whether purposeful or not.

The most recent case treating the computer copyright infringement issue for generated software is *CMAX/Cleveland, Inc. v. UCR, Inc.*[94] A third party programmer specifically studied the copyrighted software for more than a week and learned how to retrieve and process information from the licensee's (UCR) files. The programmer was required to sign a confidentiality agreement for the UCR system, but was never asked to sign any sort of confidentiality agreement regarding the copyrighted (RMAX) system. The programmer was directed by UCR to study the plaintiff's system file screens and reports in order to gain an understanding of what UCR wanted to duplicate in developing the UCR system. The programmer specifically examined the RMAX remote store system file layouts and printed out various RMAX file reports and dictionaries. A year later, an employee of UCR went to the offices of the licensor of a source code generator SB+ to learn how to use it.

SB+ is a source code generator that enables a computer programmer to code sophisticated computer programs with relatively little creative or intellectual effort. With the use of this code generator, which was described as a sort of electronic paint brush, a programmer could code a program to a screen to reflect how he wishes the screen to look when it is generated by the finished program. The programmer, using cursor and keyboard, paints upon the screen the features he wants the program generated screen to display, including the data fields that he wishes to be included on the screen. Programs to develop reports and files can also be created this way. But afterward, basically at the punch of a button, the code generator produces a program that carries out the functions that the programmer has requested. This code generator also produces documentation for the resultant software program. Thus, when using a code generator, the development of a software system consists almost entirely of the design of the system, while only a small portion of the process involves coding of the system.

During the training for SB+, the third party programmer and the UCR employee used the file layouts and file names that they had copied from the RMAX remote store system. After training, they returned to

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94. 804 F. Supp. 337, 26 U.S.P.Q.2d (BNA) 1001 (M.D. Ga. 1992).

their home office and began programming the UCR system. The RMAX files were modified by adding additional data elements to the end of the file. Other than these occasional additions, however, the principal UCR system files were nearly identical to the corresponding RMAX remote store file systems.

The existence of the RMAX file structures to develop comparable UCR systems files made the developments of the UCR system relatively simple and permitted the employees to work quickly using the SB+ programming tool.

Neither the programmers nor the employee from UCR had any prior experience or knowledge of the rent-to-own business. Neither of the programmers had worked previously on a system of the magnitude associated with the UCR system. No other rent-to-own system was referred to during the development of the UCR system.

The court went into an analysis of the law and found copyright infringement.[95] The court looked to see whether or not any non literal elements were copied. That is, whether the component in question qualified as an expression of an idea rather than the idea itself.

Currently, there is a three-step approach that was promulgated by the Second Circuit which appears to be followed by most of the current cases in determining whether or not there has been an infringement by copying of non literal elements of a copyrightable program. The three-step analysis as identified in *Computer Associates International, Inc. v. Altai, Inc.*,[96] is:

Step One - The Abstraction Test. This first step requires the court to dissect the allegedly copied program structure and isolate each level of abstraction contained within this process beginning within the code and ending with an articulation of the programs ultimate function.

Step Two - The Filtration Test. This step entails examining the structural components at each level of abstraction to determine whether the particular inclusion at that level was "idea" or was dictated by considerations of efficiency so as to be incidental to the idea required by factors external to the program itself or taken from the public domain, and hence, non-protectable.

An element in a computer program is dictated by efficiency if it is the only and essential means of accomplishing a given task. The court must then weed out structural elements that are dictated by external factors, such as the mechanical specifications of the computer on which a particular program is intended to run. The compatibility requirements of other programs with which a program is designed to operate in

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95. CMAX/Cleveland, Inc. v. UCR, Inc., 804 F. Supp. 337, 26 U.S.P.Q.2d (BNA) 1001 (M.D. Ga. 1992).

96. 982 F.2d 693 (2d Cir. 1992).

conjunction with computer manufacturers' designed standards, demands of the industry being serviced and widely accepted programming practices within the industry. Finally, the court should determine whether any of the elements of the plaintiff's program are from the public domain.

Step Three - Substantial Similarity Test. The last step is a comparison of the protected expressions in the allegedly infringed program and the defendant's program. The inquiry here will focus on whether the defendant copied any aspect of this protected expression, as well as an assessment of the relative importance of the copied portions with respect to the plaintiff's overall program.

All three tests must be met.

V. THE FUTURE OF § 117

Notwithstanding some authority otherwise, the courts' application of § 117 will continue to be both inconsistent and restrictive. Courts will begin with the premise that adaptation must be accomplished within strict parameters under § 117. Until the courts better understand the balance unartfully set forth in CONTU between the rights of a licensor and a licensee of copyrighted software, practitioners are well advised to give very conservative advice to clients.

Scholarly commentary has focused on courts applying the fair use factors of § 107 to § 117. However, as pointed out above, such analysis is far from satisfactory.[97] The court in *Allen-Myland* "retreated" from a more liberal licensee-oriented application of the § 117 privilege and returned to the strictures of *Hubco*, *Midway Manufacturing* and *Micro-Sparc*.

There is a tension in comparing the opinions in these cases with the courts' opinions in *Foresight Resources* and *RAV Communications, Inc.* The thread in the "strict" application of § 117 is consideration of the actions of the one claiming the privilege, i.e., were copies made, what kind, in what context, for what purpose, did inputting occur, what was inputted and into what hardware. The less strict application appears to be a consideration of whether the licensor was or will be damaged by the adaptor's actions, i.e., is there currently or likely to be competition between the two.

The latter analysis seems more consistent with CONTU. However, no court has addressed this issue specifically. Until a court does so, § 117 of the Act cannot be a sound source of advice to one who should seemingly be able to clearly claim the § 117 privilege.

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97. *See* Kester, *supra* note 69, at 512-13.