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CURRENT CASES

COPYRIGHT OWNERSHIP FOR INDEPENDENT CONTRACTORS: THE NINTH CIRCUIT ADOPTS A "LITERAL INTERPRETATION" APPROACH TO THE "WORK FOR HIRE" DOCTRINE. *Dumas v. Gommerman*, 865 F.2d 1093 (9th Cir. 1989).

On January 13, 1989, the Ninth Circuit Court of Appeals redefined the "work for hire" doctrine. In adopting a "literal interpretation" approach to interpreting 17 U.S.C. § 101,¹ the court rejected prior formulations by the Second and Seventh Circuits² and ruled that "only works produced by formal, salaried employees are covered by 17 U.S.C. § 101(1)."³ Further, the court announced that "[w]orks by independent contractors are works for hire only when the requirements of 17 U.S.C. § 101(2) are satisfied."⁴ This narrow interpretation of the "work for hire" doctrine draws a bright line distinction between employees and independent contractors. As a result, copyright ownership disputes between employers and employees and/or independent contractors need no longer involve ambiguous questions of "supervision and control" as required by the formulations employed by the Second and Seventh Circuits.⁵

The implications of the Ninth Circuit's interpretation are profound. First, companies utilizing independent contractors must

1. Hereinafter all code section references will be to the 1976 Copyright Act, located at Title 17 of the United States Code.

2. The leading case in the Second Circuit is *Aldon Accessories Ltd. v. Spiegel, Inc.*, 738 F.2d 548 (2d Cir. 1984), *cert. denied*, 469 U.S. 982 (1984). This case was quoted and followed by the Seventh Circuit in *Evans Newton Inc. v. Chicago Systems Software*, 793 F.2d 889 (7th Cir. 1986), *cert. denied*, 479 U.S. 949 (1986). *See infra* note 24 and accompanying text.

3. *Dumas v. Gommerman*, 865 F.2d 1093, 1105 (9th Cir. 1989). A "work made for hire" is defined by § 101 as:

(1) a work prepared by an employee within the scope of his or her employment; or

(2) a work specifically ordered or commissioned for use as a contribution to a collective work, as a part of a motion picture or other audiovisual work, as a translation, as a supplementary work, as a compilation, as an instructional text, as a test, as answer material for a test, or as an atlas, if the parties expressly agree in a written instrument signed by them that the work shall be considered a work made for hire.

4. *Dumas*, 865 F.2d at 1105. *See supra* note 3.

5. *Id.* *See infra* note 24 and accompanying text.

reevaluate their contractual position with respect to any copyrightable material resulting from such relationships. Second, a genuine conflict now exists among the courts of appeal. While the approach taken by the Ninth Circuit seems to lead to more predictable and consistent results, only an appeal to the Supreme Court is likely to resolve the conflict.⁶

Dumas v. Gommerman arose out of a dispute over the ownership of the copyrights to four works of art. In 1979, ITT Canon retained the advertising agency of D'Arcy, MacManus & Masius, Inc. (D'Arcy) to create four paintings. Canon planned to use these paintings to produce sets of lithographs to give to its distributors as part of a promotional campaign. D'Arcy then commissioned Patrick Nagel, a graphic artist and commercial illustrator, to create the four paintings. D'Arcy provided Nagel with sketches which he then used to prepare his illustrations. ITT Canon accepted and paid for Nagel's paintings and, from them, created the lithographs to use in its campaign. The campaign was less than successful and the four original paintings were subsequently destroyed, but some of the lithographs remained in ITT Canon's possession.

Nagel died in 1984. His widow, Jennifer Dumas, the plaintiff in this action, became the successor in interest to any copyrights he held in his works.⁷ In 1985, ITT Canon sold the remaining lithographs, along with any existing copyrights, to the defendant, Stefan Gommerman. Gommerman registered his copyrights in January 1986.

Dumas learned of the purported copyright transfer in January 1986 and immediately notified Gommerman and ITT Canon of her claim of copyright ownership. Gommerman disregarded her notice and proceeded to reproduce posters from one of the lithographs.

On May 8, 1987, Dumas filed a conflicting registration of copy-

6. The conflict may be resolved this term. The Supreme Court has granted certiorari in *Community for Creative Non-Violence v. Reid*, 846 F.2d 1485 (D.C. Cir. 1988), *cert. granted*, 109 S. Ct. 362 (1988). In this case, the D.C. Circuit held that a non-profit organization which conceived of the idea for a Nativity scene and hired a sculptor to render three figures and a shopping cart was not the "author" of the sculpture under the "work for hire" doctrine. The court reasoned that the sculptor was an independent contractor, based on the rules of agency law. This case brought the D.C. Circuit in line with the Fifth Circuit, which first applied the "literal interpretation" approach in *Easter Seal Society for Crippled Children v. Playboy Enterprises Inc.*, 815 F.2d 323 (5th Cir. 1987) *cert. denied* 108 S. Ct. 1280 (1988).

The opposing view is represented by *Aldon Accessories Ltd. v. Spiegel, Inc.*, 738 F.2d 548 (2d Cir. 1984), *cert. denied*, 469 U.S. 982 (1984), *Evans Newton Inc. v. Chicago Systems Software*, 793 F.2d 889 (7th Cir. 1986), *cert. denied* 479 U.S. 949 (1986), and *Brunswick Beacon, Inc. v. Schock-Hopchas Publishing Co.*, 810 F.2d 410 (4th Cir. 1987).

7. As with most artists, the value of Nagel's artwork increased dramatically after his death.

right. On June 22, 1987, she filed a complaint against Gommerman for damages and declaratory relief for copyright infringement and for unauthorized use of a deceased personality's name in violation of California Civil Code § 990. On June 23, 1987, she moved for a preliminary injunction to prevent Gommerman from manufacturing, distributing, or copying the lithographs. The district court granted the injunction.⁸

The sole issue Gommerman raised on appeal was whether the district court applied the correct legal standard in determining whether Nagel was an employee producing "works for hire" under § 101. The district court relied on the "supervision and control" test to determine that Nagel was not an "employee" for purposes of the Copyright Act.⁹ The court of appeals affirmed the holding of the district court, but based its opinion on the "literal interpretation" test. Judge Fletcher employed a traditional three-pronged approach to support this analysis. First, she reviewed the history of the "work for hire" doctrine. Second, she analyzed the legislative history and statutory context of §§ 101, 102, and 201. Finally, she scrutinized the holdings of sister jurisdictions and found that they had misinterpreted congressional intent regarding the "work for hire" doctrine.

Under the Copyright Act of 1909, judicial application of the statutory "work for hire" doctrine created a strong presumption in favor of the employer. Unless the parties agreed otherwise, anyone who paid an artist to create a copyrightable work was the statutory author and, hence, the owner of the copyright.¹⁰ Such a test unduly protected the employer's entrepreneurial idea at the expense of the artist's creative labor.¹¹ This employer-oriented approach has been abandoned under the Copyright Act of 1976 (hereinafter the "Act"). The presumption under the 1909 Act has been replaced by

8. The injunction specified that "neither Gommerman nor his business, nor his business entities, nor his agents may (1) reproduce or otherwise manufacture the ITT works; or (2) sell, advertise, or in any way distribute reproductions of the ITT works already in the possession of the defendants." *Dumas*, 865 F.2d at 1095.

9. Gommerman agreed with the "supervision and control" test, but maintained that the district court was too strict in requiring proof of *significant* control. He argued that *any* identifiable measure of direction and control should be sufficient. *Dumas* also agreed with the district court's choice of test, but suggested that the narrower "literal interpretation" test developed in *Easter Seal Society for Crippled Children v. Playboy Enterprises Inc.*, 815 F.2d 323 (5th Cir. 1987) should be applied. *Dumas*, 865 F.2d at 1096.

10. "This has been called the 'instance [sometimes "insistence"] and expense' test, after *Brattleboro Publishing Co. v. Winmill Publishing Corp.*, 369 F.2d 565, 567 (2d Cir. 1966). In other words, only when an artist sold a pre-existing work would she be likely to retain the copyright under work for hire law." *Dumas*, 865 F.2d at 1096 n.5.

11. *Dumas*, 865 F.2d at 1096 n. 5.

a definitional framework which clearly delineates the rights of the respective parties.¹²

Section 201(a) establishes the initial ownership of a copyright: "Copyright in a work protected under this title vests initially in the author or authors of the work."

Section 201(b) establishes authorship of works made for hire: "[T]he employer or other person for whom the work was prepared is considered the author. . . and, unless the parties have expressly agreed otherwise in a written instrument signed by them, owns all of the rights comprised in the copyright."

Section 101 defines "works made for hire" as:

- (1) a work prepared by an employee within the scope of his or her employment; or
- (2) a work specially ordered or commissioned for use as a contribution to a collective work, as a part of a motion picture or other audiovisual work, as a translation, as a supplementary work, as a compilation, as an instructional text, as a test, as answer material for a test, or as an atlas, *if the parties expressly agree in a written instrument signed by them that the work shall be considered a work made for hire.* (Emphasis added.)

The interaction of these three statutes allocates copyright ownership interests in the following manner:

	<u>Works Prepared by Employees § 101(1)</u>	<u>Works Prepared by Independent Contractors § 101(2)</u>
No Explicit Agreement	Copyright ownership automatically vests in employer.	Copyright ownership automatically vests in independent contractor.
Work for Hire Contract	Unnecessary.	Copyright ownership depends on the terms of the contract.

Having established the statutory framework, two divergent

12. Obviously, not all of the circuits agree that this was the intent of Congress. According to the Second Circuit:

Under the 1909 Act and decisions construing it, if an employer supervised and directed the work, an employer-employee relationship could be found even though the employee was not a regular or formal employee . . . [citations omitted] . . . Nothing in the 1976 Act or its legislative history indicates that Congress intended to dispense with this prior law applying the concepts of "employee" and "scope of employment."

Aldon, 738 F.2d at 552.

analyses ensue. The key terms “employee,” “employer,” and “scope of employment” are not defined in the Act. The Second and Seventh Circuits resort to the “supervision and control” test to distinguish employees from independent contractors. These circuits hold that “the definitions in § 101 require the court to determine whether an artist, hired to produce a specific work, was in fact ‘independent’ or was ‘so controlled and supervised in the creation of the particular work by the employing party that an employer-employee relationship exists,’ ” in which case § 101(1) applies.¹³

The Ninth Circuit, relying on the statutory context and legislative history of the “work for hire” provisions, considered and rejected this approach. Instead, the court found that the term “employee” means, quite simply, a formal, salaried employee.¹⁴ To support this interpretation, the court found that the Act constitutes an interlocking framework of statutes designed to balance the competing interests of creators and marketers of copyrightable material.

The interests of creators, i.e. independent contractors, are protected by § 101(2), which prevents their works from being designated as “made for hire” without their consent.

Sections 101(1) and 201(b) combine to protect the interests of employers. First, § 101(1) provides that the works of “employees,” i.e. formal, salaried employees, are works made for hire. Second, § 201(b) establishes the employer as the initial author of works made for hire. Therefore, the employer is the author of all works created by its employees. This imputed authorship has two further effects. First, it grants ownership of any copyrights to the employer. Notwithstanding § 201(b), copyright ownership would

13. *Dumas*, 865 F.2d at 1102, citing *Aldon*, 738 F.2d 548, 552.

14. *Dumas*, 865 F.2d at 1105. When it is unclear whether the parties have a formal, salaried employer-employee relationship, relevant factors may include:

- (1) whether the artist worked in his or her own studio or on the premises of the buyer;
- (2) whether the buyer is in the regular business of creating works of the type purchased;
- (3) whether the artist works for several buyers at a time, or exclusively for one;
- (4) whether the buyer retains authority to assign additional projects to the artist;
- (5) the tax treatment of the relationship by the parties;
- (6) whether the artist is hired through the channels the buyer customarily uses for hiring new employees;
- (7) whether the artist is paid a salary or wages, or is paid a flat fee; and
- (8) whether the artist obtains from the buyer all benefits customarily extended to its regular employees.

Id.

vest in the employee, rather than the employer, at the moment the work becomes fixed in a tangible medium of expression because copyright protection subsists from the moment of fixation,¹⁵ and a transfer of copyright ownership would otherwise require a written instrument signed by the employee.¹⁶ Second, § 201(b) eliminates § 203(a) termination rights.¹⁷ If the copyright were owned by the employee and were *transferred* to the employer, § 203(a) would permit the employee to terminate the transfer. Instead, § 201(b) vests "all of the rights comprised in the copyright" in the employer, thereby eliminating the need for any type of transfer from the employee to the employer. Thus, by clearly defining the respective rights of employers, employees, and independent contractors, the Act balances and protects the interests of all parties.

The Ninth Circuit also found support for its interpretation in the legislative history of the "work for hire" doctrine. The House of Representatives recognized the need to distinguish works made for hire from works made during the regular course of employment:

The status of works prepared on special order or commission was a major issue in the development of the definition of "works made for hire" in section 101, which has undergone extensive revision during the legislative process. The basic problem is how to draw a statutory line between those works written on special order or commission that should be considered as "works made for hire," and those that should not. The definition now provided by the bill represents a compromise which, in effect, spells out those specific categories of commissioned works that can be considered "works made for hire" under certain circumstances.¹⁸

The reference to "compromise" in the House Report refers to more than twenty years of negotiations between creators and marketers of copyrighted material. "[T]he substantive content of the statute emerged as a series of interrelated and dependent compromises among industries with differing interests in copyright."¹⁹

15. 17 U.S.C. § 102(a) (1982 & Supp. IV 1986).

16. *Id.* at § 204(a).

17. Section 203(a) provides: "In the case of any work *other than a work made for hire*, the exclusive or nonexclusive grant of a transfer or license of copyright or of any right under a copyright . . . is subject to termination. . . ." (Emphasis added.)

18. H.R. REP. NO. 1476, 94th Cong., 2d Sess. 121, *reprinted in* 1976 U.S. CODE CONG. & ADMIN. NEWS 5659, 5737.

19. *Dumas*, 865 F.2d at 1099, quoting from Litman, *Copyright, Compromise, and Legislative History*, 72 CORNELL L. REV. 857, 862 (1987). After quoting Litman, the court proceeded to discuss four proposals which were considered in reaching the consensus found in the Act. Only the fourth, the 1965 Revision Bill, H.R. 4347, *see infra*, note 21, is discussed in this casenote.

The Register of Copyrights stated that “the definition of works made for hire now in section 101 represents a carefully worked out compromise aimed at balancing legitimate interests on both sides. . . [E]xcept for the enumerated categories, other works made on special order or commission would not come within the definition.”²⁰ The 1965 Revision Bill²¹ reflects the dichotomy between employees and independent contractors that survived into the Copyright Act of 1976:

The content of the pre-legislative dialogue and the context in which it occurred indicated that by using the term ‘employee’ the parties meant to limit works made for hire under this branch of the definition to works created *by a salaried worker in a long-term position*. . . . Commissioned works, on the other hand, were to be treated as works for hire only if they fell within specific enumerated categories, and even then only if there was an agreement in writing that the work was a work for hire.²² (Emphasis in original).

The social policy behind the “work for hire” doctrine lends further support to the court’s interpretation.

A commission to produce a work of art is essentially just another contract. By designating some works as works for hire the statute functions, in the case of initial ownership of copyright, as a default mode, applying where the parties did not express their intentions in writing. Imposing the burden on contract to avoid the statutory rule on the purchaser [employer], who generally has the stronger bargaining position and readier access to legal advice, is the intended balance We need not assume that artists are always in an unequal bargaining position owing to their legendary habits of imprudence in business affairs, but they are nevertheless disadvantaged by the impossibility of determining their work’s full value until it has been exploited.²³

Thus, the statutory framework of the Act, its legislative history, and social policy all support a narrow, literal interpretation of the statutory term, “employee.” Despite this clear mandate, the Second and Seventh Circuits have resurrected the approach used

20. *Dumas*, 865 F.2d at 1100 quoting from Copyright Law Revision Part 6: Supplementary Report of the Register of Copyrights on the General Revision of the U.S. Copyright Law, 66-67 (Comm. Print 1965).

21. H.R. 4347, 89th Cong., 1st Sess. (1965).

22. *Dumas*, 865 F.2d at 1101, partially quoting from Litman, *supra* note 19, at 890.

23. *Dumas*, 865 F.2d at 1101. See Varmer, *Works Made for Hire and on Commission, Study No. 13 for the Senate Subcommittee on Patents, Trademarks, and Copyrights* 140, 86th Cong., 1st Sess., Copyright Law revision (Comm. Print 1961). See also H.R. REP No. 1476, *supra* note 18 at 124.

prior to enactment of the 1976 Act. The Fifth and D.C. Circuits recognize the need to narrowly define "employee," but err in adopting an approach which indirectly relies on the rejected "supervision and control" test.

The leading case espousing the "supervision and control" test is *Aldon Accessories Ltd. v. Spiegel, Inc.*,²⁴ which affirmed a jury instruction which stated that the artist need not have a regular job with the hiring author, so long as the employer caused the work to be made and exercised the right to direct and supervise the creation.²⁵ While this court recognized that the legislative history of the Act indicated that "Congress intended to change prior work for hire law dealing with 'works prepared on special order or commission,'" it distinguished works prepared by contractors who were supervised and directed by the hiring party.²⁶ These workers, the court found, would be considered "employees" acting within the "the scope of employment."²⁷

The Ninth Circuit is strongly critical of this interpretation. It finds that the "analysis simply fails to acknowledge the changes wrought by the 1976 Act on the work for hire doctrine. . . ."²⁸ Moreover, "[t]he *Aldon* test distorts the balance reached in the 1965 compromise by protecting only a very limited class of independent contractors from the old law's injustice: 'those situations where the contractor did all of the creative work and the hiring party did little or nothing.'²⁹ Finally, *Aldon's* "supervision and control" test undercuts Congressional intent to "increase certainty over whether a work is made for hire."³⁰

The Ninth Circuit also distinguishes the approach adopted by the Fifth Circuit in *Easter Seal Society v. Playboy Enterprises*.³¹ The

24. 738 F.2d 548 (2d Cir. 1984), *cert. denied*, 469 U.S. 982 (1984); *accord*, *Evans Newton Inc. v. Chicago Systems Software*, 793 F.2d 889 (7th Cir. 1986), *cert. denied*, 479 U.S. 949 (1986); *see also* *Baltimore Orioles v. Major League Baseball Players Assoc.*, 805 F.2d 663 (7th Cir. 1986), *cert. denied*, 480 U.S. 941 (1986); *Hays v. Sony Corp. of America*, 847 F.2d 412 (7th Cir. 1988).

25. *Aldon*, 738 F.2d at 551.

26. *Id.* at 552.

27. *Id.* This interpretation creates three categories of independent contractors: those who are deemed "employees" because of the purchasing party's supervision and control; those whose commissioned works are works for hire because they fall into the categories of § 101(2); and those whose products are not works for hire. *Dumas*, 865 F.2d at 1102.

28. *Dumas*, 865 F.2d at 1102.

29. *Dumas*, 865 F.2d at 1103, *citing Aldon*, 738 F.2d at 552.

30. *Dumas*, 865 F.2d at 1103. *See* Comment, *Commissioned Works as Works Made for Hire Under the 1976 Copyright Act: Misinterpretation and Injustice*, 135 U. PA. L. REV. 1281, 1298, 1304-05.

31. 815 F.2d 323 (5th Cir. 1987), *cert. denied*, 108 S.Ct. 28 (1988). *Easter Seal* was

court in *Easter Seal* was the first to develop and apply the "literal interpretation" approach. Although the court recognized that the Act requires a clear distinction between employees and independent contractors, the Fifth Circuit interpreted the statutory term "employee" according to the common law of agency.³² Under this approach, works are made for hire only if agency law principles would find the artist to be an employee of the purchaser, or if the parties have a written agreement and the works fall within one of the enumerated "works for hire" categories in § 101(2).³³ The problem with this approach, according to the Ninth Circuit, is that it indirectly includes the rejected "supervision and control" test. The Restatement (Second) of Agency, § 220(2) states: "In determining whether one acting for another is a servant or an independent contractor, the following matters of fact, among others, are considered: (a) the extent of control which, by the agreement, the master may exercise over the details of the work. . . ."³⁴ Thus, rather than drawing a distinct line between employees and independent contractors, this approach would require case-by-case analysis, thereby defeating the Act's twin goals of consistency and predictability.³⁵

Applying the two competing theories to the facts of *Dumas* is illustrative. ITT Canon commissioned four paintings, three of which were to be on pre-determined subjects, the fourth on a subject of Nagel's own choosing. Under *Aldon* and *Easter Seal* the first three might be works for hire depending on the level of supervision and control exercised by ITT. The fourth painting, however, would not be a work for hire because ITT lacked the requisite supervision

followed by the D.C. Circuit in *Community for Creative Non-Violence v. Reid*, 846 F.2d 1485, 1494 (1988).

32. *Dumas*, 865 F.2d at 1104, n.16. The Fifth Circuit reasons that the phrase "scope of employment" in § 101(1) is a term of art in agency law, and therefore its use suggests congressional intent to incorporate the agency doctrine. *Easter Seal*, 815 F.2d at 335.

33. *Dumas*, 865 F.2d at 1104.

34. RESTATEMENT (SECOND) OF AGENCY § 220(2) (1958).

35. If the Fifth Circuit's approach is followed,

a work-by-work analysis may be required to determine ownership disputes, and some independent contractors could be deemed "employees" where the purchaser includes provisions in the contract granting it substantial rights of control. This was not intended by the drafters. Because the work for hire doctrine as finally agreed upon in the compromise effects an implicit transfer of copyright ownership while simultaneously destroying the artist's right to terminate the transfer, the drafters wanted a bright line between employees and independent contractors, so that the parties would not be mistaken in their appraisal of the contracted work's status, and purchasers would have little ability to change the artist's presumed status without the artist being fully aware of the change.

Dumas, 865 F.2d at 1104. See *Easter Seal*, 815 F.2d 323.

and control. This incongruous result demonstrates the speciousness of the "supervision and control" test—ITT Canon paid for the same price for all four paintings!³⁶ Conversely, the "literal interpretation" approach will lead to consistent, predictable results in every instance. The only issue will be whether the artist is a "formal, salaried employee."³⁷ If so, then § 101(1) applies and any resulting works are works for hire. If not, i.e. where the artist holds himself out as a freelancer, then the employer should anticipate that the commissioned work will not be a work for hire unless § 101(2) applies.

Dumas v. Gommerman was a case of first impression in the Ninth Circuit. Unrestrained by *stare decisis*, the court squarely rejected sister court interpretations of the "work for hire" provisions of the 1976 Copyright Act. Depending on the outcome of *Creative Community for Non-Violence*³⁸ in the Supreme Court, *Dumas* promises to be the seminal proponent of a literal interpretation of the "work for hire" doctrine. *Dumas* teaches that the definitions of "work made for hire" in § 101 are to be read quite literally. All formal, salaried employees fall into § 101(1). All independent contractors fall into § 101(2); their works will be "made for hire" only if the parties so agree. These bright line rules will lend consistency and predictability to the relationships between employers, employ-

36. *Id.* at 1103. Clearly, a reasonable person, even a reasonable artist, would place some value on the copyright to his or her work.

37. See *supra* note 14 for a series of tests to determine whether an employer-employee relationship exists.

38. 846 F.2d 1485 (D.C. Cir. 1988), cert. granted 109 S. Ct. 362 (1988). The court in *CCNV* held that:

a copyrightable work of an independent contractor cannot be a work made for hire under the current Act unless the work falls within one of the specific categories enumerated in § 101(2) and "the parties expressly agree in a written instrument signed by them that the work shall be considered a work made for hire." 17 U.S.C § 101(2).

CCNV, 846 F.2d at 1494.

The D.C. Circuit expressly followed the Fifth Circuit's opinion in *Easter Seal*, 815 F.2d

323. The D.C. Circuit quoted and applied the following analysis from *Easter Seal*:

[A] court should first determine—using agency law rules—whether or not the seller is an employee or an independent contractor. Then, the court should apply the statute. Section 101(1) applies to sellers who are employees. If the work was in the scope of employment, an agency-law employee is a copyright employee, and the employer is the "author." Section 101(2) applies to independent contractors. . . .

CCNV, 846 F.2d at 1492, quoting *Easter Seal*, 815 F.2d at 329.

The "literal interpretation" approach is clearly the better-reasoned analysis. The key issue before the Supreme Court, then, is to determine the correct standard to distinguish employees from independent contractors: the Ninth Circuit's "formal, salaried employee" standard, or the Fifth Circuit's "agency law" standard.

ees, and independent contractors, thereby achieving the purpose of the “work for hire” doctrine.

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A PROMISE OF CONFORMITY IN THE AREA OF “LOOK AND FEEL”?; *Data East U.S.A., Inc. v. Epyx, Inc.*, 862 F.2d. 204 (9th Cir. 1988).

Case law in the area of “look and feel” has been plagued by non-conformity as judges are irresolute in their consideration of what aspects of computer expression are protected by the U.S. Copyright laws. The discrepancies in court decisions have left programmers, companies and attorneys with few concrete guidelines as to what constitutes infringement of intellectual property rights in audio-visual works. However, the Ninth Circuit’s recent decision in *Data East USA, Inc. v. Epyx, Inc.* suggests that one court may have settled upon a method of analysis, which although not yet free from uncertainty, may produce consistent holdings and begin to dispel the confusion created by prior rulings.

In *Data East*, the Ninth Circuit reversed the ruling of the district court and concluded that no copyright infringement occurred. Justice Trott, writing the opinion for the Ninth Circuit, declined to address the issue of whether the defendant had access to the program underlying the plaintiff’s video game after concluding that the two video games lacked substantial similarity. The finding that no substantial similarity existed was based on the premise that the idea behind the video game and the expression of the game were inseparable. Because copyright protection is only afforded to expression which extends beyond the idea of the video game, no copyright infringement occurred.¹ This holding reduces the amount of copyright protection available to authors and programmers of video games; only the original portrayal of an idea will be protected, and not the general presentation of that idea. However, by adopting an expanded version of the standard test applied to copyright infringement cases, the court demonstrates the direction it intends to take in adjudicating audio-visual cases, and thus provides guidance to the lower courts.

In 1984, *Data East USA, Inc.*, a California corporation involved in the design, manufacture and sale of arcade video games and home-computer video games, began distributing an arcade

1. See 3 M. Nimmer, *THE LAW OF COPYRIGHT*, § 13.03(a), 1987 (“Copyright does not protect against the borrowing of abstract ideas contained in the copyrighted work [I]f the only similarity between plaintiff’s and defendant’s works is that of the abstract idea, there is an absence of *substantial* similarity and hence no infringement results.”).

game entitled "Karate Champ" in Japan, the United States, and Europe. In October of 1985, Data East developed and began marketing a home-computer version of "Karate Champ" adapted from its arcade game. The game could be operated on either the Apple or the Commodore computer. Data East owned the audio-visual copyright to the home-computer game "Karate Champ" as well as the trademark "Karate Champ."

In November, 1985, an English company, System III Software, Ltd., began distributing a home-computer game throughout England and other areas of Europe entitled "International Karate." The conflict arose after defendant, Epyx, Inc., a California corporation engaged in the development and distribution of home-computer games, learned of System III Software's desire to market the game in the United States. Epyx and System III Software executed a licensing and publishing agreement, and in April of 1986, Epyx began marketing and distributing System III Software's home-computer combat game in the United States under the name "World Karate Championship." "World Karate Championship" is similar to the home-computer game marketed by plaintiff, Data East, and is also compatible with the Apple and Commodore computer systems.

The two home-video games are virtually identical in their depiction of a karate match between opponents. Each game presents two combatants, one in red uniform, the other in white, presided over by a referee who directs the beginning and end of each phase of combat and announces the winner by means of an overhead speech balloon. Each successive round of combat is conducted against a still background image portraying different geographic locales or sites. The geographic scene is viewed on the upper portion of the computer screen, while the combatants and referee are viewed on the lower half of the screen. Both games utilize a joy stick and a button to effect the moves of the combatants and include bonus rounds in which each combatant must dodge flying objects or perform other karate feats such as breaking bricks. A similar method of scoring points is also employed by both games.²

2. The court listed fifteen features of the plaintiff's and defendant's games which it found to be identical in each game: 1) fourteen moves; 2) a two-player option; 3) a one-player option; 4) forward and backward somersault moves and about-face moves; 5) a squatting reverse punch wherein the heel is not on the ground; 6) an upper-lunge punch; 7) a back-foot sweep; 8) a jumping sidekick; 9) a low kick; 10) a walk-backwards position; 11) changing background scenes; 12) 30-second countdowns; 13) use of one referee; 14) the referee says "begin," "stop," "white," "red," which is depicted by a cartoon-style speech balloon; and 15) a provision for 100 bonus points per remaining second. *Data East U.S.A., Inc. v. Epyx, Inc.*, 862 F.2d 204, 209 (9th Cir. 1988).

Data East brought an action against Epyx in district court on October 18, 1986, alleging infringement of copyright, trademark and trade dress, and requesting injunctive relief and impoundment of the infringing works. With respect to the copyright infringement claim the court relied on circumstantial evidence to conclude that defendant had access to plaintiff's underlying program, and also determined that the evidence revealed substantial similarity between Data East's and System III Software's³ work. Thus, the district court ruled that the defendant had infringed the plaintiff's copyright.

In the district court, no evidence was produced to show independent creation by System III Software. This type of evidence would have negated a finding of access to the underlying program. Direct evidence did establish that the System III Software programmer utilized a more sophisticated programming technique than was used by Data East. However, the court concluded that because of the wide dissemination of the arcade version of "Karate Champ," and the ease with which a developer could purchase a game and discover the underlying program, access by System III Software to Data East's program would be presumed.

In looking at substantial similarity, the district court placed great weight on the determination that the standard consumer of the game, a boy aged 17.5 years, would regard the two games as substantially similar. The district court held that the defendant's game unlawfully appropriated the "total feel and concept" of the plaintiff's game and thus infringed Data East's copyright. The district court recognized that the idea behind the two games was identical, and that the visual depiction of karate matches is subject to the constraints inherent in the sport of karate and in the use of the game on the Commodore computer. However, the court did not find the idea and expression so inseparable as to escape the infringement claim.⁴ The issues of infringement of trademark and trade dress were summarily dismissed, and the injunction was granted.

On appeal, the Ninth Circuit reversed the lower court's hold-

3. The district court referred to System III Software instead of Epyx because System III Software was the actual developer of the video game. Epyx was named as the defendant instead of System III Software because Epyx had licensed the video game from System III Software and distributed it in the United States.

4. The operation of the video game on the Commodore computer produced such constraints as the use of sprites, a limited availability of color, and limitations on the use of multiple colors upon one visual image. *Data East*, 862 F.2d at 209. A "sprite" involves the use of a special technique for creating mobile graphic images on a computer screen that is appropriate for animation. An increase in sophistication of sprite techniques used in the computer program will increase the graphic quality of the game's animation. *Id.* at 209, n.5.

ing. The opinion by Justice Trott addressed the issues of sufficiency of the evidence⁵ and the claim of copyright infringement. In his analysis of copyright infringement, Justice Trott relied on the test adopted by the Ninth Circuit in *Sid and Marty Krofft Television Productions, Inc. v. McDonald's Corporation*,⁶ known as the "Krofft test." Under the Krofft test, a plaintiff will succeed in a claim for copyright infringement if he proves the following: a) ownership of the copyright; and b) "copying" by the defendant. Copying can be demonstrated by a finding of 1) circumstantial evidence of access⁷ to the copyrighted work; and 2) substantial similarity between the copyrighted work and the defendant's work. Furthermore, substantial similarity is dependent upon the outcome of two additional tests: i) the "extrinsic" test; and ii) the "intrinsic" test.⁸

The extrinsic test employs an objective approach to determine whether the *ideas* behind two works are similar. The focus in this test is not on the trier of fact, but instead on specific criteria, such as the type of artwork involved, the materials used, the subject matter, and the setting for the subject.⁹ Because the extrinsic test emphasizes analytic analysis of criterion beyond the work itself, expert testimony is appropriate. The question may be decided as a matter of law.¹⁰ The intrinsic test, on the other hand, relies on a more subjective approach to ascertain whether substantial similarity exists in the *expression* of the two works. Application of the intrinsic test focuses on the "ordinary reasonable person" most likely to purchase or consume the product,¹¹ and whether this person would find that the "total concept and feel" of the two works reflects a substantial similarity. Typically, analytic analysis and expert testimony are not

5. With respect to the issue of sufficiency of the evidence, the court found that viewing still photographs (as opposed to Data East's original arcade game, which depicts all images and all moves that occur when the game sequences through the various skill levels), along with testimony, constituted sufficient evidence of the contents of the arcade game's audiovisual work to make a fair comparison with Epyx's game. The court thus concluded that the district court had not committed plain error by viewing only the still photographs. *Id.* at 206-07.

6. *Sid and Marty Krofft Television Productions, Inc. v. McDonald's Corp.*, 562 F.2d 1157 (9th Cir. 1977). This test was first announced in the Second Circuit's decision, *Arnstein v. Porter*, 154 F.2d 464, 468-69 (2nd Cir. 1946), *cert. denied*, 330 U.S. 851 (1947), and was adopted by the Ninth Circuit in the *Krofft* decision. For further discussion of the "extrinsic" and "intrinsic" tests see *Krofft*, 562 F.2d at 1164; *McCulloch v. Albert E. Price, Inc.*, 823 F.2d 316, 319 (9th Cir. 1987).

7. The Ninth Circuit defined "access" as "an opportunity to view or to copy plaintiff's work." See *Krofft*, 562 F.2d at 1172.

8. This test in its entirety is referred to as the *Krofft* test.

9. See *Krofft*, 562 F.2d at 1164.

10. *Id.*

11. *Id.*

appropriate under this test. The outcome of the test is left to the trier of fact.

As in the lower court, there was no dispute with respect to whether Data East owned the copyright to "Karate Champ," and Justice Trott moved directly to the issue of copying. In one conclusive statement Justice Trott declined to address the issue of access because he did not find substantial similarity between the plaintiff's and defendant's videogames. In a later portion of the opinion Justice Trott states that Epyx never had access to Data East's home game version of "Karate Champ." However, he does acknowledge the district court's finding that Data East's home-computer game was an adaptation of its arcade game. Thus, had Justice Trott decided the access issue, it is speculative whether he would have found that Epyx had access to Data East's program.

Justice Trott then moved to the issue of substantial similarity. He began his analysis by reviewing the well-known concept that ideas themselves are not protected by copyright, and therefore, cannot be infringed; only the author's expression is protectable under the copyright laws.¹² He then applied the "extrinsic" and "intrinsic" tests established in *Krofft*. In applying the extrinsic test, Justice Trott relied on the district court's findings that plaintiff's and defendant's games both encompassed the identical idea of a martial arts karate combat match, citing the district court's description of the videogames.¹³

The court went on to consider the intrinsic test to determine whether the expression of the two games was substantially similar. However, Justice Trott went beyond the typical application of the intrinsic test and followed the approach developed by the Ninth Circuit in *Aliotti v. R. Dakin & Co.*¹⁴ The usual approach of the intrinsic test was to ignore analytic dissection and expert testimony and rely only on subjective factors. Instead, Justice Trott integrated the principle that "no substantial similarity of expression will be found when 'the idea and its expression are inseparable'"¹⁵ into the

12. *Mazer v. Stein*, 347 U.S. 201, 217-18 (1954). See also 17 U.S.C. § 102(b), which codified the concept expressed in *Mazer*.

13. The district court had described the idea behind the videogames as, "a martial arts karate combat game conducted between two combatants and presided over by a referee, all of which are represented by visual images and providing a method of scoring accomplished by full and half point scores for each player, and utilizing dots to depict full point scores and half point scores." *Data East USA, Inc. v. Epyx, Inc.*, No. 14231 at ¶20 (D.C. Cal. 1987) (LEXIS, Genfed library, Dist file).

14. *Aliotti v. R. Dakin & Co.*, 831 F.2d 898 (9th Cir. 1987).

15. The expanded intrinsic test developed in *Aliotti* stated that "no substantial similarity may be found under the intrinsic test where analytic dissection demonstrates that all simi-

intrinsic test. The Justice went on to say that to the extent that it is necessary to determine whether similarities result from unprotectable expression, it is appropriate under *Krofft's* intrinsic test to perform analytic dissection of similarities.¹⁶ The court thus incorporated into the intrinsic test an analytical dissection of all similarities, whether protectable by copyright or not.¹⁷ If all similarities in expressions arise from the use of common ideas, then no substantial similarity can be found.

Applying this new test to the facts, Justice Trott emphasized what the district court failed to regard in its final ruling. Whereas the district court discounted the import of their finding that the visual depiction of karate matches is subject to the constraints inherent in the sport of karate, Justice Trott focused on this finding. The constraints recognized by Justice Trott included the number of combatants, the moves and motions of the combatants, and the method of scoring. Justice Trott also considered the limitations arising from operation of the home-video karate game on the Commodore computer system. The fifteen features listed by the lower court¹⁸ were found to encompass features essential to the game procedure, the moves which constitute the sport of karate, the computer graphics, the constraints found in depicting the sport of karate or the utilization of the computer system. Justice Trott then stated that "after careful consideration and viewing of the features, we find that they necessarily follow from the idea of a martial arts karate combat game, or are inseparable from, indispensable to, or even standard treatment of the idea of the karate sport."¹⁹ When expressions and ideas coincide, protection will be granted only if exact copying is found.²⁰ Because the court found no incident of identical copying, and specifically stated that the programmers' contribution to the game - the background - was distinct, it concluded that the district court had erred by not limiting the scope of

larities in expression arise from the use of common ideas." The new test is based on the principle developed in a line of cases cited in *Krofft*, 562 F.2d at 1167-68. These cases included *Herbert Rosenthal Jewelry Corp. v. Kalpakian*, 446 F.2d 738 (9th Cir. 1971); *Landsberg v. Scrabble Crossword Game Players, Inc.*, 736 F.2d 485, 489 (9th Cir. 1984), *cert. denied*, 469 U.S. 1037, 105 S. Ct. 513 (1984) (factual works); *See v. Durang*, 711 F.2d 141, 143 (9th Cir. 1983) (scenes a faire doctrine).

16. *Data East*, 862 F.2d at 208.

17. *See Aliotti supra* note 14 at 901, *citing McCulloch v. Albert E. Price, Inc.*, 823 F.2d 316, 320-21 (9th Cir. 1987), in which the court states that all textual material, even that which is not copyrightable, should be considered to determine copyright infringement.

18. *See supra* note 2.

19. *Data East*, 862 F.2d at 209.

20. *See Krofft*, 562 F.2d at 1162.

plaintiff's copyright. Furthermore, Justice Trott concluded that a discerning boy age 17.5 years would not regard the works as substantially similar. The court thus reversed the decision of the district court and remanded the case for the lifting of the injunction.

The Ninth Circuit's approach in reviewing the *Data East* case should promote conformity in the lower courts by demonstrating the proper analysis for audio-visual copyright infringement cases, despite some irregularity in analysis. Justice Trott's failure to address the issue of access may at first appear as a distortion of the traditional *Krofft* test, which requires that both access and substantial similarity be independently established.²¹ It is typical in copyright infringement cases for the court to begin its analysis by considering the issue of access, because it is often easily decided. However, the *Krofft* court did discuss the substantial similarity in the two works before turning to whether the defendant had access to the plaintiff's work, thus indicating that the order of review of the two requirements is unimportant. Although in *Data East* it appears that Justice Trott disposed of the access issue before turning to the issue of substantial similarity, he had already concluded that no substantial similarity existed. It is likely he considered a discussion of access to be a waste of time. In *Krofft*, the Ninth Circuit stated that, "no amount of proof of access will suffice to show copying if there are no substantial similarities."²² Thus, even if Epyx had direct access to Data East's underlying program of "Karate Champ," such access would not provide a ground for copyright infringement if the two videogames were not found to be substantially similar.

The expanded intrinsic test which Justice Trott relied upon should prove to be a more concise means of establishing whether the expression of the two works is substantially similar. Prior to *Aliotti*, the Ninth Circuit applied the basic intrinsic test adopted in *Krofft*, which considered subjective factors in establishing similarity of expression and avoided analytic dissection. In a separate discussion the court analyzed whether the expression of the work and the idea of the work were indistinguishable. After completing each

21. However, in rare cases, "if . . . the similarity between plaintiff's and defendant's works is sufficiently striking and substantial, the trier of fact may be permitted to infer copying notwithstanding the plaintiff's failure to prove access." See M. Nimmer, *supra* note 1, at § 13.02[B]. Presumably, the court would have explored the access issue more fully had it found substantial similarity between the two works.

22. The court in *Aliotti*, 831 F.2d 898, relied on *Krofft*, 562 F.2d at 1172, and M. Nimmer, *supra* note 1, at § 13.03[D] in stating that "clear and convincing evidence of access will not avoid the necessity of also proving substantial similarity since access without similarity cannot create an inference of copying."

analysis, the court would decide whether substantial similarity in expression existed. In *Aliotti* the court recognized that the issue of "inseparability of idea and expression" had never been integrated into the *Krofft* intrinsic test. Because the issue of "inseparability" involves elements of expression, the court assimilated this analysis into the intrinsic test. Under this expanded version of the test, the court determined that it was appropriate to perform analytic dissection of similarities, thus negating the old principles of the intrinsic test. However, the intrinsic test maintained the subjective element, which considers the opinion of the ordinary consumer. This new test should facilitate the court's review and provide a more cohesive analysis of similarity of expression.

Opponents of this new test may argue that it presents other difficulties in deciding copyright infringement cases. By expanding the intrinsic test to include analytical considerations of whether the expression is identical to the idea itself, the line distinguishing the intrinsic and extrinsic tests is blurred. Greater weight is placed on objective factors rather than subjective, and because the similarity between objective factors has been generally regarded as a question of law, the issue of substantial similarity is decided in great part by the judge and not the jury.

Finally, the Ninth Circuit's decision in *Data East* was successful in aligning the outcomes of audio-visual infringement cases. Justice Trott's holding in *Data East* conforms with the Ninth Circuit's decision in another audio-visual copyright infringement case, *Frybarger v. International Business Machines Corporation*,²³ whose facts resembled those of *Data East*.

In *Frybarger*, Anothony Frybarger was employed by Nasir Gebelli and the company, Gebelli Software, Inc. (Gebelli). Pursuant to a confidential disclosure agreement, Frybarger submitted to Gebelli design drawings and a flow chart describing his newly developed video game "Tricky Trapper," and in September and November of 1982, upon request, provided Gebelli with a playable disk of "Tricky Trapper."²⁴ Throughout the period that Frybarger was submitting his ideas to Gebelli, Gebelli was providing consulting services to IBM with respect to the development of electronic video game programming for the IBM personal computer. On November 19, 1982, Gebelli submitted to IBM two storyboards for proposed video games. One of the video games developed by Gebelli was "Mouser," to which Gebelli registered the copyrights. IBM subse-

23. *Frybarger v. International Business Machines Corp.*, 812 F.2d 525 (9th Cir. 1987).

24. "Tricky Trapper" was compatible with the Apple Computer.

quently began marketing "Mouser." Frybarger registered the copyrights to "Tricky Trapper" in 1984.

In 1985 Frybarger brought an action in district court alleging copyright infringement against IBM, Nasir Gabelli, and Gabelli Software, Inc. Frybarger also argued that such infringement constituted unfair competition under section 43(a) of the Lanham Act.²⁵ IBM's motion for summary judgement and judgement on the pleadings was granted. Frybarger appealed to the Ninth Circuit.

On appeal, the Ninth Circuit reviewed the copyright infringement claim to determine whether the decision to dispose of the case on summary judgement was appropriate. The court applied the *Krofft* test²⁶ to determine whether a claim for copyright infringement could be established. Gebelli and IBM conceded that Frybarger owned the copyright to "Tricky Trapper" and that Gebelli had direct access to the "Tricky Trapper" design. However, with respect to the substantial similarity prong of the "copying" test, the court placed great weight on its determination that many of the similarities between Frybarger's and Gabelli's works were confined to ideas and general concepts, and hence stated:

Although there are numerous similar features in Frybarger's and Gebelli's works, we believe that each of the similar features constitutes a basic idea of the videogames and, to the extent each feature is expressive, that the expression is 'as a practical matter indispensable, or at least standard in the treatment of a given [idea]. These ideas, like all ideas are not protected by copyright.'²⁷

Because indispensable expression of ideas is so close to the non-protectable idea itself, it can only be protected against identical copying.²⁸ The court found that Gebelli's "Mouser" was not an

25. 15 U.S.C. § 1125(a).

26. See *supra* note 8 and accompanying text. In *Frybarger*, the court refrained from using the words "extrinsic" and "intrinsic" and instead discussed the similarities between the "ideas" and the "expressions." The *Frybarger* court thus avoided the problem of amending the "intrinsic" prong of the substantial similarity test, unlike the court in *Data East*.

27. *Frybarger*, 812 F.2d at 529-530, citing *Atari, Inc. v. North American Philips Consumer Elecs. Corp.*, 672 F.2d 607, 616 (7th Cir. 1982), ("scenes a faire" doctrine which relates to "expression. . . which necessarily results from the fact that the common idea is only capable of expression in more or less stereotyped form."). See also *Krofft*, 562 F.2d at 1163; *Herbert Rosenthal Jewelry Corp. v. Kalpakian*, 446 F.2d 738, 742 (9th Cir. 1971), ("When the 'idea' and its 'expression' are thus inseparable, copying the 'expression' will not be barred, since protecting the 'expression' in such circumstances would confer a monopoly of the 'idea' upon the copyright owner.").

28. *Krofft*, 562 F.2d 1157; *Herbert Rosenthal Jewelry Corp.*, 446 F.2d 738.

identical copy of "Tricky Trapper" and affirmed the decision of the district court.

The Ninth Circuit decision in *Frybarger* directly contradicted the district court's holding in *Data East*. Although there was no question that the Ninth Circuit's method of analysis would control, the discrepant conclusions demonstrated that a concrete approach in reviewing audio-visual cases had yet to be established. The discrepancies created an aura of unpredictability with respect to the amount of copyright protection which would be afforded video games. The Ninth Circuit's decision in *Data East* demonstrates that the court intends to analyze audio-visual infringement cases by applying the *Krofft* test, which now entails considering the degree of inseparability between idea and expression.

Although the Ninth Circuit's review of the case was consistent with the court's decision in *Frybarger*, *Data East* has requested a rehearing by the full Ninth Circuit. *Data East* argues that the court erroneously concluded that the "substantial similarities" were based on inherent constraints arising from the sport of karate and the use of the Commodore computer, and claims that the features of the game were based on creative decision.²⁹ The creative aspects of the game include the opponent's ability to somersault, which is not an actual move in karate; the use of bonus rounds, not found in an actual karate match; and the potential for numerous color combinations in the screen illustration of the game.³⁰ *Data East* contends that the court's decision is in direct conflict with other cases decided by that circuit, as well as other circuits, including the Third Circuit's decision in *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*,³¹ and requests that the Ninth Circuit either rehear or remand the case for a determination of which expressions are not constrained by the sport of karate or the computer.

However, by relying on *Whelan*, *Data East* may be acting to its own detriment. Although the court in *Whelan* placed great emphasis on the similarity of the structure, sequence and organization of the underlying program, thus indicating copying, the case was one in which the defendant had clear access to the plaintiff's source code. In *Data East* the appellate court's refusal to address the access issue distinguishes this case from *Whelan*. The evidence pro-

29. *Data East Requests "Look and Feel" Rehearing*, COMPUTER LAW & TAX REPORT, Vol. 15, No. 8, 4-5 (Mar. 1989).

30. *Id.*

31. *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222 (3rd Cir. 1986), *cert. denied* 107 S. Ct. 377.

duced at the district court was inconclusive as to whether System III Software had access to Data East's underlying program. Although the district court determined that the wide dissemination of the "Karate Champ" arcade game provided enough circumstantial evidence to rule that System III Software had access to Data East's program, direct evidence also demonstrated that System III Software had developed a more sophisticated program for "World Karate Championship" than was used by Data East in "Karate Champ." This difference between the two video games' underlying programs may be enough to establish that each program embodies a unique structure, sequence and organization. Thus, no copying by the defendant would be found. The Ninth Circuit would have to resolve the access issue if it were to rehear or remand the case.

The Ninth Circuit's decision in *Data East* provides some hope that the court has succeeded in determining exactly which portions of an audio-visual work will be protected, thus creating some consistency when it considers the similarities between two works. The ruling confirms the Ninth Circuit's prior decisions which reduce the degree of protection afforded audio-visual works. However, there is a continued guarantee that an author's expressions which extend beyond the idea of the work will be guarded from copyright infringement. The *Data East* decision is only one step toward uniformity in the "look and feel" arena. However, it provides promise that the courts will continue to align subsequent case law and eliminate the confusion once and for all.

Celeste Elizabeth Andersen

NEC Corp. v. INTEL Corp.: A BRIEF SYNOPSIS

On February 7, 1989, the United States District Court for the Northern District of California, Gray, J., held that: (1) the Intel microcode for its 8086 and 8088 microprocessors were the proper subjects for protection under the United States copyright laws; (2) Intel did forfeit the above copyrights it had obtained because (a) more than a relatively small number of copies of product distributed by its authority did not contain the copyright notice prescribed by 17 U.S.C. § 401, (b) Intel failed to make a reasonable effort to cause such notice to be added to those copies after the omission had been discovered within the meaning of 17 U.S.C. § 405 and (c) those copies were distributed at times when no express requirement in writing, within the meaning of 17 U.S.C. § 405, mandated such marking; (3) the microcodes that NEC produced for its V20, V30, V40 and V50 microprocessors do not infringe the Intel copyrights for its 8086 and 8088 microcodes and (4) NEC's V20 and V30 microprocessors are not simply "improvements" upon its μ PD 8086 and μ PD 8088 microprocessors, which were licensed by Intel under its copyrights.¹

This new holding presents some substantial changes from that previously rendered by Judge Ingram in 1986.² While Judge Gray agreed that microcode is properly subject to copyrightability as a computer program, he disagreed with Judge Ingram's statutory interpretation of "relatively small" and "reasonable effort" with regard to the number of chips distributed without copyright notice and Intel's efforts to remedy the omissions. Additionally, while Judge Ingram never reached the issues of "infringement" and "mere improvement" in the former case, Judge Gray provided a comprehensive analysis of microprocessor design and the constraints placed on object code and source code by that design. What happens relatively early in the research and development of the chip may determine what constitutes infringement or improvement. This casenote will briefly review the procedural history of the case, the development of the legal issues involved and then focus on the analysis of those issues as presented by Judge Gray.

1. *NEC Corp. v. INTEL Corp.*, No. C-84-207-99-WPG, slip op. at 2-3 (N.D. Cal. Feb. 7, 1989)[hereinafter "OPINION"].

2. *NEC Corp. v. INTEL Corp.*, 645 F. Supp. 590 (N.D. Cal. 1986).

PROCEDURAL HISTORY

In December of 1984, NEC Corporation, a Japanese electronics corporation and its California counterpart brought an action for declaratory relief against INTEL Corporation, a California electronics corporation. NEC sought a declaration that defendant's copyrights in its 8086 and 8088 microprocessors were invalid and/or not infringed by plaintiffs' microcode and sought an injunction against enforcement thereof by defendant, or alternatively, that plaintiffs were licensees under defendant's copyright. Defendant counterclaimed to enjoin the infringement of its copyrights. The District Court bifurcated plaintiffs' additional claim for unfair competition for trial. The District Court, Ingram, J., held that: (1) defendant had good, valid and existing copyrights on its computer microcode, and (2) defendant made reasonable efforts to add required notices to all copies distributed to the public after discovering the omission to publish the copyright notice, and was therefore excused of omission.³

Yet, before INTEL could pop the cork on the champagne, NEC moved for disqualification of Judge Ingram under 28 U.S.C. § 455(a), and (b)(4) on the basis that he held an \$80.00 interest in Intel stock purchased through Mercedes Investment Fund — an investment club. The District Court, Schwarzer, J., held that § 455(b)(4) did not require disqualification from "inception" because Judge Ingram did not know he had an interest in a party until NEC notified him of that fact. Nor did section 455(a) require disqualification from that date because Judge Ingram's interest, considering its size and remoteness, was too slight to raise a reasonable question as to his impartiality. Finally, prospective disqualification was not required because Judge Ingram had since divested himself of the Intel shares.⁴

However, NEC appealed Judge Schwarzer's ruling to the Court of Appeals for the 9th Circuit. Almost a year later and around the time the Circuit Court was expected to make a decision, Judge Ingram entered an order recusing himself and vacating his prior orders and rulings. The appeal was dismissed and the order of the district court from which the appeal was taken was vacated on the basis of mootness.⁵ In other words, Judge Ingram indirectly

3. *Id.*

4. *NEC Corp. v. INTEL Corp.*, 654 F. Supp. 1256 (N.D. Cal. 1987).

5. *NEC Corp. v. United States District Court for the Northern District of California*, 835 F.2d 1546 (9th Cir. 1988).

granted NEC the opportunity to replay the game, this time with a different ending.

THE LEGAL ISSUES INVOLVED

Copyrightability Of Microcode

The fundamental issue of the copyrightability of computer programs has been settled since 1983.⁶ However, it is also settled that computer *hardware* is *not* copyrightable but only patentable.⁷ Part of the problem here lies in the fact that microcode fits neatly into neither category. Rather, microcode (often referred to as microprograms) is often classified in a hybrid category of its own known as "firmware."⁸ Therefore, the first issue in this case was whether the proper legal protection to be afforded firmware such as the Intel Microcode is under the patent or copyright law.

Forfeiture Of Copyright

The second issue to be decided at trial was whether Intel had forfeited its alleged copyrights. To maintain copyright protection in the United States the Copyright Act provides that:

Whenever a work protected under this title is published in the United States or elsewhere by authority of the copyright owner, a notice of copyright as provided by this section shall be placed on all publicly distributed copies from which the work can be visually perceived, either directly or with the aid of a machine or device.⁹

The failure by the copyright owner to affix such notice invalidates the copyright unless as provided in § 405(a):

(1) the notice has been omitted from no more than a *relatively small number of copies*; or (2) . . . a *reasonable effort is made to add notice to all copies . . .* that are distributed to the public . . . after the omission has been discovered; or (3) the notice has been *omitted in violation of an express requirement in writing that . . .*

6. 17 U.S.C. § 101 (1980); *Apple Computer, Inc. v. Franklin Computer Corporation*, 714 F.2d 1240 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984).

7. 17 U.S.C.A. § 102(b) (1977); 1 M. NIMMER, *NIMMER ON COPYRIGHT* § 2.18[F] (1986); FINAL REPORT, COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHT WORKS ("CONTU") at 20.

8. Firmware: Software that is stored in hardware form. The term is generally applied to a small integrated circuit (IC) that has been imprinted with a program (i.e., software) and is wired into a computer. See also PATTERSON, *MICROPROGRAMMING*, 248 SCI. AM. 50 (March 1983).

9. 17 U.S.C.A. § 401(c) (1977).

the . . . copies . . . bear the prescribed notice.¹⁰

The court's analysis of these three defenses is presented below.

Infringement

The third issue to be decided at trial was, assuming Intel held valid copyrights in its microcode, whether NEC's microcode infringed upon those copyrights. Copyright infringement consists of two basic elements: (a) proof that the defendant copied from the plaintiff's copyrighted work and (b) proof that the copying went so far as to constitute improper appropriation.¹¹ Both elements are necessary and neither alone is sufficient. The second element, showing what was copied and how much, is referred to as the substantial similarity test. To satisfy this test, the plaintiff has the burden of establishing that defendant's expression in his work is substantially similar to the protected expression in plaintiff's work.¹² "Just as copying is an essential element of infringement, so substantial similarity between the plaintiff's and the defendant's works is an essential element of copying."¹³ However, among the many mechanisms that copyright law provides to limit the exclusive rights of a copyright owner is the idea-expression doctrine now codified in § 102(b) of the Act.¹⁴ This section provides that copyright protection does not extend to any "idea, procedure, process, system, method of operation, concept, principle or discovery."¹⁵ This doctrine is less a limitation on the copyrightability of a work and more a measure of the degree of similarity which must exist between a protected work and an unauthorized copy in order to constitute infringement.¹⁶ Since Judge Ingram never reached this question, Judge Gray's analysis was one of first impression in this case.

The nature of a copyrighted work has a direct bearing on the degree of similarity which will result in a finding of infringement. Thus, "if the only original aspect of a work lies in its literal expression, then only a very close similarity, verging on the identical, will

10. 17 U.S.C. § 405(a) (emphasis added).

11. *Sid & Marty Krofft Television Productions, Inc. v. McDonald's Corporation*, 562 F.2d 1157, 1164-65 (9th Cir. 1977).

12. *Id.* at 1164. "If there is substantial similarity in ideas, then the trier of fact must decide whether there is substantial similarity in the expressions of the ideas so as to constitute infringement." *Id.*

13. 3 M. NIMMER, NIMMER ON COPYRIGHT § 13.03[A] (1986).

14. 17 U.S.C. § 102(b) (1980).

15. *Id.*

16. 1 M. NIMMER, NIMMER ON COPYRIGHT § 2.03[D] (1986).

suffice to constitute an infringing copy.”¹⁷

Challenged Microcode “Improvements”

The fourth and final issue decided by this case, and an alternative argument asserted by NEC, was whether NEC’s V20 and V30 microprocessors were nothing more than “improvements” upon the μ PD 8086 and μ PD 8088, and therefore covered by the licensing agreement between the two parties. If found to be mere improvements, this argument would circumvent any infringement claims.

ANALYSIS

Copyrightability Of Microcode

The court offered a straightforward analysis concerning a topic which, until now, appeared rather perplexing. As stated earlier, microcode has been and continues to be difficult to classify under either of the traditional categories of hardware (subject only to patent protection) and software (subject mainly to copyright protection). The court, building on the reasoning in *Apple Computer, Inc. v. Franklin Computer Corp.*¹⁸, stated, “A computer program, even though articulated in object code, is afforded copyright protection as a ‘literary work’; under Section 101, which includes works ‘expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects . . . in which they are embodied.’ ”¹⁹

In short, the court gave the statute a literal interpretation. For any particular work to be copyrightable, it must meet two requirements: the work must be “fixed in a tangible medium of expression,” and it must be “original”.²⁰ Neither side disputed the fact that Intel’s microcode is fixed in a tangible medium of expression. However, NEC challenged the originality of the microcode and the classification of the chip as non-hardware. NEC relied on Professor Nimmer’s statement that “[i]llustrative of the requirement of minimal creativity are those cases which deny copyright protection to fragmentary words or phrases, non-creative variations of musical compositions and to forms of expression dictated solely by functional considerations.”²¹ The specific segments which NEC pointed to were relatively short and consisted of only a few obvious steps.

17. 3 M. NIMMER, NIMMER ON COPYRIGHT § 13.03[A] (1986)

18. *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983).

19. OPINION at 3. See also 17 U.S.C. § 101.

20. See 17 U.S.C. § 102(a).

21. M. NIMMER, *supra* note 7, at § 2.01[B].

Nevertheless, the court agreed with Intel's reasoning that any copyrighted work, regardless of form or permutation, may be "chopped into parts that could be said to have very few creative steps."²² The meaning of "originality" for purposes of copyrightability means only that the work owes its origin to the author, i.e., was independently created, and not copied from other works," and that the work contained a modicum of originality, i.e., "exceeds that required for a fragmentary work or short phrase."²³ While Congress amended the Act in 1980 to specifically list computer programs among the examples of copyrightable material defined in § 101, Judge Gray implied that the Intel microcode qualified without such congressional assistance.

NEC also made the technical argument that Intel's microcode did not come within the definition of a computer program because it cannot be used both in and as a defining part of the computer (stating that the computer cannot function independently of the microprocessor.) However, as stated by General Counsel for Intel Corporation,

Once created, microcode can be stored in a variety of media, such as paper, floppy disks or semiconductor chips. Intel's microprograms were embedded in ROM²⁴ on the microprocessor chip, as are many computer programs. . . . The court in this dispute, however, followed the clear ruling in (*Apple v. Franklin*)²⁵, that a computer program, even when embedded in a ROM chip, is copyrightable. The (*Franklin*) court emphasized that the storage modality of a program does not change the nature of the program.²⁶

Judge Gray then addressed NEC's substantial similarity argument from the standpoint of practicality. NEC contended that if substantial similarities existed between its accused microroutines and those of Intel, the similarities may be explained by "constraints that severely limit the ways in which the 'ideas' therein contained can be expressed. NEC therefore urges that such merger of idea and expression forestalls copyrightability."²⁷ Judge Gray con-

22. OPINION at 5.

23. M. NIMMER, *supra* note 7 at § 2.01[A] and [B].

24. Read Only Memory (ROM): This is memory containing programs or data that the computer may only read, not add to or change. This memory is imprinted on a chip in an elaborate and expensive procedure that cannot be altered.

25. *Franklin*, 714 F.2d at 1251.

26. Dunlap, *NEC V. INTEL: A CHALLENGE TO THE DEVELOPING LAW OF COPYRIGHT IN THE PROTECTION OF COMPUTER PROGRAMS*, 3 SC COMPUTER & HIGH TECH. L. J. 3, 6 (1987).

27. OPINION at 7.

cluded that while the Ninth Circuit has not specifically discussed this issue, it appears to reach the “merger” question only on the issue of infringement. In other words, the question of merger does not affect the copyrightability of plaintiff’s expression but merger does affect the issue of infringement by defendant. As Judge Gray states in his opinion, as a matter of practicality, the Register of Copyrights will be unable to determine at the time of issuance whether or not the constraints on a particular expression are substantial enough to amount to merger. “The burden of showing such constraints should be left to the alleged infringer.”²⁸

Forfeiture Of Copyright

On forfeiture, the court dramatically diverged from Judge Ingram’s prior opinion. On the issue of 17 U.S.C. § 401(a)(1) — “relatively small number of copies”, the court found that “Intel allowed a relatively large number of copies of its microcode to be distributed to the public without the prescribed copyright notice. . . .”²⁹ According to Intel’s admissions, approximately 2, 984,000 copies of its microcode, or about 10.6%, did not contain the required copyright notice. While the court considered analyzing this number in its absolute sense, it stated that the statute appears to require the term “relatively small number” to be considered by means of comparison or percentage. Both parties recognized the significance of this issue as well. While Intel stated that the number was relatively small with respect to the total number produced³⁰, NEC made the more persuasive argument, and as restated by the court:

An examination of twenty federal court decisions that have considered the matter discloses none in which 10.6% was held to be a relatively small number. The highest percentage found to have been within the exception is 9%, but in that case the number of items without the affixed notice was only 208, as compared with the almost 3,000,000 here involved [citation]. In contrast, as few as 2,500, which made up only 2.4% of the total distributed, have been held to be more than a relatively small number. See *Donald Frederick Evans v. Continental Homes, Inc.*, 785 F.2d 897, 910 (11th Cir. 1986). It also is worthy of note that the opinion concluded that “2,500 copies is a significant number in the absolute sense.” *Id.*³¹

28. OPINION at 8.

29. OPINION at 9.

30. Dunlap, *supra* note 26, at 9.

31. OPINION at 10.

Nevertheless, the decision reached by Judge Ingram in his partial findings of fact, as well as both the analyses applied by this court and those cited by it, reaffirm that "relatively small" must be determined on a case by case basis.

The court next turned to the issue of § 405(a)(2) "reasonable effort." In its analysis, the court relied on a self-imposed five part test: (1) When discovery of the failure to add the notice occurred; (2) the elapsed time between such discovery and the commencement of corrective action; (3) the reasonable sufficiency of the corrective action; (4) the extent of any follow-up to determine implementation by the licensees, and (5) the quantity of copies distributed to the public between discovery and corrective action.

Section 408(a)(2) provided that publication without notice will not invalidate the copyright if:

registration for the work has been made before or is made within five years after the publication without notice, and a reasonable effort is made to add notice to all copies or phonorecords that are distributed to the public in the United States after the omission has been discovered.³²

However, in 1988 the Berne Convention Implementation Act amended 17 U.S.C.S. § 401 (1988) to alter subsection (b) and add subsection (d). Basically, under the amendment (effective March 1, 1989), a copyright holder who does not comply with the affixation requirement does not lose his copyright. A copyright holder who does comply is deemed to have given notice to all. In other words, compliance by the copyright holder eliminates any innocent infringement defense that an infringer may formerly have raised.

Intel licensed twelve companies to manufacture, use and sell its 8086/88 microprocessors containing its microcode. However, three of these, including NEC, contained no mention whatever of an obligation to affix a copyright notice. Judge Ingram agreed with Intel, that since these licensees had drafted the licenses, the omission of notice was due to inadvertence and excusable mistake. Judge Gray took a harder line stating, ". . . such an oversight certainly is relevant evidence that protection of its copyright was not high on Intel's list of priorities when the licenses were issued."³³

Additionally, while Intel claimed to not have acquired knowledge until February of 1985 that these licensees were not properly affixing the copyright, the court pointed to direct evidence that on

32. 17 U.S.C. § 408(a)(2).

33. OPINION at 12.

several occasions Intel was either aware or on notice that it had not obliged its licensees to affix an appropriate copyright mark. It was this lack of diligence regarding terms that any "reasonably alert licensor" would have been concerned about which troubles the court. Despite this lack of diligence, the court was willing to accept the 1985 date as that of Intel's first notice, as the later date ultimately helped Intel's case very little. As stated above, the Berne Convention Implementation Act, as amending 17 U.S.C.S § 401 (1988), will have a substantial effect on the notice issue as analyzed by Judge Gray. The point in all likelihood is now moot.

The analysis next moved to the "reasonableness" of Intel's corrective efforts. The court focused on Intel's history of dealing among three licensees on the notice of copyright issue. In each of the three cases (concerning Fujitsu, Oki and Harris), the court found that Intel had been lax in either implementation of the corrective measures or followup. Often there was a six month turnaround between letters to licensees requesting compliance and any response or followup to see if they had in fact complied. Intel went so far as to provide some of its licensees with stickers to be applied by distributors to the chips already in stock. However, Intel never offered to offset the distributors' application costs and the court could find no evidence of any of the stickers having been applied. Intel's slow start in implementing corrective measures, combined with little or no followup substantially increased the number of copies distributed without notices between the time of discovery and correction by Intel. Ultimately, the court disagreed with Intel and Judge Ingram's prior finding and stated that while Congress was aware that copyright protection should not be removed unless the interests of justice clearly require such action, "if the words 'reasonable effort' are to have any substantial meaning, Intel's conduct here simply cannot be held to have met that standard."³⁴

Finally, the court only briefly studied the defense in 405(a)(3) of an express written requirement of marking. The licenses issued to Fujitsu, Mitsubishi and NEC contained no requirement whatsoever concerning a copyright notice. The licenses to three others stated only that the licensees would affix copyright notice on products distributed by them if Intel so requested. "Such a provision certainly is not an 'express requirement in writing' within the meaning of Section 405(a)(3)."³⁵ Again, the court appears to have focused on Intel's lack of diligence stating that even among these last

34. OPINION at 18.

35. OPINION at 19.

three licensees, Intel did not request affixation until somewhat after April, 1985.

Infringement

For Intel to make a prima facie case of infringement, it must (1) have a valid copyright; (2) establish access by NEC to the copyrighted microcode and (3) show substantial similarity between the two microcodes. Intel did obtain a valid copyright, and NEC admitted access to Intel's microcode pursuant to the licensing agreement between the two parties. Thus, the court was left to determine the issue of substantial similarity.³⁶

As stated by Robert C. Hinckley, general counsel for NEC:

The Intel Microcode is 512 lines long and each line is 21 bits wide. The NEC Microcode is 1024 lines long, and each line is 29 bits wide.³⁷

Mr. Hinckley continues:

Not all of the 1024 lines in the NEC Microcode are used for the 8086 instruction set. Of the total 1024 lines, 472 were devoted to other purposes: 168 to run original NEC instructions which are not found in any Intel products; 116 for the Intel 80188/80186 instructions which can be run on the V-Series; and 188 for emulation of the 8080 microprocessor. Intel made no claim that any of these parts of the NEC Microcode infringed any Intel copyright. The remaining 552 lines of the NEC Microcode are devoted to carrying out the 8086 instruction set and are the focus of Intel's allegations.³⁸

While the above-mentioned specifics aren't mentioned in the court's opinion, they were included in the evidence presented by NEC at trial. While the court might have elected to dissect the two codes and break each down into component parts, the court followed the reasoning of the Seventh Circuit in *Atari Inc. v. North American Phillips Consumer Elec. Corp.*,³⁹ which states, "When analyzing two works to determine whether they are substantially similar, courts should be careful not to lose sight of the forest for the trees." Using this approach, the court concluded that "the NEC microcode (Revision 2), when considered as a whole, is not substantially similar to

36. *Id.*

37. Hinckley, *NEC V. INTEL: Will Hardware Be Drawn into the Black Hole of Copyright?*, 3 SC COMPUTER & HIGH TECH. L.J. 23, 47-48 (1987).

38. *Id.* at 48.

39. 672 F.2d 607, 618 (7th Cir. 1982).

the Intel microcode within the meaning of the copyright laws.”⁴⁰

The court stated first that none of the microroutines are identical. Of course, infringement does not require them to be. However, most of the similarities were in the shorter, simpler routines. These routines involved straightforward operations in which close similarity in approach was not only not surprising but to be expected. The court also concluded, based on its own perusal of the two microcodes and the conflicting testimony of the experts, “that the ordinary observer, considering the accused microcode as a whole, would not recognize it as having been taken from the copyrighted source.”⁴¹ However, as stated in *Whelan*, the court was obligated to make a qualitative, not quantitative, judgment about the character of the work as a whole and the importance of the substantially similar portions of the work. This approach recognized the fact that some routines, though short in length may nevertheless be very important. The question then becomes, whether they are the result of actionable copying.

Intel advanced five theories of copying by NEC. Intel asserted that NEC’s Mr. Kaneko, the microprogrammer, was not experienced enough to have produced so complicated a program in so short a time with so few notes; that NEC has admitted copying; that certain errors in the original Intel microcode also appear, inexplicably in the NEC microcode (the so-called “Patch”); that NEC failed to meaningfully exploit its more advanced technology, such as the increased capacity of its newer chip, the use of the Dual Bus, the use of Intel’s groupings and NEC’s treatment of certain illegal groupings. Intel also asserted the inexplicable similarity of several microsequences (the RESET microsequence, the DAA/DAS and the XLAT).

The court addressed each of these arguments in order. While admittedly giving great weight to the parties’ use of expert testimony, ultimately the court had to reach its own conclusions. The court seemed particularly impressed with the similarities between the Clean Room microcode⁴² and the other two, as well as the argument that the technical constraints of the project inherently lead to similarities. Given the emphasis on performance, the limited complexity of the 8086 microinstructions and limited choices with the

40. OPINION at 20.

41. OPINION at 22.

42. A third microcode version was commissioned to see if an engineer, working independently from the other two versions but under similar technical “constraints” would compose a similar microcode. The court and the parties referred to this third version as the “clean room” microcode.

given microarchitecture, many sequences should look the same. In other words, under these circumstances, using engineers of like experience and qualification should arrive at virtually identical microcode.

The court treated these similar expressions as subject to the doctrine of merger between idea and expression. As previously stated by Judge Gray, a merger argument, as asserted by NEC to thwart Intel's microcode copyright, cannot meaningfully apply at the copyright stage. However, this argument resurfaces here when examining the separate issue of infringement. While *ideas* are not copyrightable, particular and original *expressions* by an author are copyrightable. This idea-expression dichotomy is useful in reconciling two competing social interests, the encouragement of individual creative effort and the public's need for free access to ideas. As discussed above, this idea-expression dichotomy has been codified in § 102(b) of the Act. The House Report addresses the applicability of this section to computer programs when it states:

Section 102(b) is intended, among other things, to make clear that the expression adopted by the programmer is the copyrightable element in a computer program, and that the actual process or methods embodied in the program are not within the scope of the copyright law.⁴³

As explained by Ronald S. Laurie and Stephen M. Everett:

The idea-expression dichotomy is not so much a limitation on the copyrightability of works, as it is a measure of the degree of similarity which must exist between a copyrighted work and an unauthorized "copy" in order to constitute infringement. Given the copyrightability of a work, the idea-expression dichotomy serves to differentiate those aspects of the work that may be freely appropriated by others (the ideas) from those that may not (the expression). Thus, the idea-expression dichotomy is essentially a defendant's doctrine, used to argue that any similarities between the copyrighted and allegedly infringing works result from the use of the same ideas and not from the misappropriation of protected expression.⁴⁴

The court concluded that the expression of the ideas underlying the shorter (simpler) microroutines, if protected at all, were protected only against virtually identical copying and "that NEC

43. H.R. Rep. No. 94-1476, September 3, 1976, 94th Cong., 2nd Sess. 54 at 57 (H. Rep.), reprinted in 1976 U.S. CODE CONG. & AD. NEWS at p. 5659.

44. Laurie and Everett, *The Copyrightability of Microcode: Is It Software Or Hardware . . . Or Both*, 2:3 THE COMPUTER LAWYER 9 (March 1985).

properly used the underlying ideas, without virtually identically copying their limited expression.”⁴⁵ As the court stated, “The Clean Room microcode constitutes compelling evidence that the similarities between the NEC microcode and the Intel microcode resulted from constraints.”⁴⁶ The similarities are greater in the shorter microsequences (where the constraints would have a greater effect since there is less opportunity to express the sequence differently) than in the longer ones. Indeed, this fact was admitted by Intel’s expert, Dr. Patterson, during discovery, “Those notes repeatedly corroborate NEC’s position, stating at various points that the expert would have to examine the longer routines in order to find any meaningful evidence of copying, because the shorter routines, being so highly constrained, must inevitably be similar.”⁴⁷ In fact, one sequence, the “ESCAPE” sequence of both the NEC and Clean Room versions was identical, evidencing its constrained nature. Thus, the court concluded that the expression of the ideas underlying the shorter microroutines, if protected at all, were protected only against virtually identical copying. Thus, NEC properly used the underlying ideas, without virtually identically copying their limited expression.

Improvements

The alternative argument asserted by NEC that the V20 and V30 microprocessors are “improvements” upon the μ PD 8086 and μ PD 8088, and were therefore covered by the license agreement, was rendered moot by the decision. However, the court did give it brief consideration in the interest of completeness. The “completeness” mentioned by the court also provides a secondary basis for its decision. Should Intel decide to appeal, Judge Gray’s opinion provides a reviewing court with alternative justifications for its holding.

The determination of whether a writing or physical creation is no more than an improvement over its predecessors is usually a difficult task. However, in the words of the court, “the task becomes much easier if the intent of the parties, particularly the licensee, can be ascertained.”⁴⁸ In this case, based on the actions of the parties and the testimony of NEC’s principal officers and negotiators, it was clear that NEC did not regard its microprocessors as mere improvements covered under the licensing agreement. Certainly,

45. OPINION at 37.

46. OPINION at 35.

47. HINCKLEY *supra* note 36, at 54 n.131.

48. OPINION at 38.

NEC did not pay any royalties under the license based upon its sales of the V20 and V30 microprocessors. Thus, the court concluded that this argument was less than persuasive.

CONCLUSION

The copyrightability of microcode now appears to be well established. As a computer program (literary work), an author of a microprogram who makes the requisite showing of an original work of authorship fixed in a tangible medium of expression in words, numbers, or other numerical symbols or indicia may obtain the benefits of copyright protection. The Register of Copyrights is in no position, given the practical constraints of the process, to make any determination of copyrightability beyond this initial showing. However, once granted protection, the burden shifts to the plaintiff both to vigilantly follow up on its duty to protect the copyright and to monitor any licensing agreements.

It is also the plaintiff's burden to show that the defendant has in fact infringed on copy protected material. It is this burden which is most affected by Judge Gray's decision. The test of substantial similarity between microcodes must go beyond the constraints acting on the sequences, as well as the limited number of ways in which to express those sequences independently of those constraints. Copyrightable expression in microcode exists only to the degree that programming choices exist apart from the algorithmics used. While some programming choices are available to the microcode designer, for the most part the range of choices and expressions is so limited that the copyrighted microcode can only protect against "virtually identical copying." Moreover, even virtually identical copying of portions of a microcode should not be prohibited when such portions are essential to the function of the macroinstruction implementation. The court here seeks to strike a balance between the need for protection of an author's work and the public's need for free access to ideas. The dividing line between these two competing interests is infinitely thin. Although the court here foregoes any attempt to define this infinity, it has reaffirmed that diligence and reasonable effort remain essential ingredients for continued protection.

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AN ERRONEOUS DECISION OR A GROUND-BREAKING CASE? *Pearl Systems v. Competition Electronics, Inc.*, No. 87-6728 (S.D. Fla. July 15, 1988) (LEXIS, Genfed library, Dist file).

On July 15, 1988, a federal judge in the United States District Court, Southern District of Florida, handed down a curious¹ software copyright decision which may potentially have broad implications on software protection under existing software copyright laws².

The case is *Pearl Systems, Inc. vs. Competition Electronics, Inc.*³ At issue was whether software copyright infringement could be established by finding that (i) the product incorporating the software was available to the defendant; and (ii) substantial similarity in the "systems level design" of the software.

The facts in the case are straightforward. Both Pearl Systems and Competition Electronics (Competition) were manufacturers of "shot timing" devices used in the competitive sport of pistol shooting.⁴ A shot timing device is typically worn on a competitor's belt and its various functions are activated by a set of switches or buttons.⁵ Both parties' products are controlled by microprocessors.⁶ Each function in either of these devices is performed by executing a subroutine written for the internal microprocessor. Of these two companies, Competition had been in the business longer; by September 1986, Competition had produced successive products Pro Timer I, Pro Timer II and Pro Timer III, each more sophisticated than its predecessor.⁷ Pearl Systems was a relative new-comer in the shot timer market; its product, PST-10, the accused device in this case, was introduced in August, 1987.⁸

1. In one practitioner's words, "[t]he Pearl Systems case is an example of computer law decisions at their worst." G. Gervaise Davis III, *Reaching the Limits of Copyright: Protecting Programming Languages, Macros, Formats and Computer Hardware under the Copyright Laws 12* (Nov. 1988) (author's presentation to the Practicing Lawyers Institute Seminar in New York City).

2. This case was settled while an appeal to the decision was pending before the Eleventh Circuit. Hence, the questions raised by the decision in this case will have to be answered by a similar case in the future.

3. *Pearl Systems v. Competition Electronics, Inc.* No. 87-6728 (S.D. Fla. July 15, 1988) (LEXIS, Genfed library, Dist file).

4. The court's findings of fact, nos. 1, 2.

5. The court's findings of fact, nos. 4, 5, 6.

6. The court's findings of fact, no. 5.

7. The court's findings of fact, no. 2.

8. The court's findings of fact, no. 1.

Competition claimed that two copyrighted subroutines, the "shot review" and "par time entry" subroutines⁹ were copied by Pearl Systems in the PST-10 from Competition's Pro Timer products.¹⁰ In either product, the "shot review" and the "par time entry" functions are activated by pushing a single button.¹¹

In order to prevail, Competition had to establish that it owned copyrights in the infringed articles and that the defendant copied them.¹² The ownership issue was not contested.¹³ As is often the case in infringement actions, direct evidence of copying was unavailable; copying was proved indirectly using a two-prong test, establishing (i) Pearl Systems' access to the copyrighted work ("access" requirement); and (ii) a substantial similarity between Competition's copyrighted subroutines and Pearl Systems' subroutines ("substantial similarity" requirement)¹⁴. Mr. Guido, one of the two shareholders of Pearl Systems, conceded that he had used Competition's product.¹⁵ However, the court did not find Pearl Systems to have access either to the structural design, or to the source and object codes of Competition's subroutines. The record also did not show Pearl Systems' access, if any, to Competition's design work product: flow charts, block diagrams, design or maintenance documents.

Competition presented expert testimony demonstrating that the "par time entry" and "shot review" functions could be implemented by multiple buttons, or by using switches instead of buttons¹⁶. If either of these alternatives had been chosen, the resulting subroutines would have been vastly different from Competition's and Pearl Systems' single button approach.¹⁷ Both parties presented experts testifying to the differences and similarities of the subroutines used in each of the products¹⁸. While the court did not

9. The court's findings of fact, no. 5.

10. The court's findings of fact, no. 3.

11. The court's findings of fact, no. 5.

12. Subsection Two of the court's conclusions of law. The court relied on the following precedents: *Atari, Inc. v. North American Philips Consumer Electronics Corp.*, 672 F.2d 607, 614 (7th Cir. 1982), *cert. denied*, 459 U.S. 880 (1982); *Sid & Marty Krofft Television Productions, Inc. v. McDonald's Corp.*, 562 F.2d 1157, 1162 (9th Cir. 1977).

13. The court's conclusion of law, no. 2.

14. See discussion in the court's second conclusions of law, relying on: *Miller v. Universal City Studios, Inc.*, 650 F.2d 1365, 1375 (5th Cir. 1981); *Ferguson v. National Broadcasting Co.*, 584 F.2d 111, 113 (5th Cir. 1978); *Reyher v. Children's Television Workshop*, 533 F.2d 87, 90 (2d Cir. 1976), *cert. denied*, 429 U.S. 980 (1976).

15. The court's conclusion of law, no. 3.

16. The court's findings of fact, no. 5.

17. The court's findings of fact, no. 6.

18. The court's findings of fact, nos. 7, 9.

find substantial similarities at the structural or source code levels, nonetheless, the court found that the systems level design of these products was "substantially similar."¹⁹ Based on the fact that Mr. Guido understood how Competition's products operate, and had previously owned Competition's products, the court concluded that the access requirement was met. Because Pearl Systems was not constrained by product function (i.e., they could have implemented the same functions by other than Competition's single button approach), the court concluded that the substantial similarities in the products' systems level design could not have been the result of Pearl Systems' independent creative effort.²⁰

The *Pearl Systems* court's application of the infringement two-prong test was surprising. As to the access requirement, the court did not find proof of access to the copyrighted material (i.e. the structural design, the source or object codes of the copyrighted sub-routines), but was satisfied with the mere showing that Pearl Systems had purchased a copy of Competition's product. Furthermore, the court's finding of infringement based on similarities in the systems level design also extended beyond the software copyright protection accorded since *Whelan Associates v. Jaslow Dental Laboratory*.²¹

By concluding that access to the product satisfied the first prong of the infringement test, the court implicitly assumed that access to the copyrighted software necessarily followed product access. Unfortunately, the court did not elaborate on how it came to such a conclusion. In fact, the court may have underestimated the difficulty of extracting the software this way.²² Moreover, while Pearl Systems could have, in theory, obtained access to the source or object codes through disassembling the binary image of the program stored in the EPROM²³ of Competition's product and then copied it wholesale, the court's findings of fact indicated that there

19. The court's conclusion of law, no. 3.

20. The court's findings of fact, no. 11.

21. 797 F.2d 1222 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1986).

22. The programs in a microprocessor-controlled system are typically stored in binary format inside a non-volatile memory element. *See, e.g., infra* note 24. To obtain the source code from this binary format, a software tool, called the disassembler, must be used. Even then, the subroutines desired must be painstakingly singled out from among numerous other subroutines present, since assembler code—as source code at this level is usually called—is difficult to read. It is hard to imagine why the sophisticated defendants in this case would choose to copy Competition's subroutines, when it appears to be much easier to develop the code themselves, and they had apparently done so to implement the other functions of their product.

23. Erasable programmable read-only memory (EPROM), a popular device to store binary image of programs in a microprocessor-based systems.

was no such copying.²⁴ Without direct access to the structural design of these subroutines, the only remaining possibility is that the designers at Pearl Systems "reverse engineered" Competition's product, determined how it works, and then duplicated its functionality by writing code that accomplished the same function. Such conduct, however, was not intended to be prohibited under the 1976 Copyright Act, as illustrated by Congress' Report accompanying the Act:

Some concern has been expressed lest copyright in computer programs should extend protection to the methodology or processes adopted by the programmer, rather than merely to the "writing" expressing his ideas. Section 102(b) . . . is intended, among other things, to make clear that the expression adopted by the programmer is the copyrightable element in a computer program, and that the actual processes or methods embodied in the program are not within the scope of the copyright law.²⁵

In this regard, the *Pearl Systems* court's conclusion as to the access prong of the infringement test was without sufficient factual basis. Furthermore, if access to the product is sufficient, then the access prong is essentially waived for any copyrighted software incorporated into any product available for sale in the public marketplace.

The true concern in this case, however, is the court's finding of infringement of the subroutines based on a substantial similarity in the systems level design. For argument's sake, ignore the court's obvious error of identification — that it was the subroutines, rather than the systems level design, that were copyrighted. The court defined systems level design as "defining the types of functions for the software to perform and how it will perform these functions."²⁶ This language amounts to extending copyrights to the methods, or the actual processes, embodied in the software, in direct contravention to section 102(b) of the 1976 Copyright Act.²⁷ Such protection

24. The court concluded, in its finding of facts no. 5, "even though the languages in which the directions were written (source code) may have differed, they carried the same message" indicating that Pearl Systems' source code (hence, object code) for the offending subroutines are different from Competition's.

25. H.R. REP. NO. 1476, 94th Cong., 1st Sess., reprinted in 17 U.S.C.A. § 102 (1976). See also Note, *supra* note 2, at 13-14.

26. See *supra* note 1.

27. 17 U.S.C.A. § 102(b) (West Supp. 1976). § 102 reads, in total: "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." *Id.*

is the domain of patents²⁸, and is subject to requirements of usefulness, novelty, and non-obviousness.²⁹ Furthermore, such protection has been denied in copyrights since the seminal case *Baker v. Selden*. In *Baker's* often quoted language, "[to] give the [copyright owner] an exclusive property in the art therein, when no examination of its novelty has been officially made, would be a surprise and a fraud upon the public."³⁰

The purpose of copyright law is to create the efficient balance between protection (incentive to authors) and public dissemination of information (to promote learning, culture and development).³¹ To carry out this purpose, the tension between the public's free access to ideas and the author's proprietary copyright protection must be resolved.³² The law draws this line by distinguishing between an idea, and the expression of an idea.³³ *Whelan* provides a test for making such a distinction:

The purpose or function of a utilitarian work would be the work's idea, and everything that is not necessary to that purpose or function would be part of the expression of the idea . . . Where there are various means of achieving the desired purpose, then the particular means chosen is not necessary to the purpose; hence there is expression, not idea.³⁴

It is this author's opinion that the *Whelan* test is elegant in theory, but problematic in practice, and this case illustrates its difficulty. The fact that the Pearl Systems device used the same buttons to perform the same functions as the competitor's device could have been interpreted as evidence that both companies found that approach to be most cost effective to achieve those functions, rather than evidence indicative that one necessarily copied the other. If we adopt the former interpretation, then the choice of a single button is certainly a "purpose of an utilitarian work" (to reduce cost), rather than a particular expression of an idea; as such, it is not subject to

28. See 35 U.S.C.A. §§ 100(b), 101 (West Supp. 1988).

29. 35 U.S.C.A. §§ 100-103 (West Supp. 1988).

30. *Baker v. Selden*, 101 U.S. (11 Otto) 99, 102 (1879).

31. U.S. CONST. art. I, § 8, cl. 2. This clause gives Congress the power to "promote the Progress of Science . . . by securing for limited Times to Authors . . . the exclusive Right to their respective Writings."

32. *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1253 (3d Cir. 1983). "The line must be a pragmatic one, which also keeps in consideration 'the preservation of the balance between competition and protection reflected in the patent and copyright laws.'" *Id.* at 1253.

33. *Baker v. Selden*, 101 U.S. 99 (1879).

34. *Whelan v. Jaslow Dental Laboratory*, 797 F.2d at 1236.

copyright protection³⁵. Copyright laws should not prohibit a manufacturer from manufacturing their products at the lowest cost, just to avoid the product from being found substantially similar to another manufacturer's systems level design. The factual determination of "necessary to the purpose," hence, requires a value judgment of all purposes relevant to the design. Suffice it to say, it is difficult to enumerate all relevant purposes of any given product, and one can often find another relevant purpose to justify a particular feature as necessary. The *Pearl Systems* court essentially gave up on this pursuit, and was satisfied with a mere showing that other means to achieve the same function existed, without considering the economic cost, the awkwardness of alternative implementation, or any other proposition which could legitimately be argued as part of a "purpose." This is clearly unacceptable and contrary to the intent of the copyright laws, as discussed above.³⁶

In conclusion, the *Pearl Systems* decision, if followed, will weaken the "access prong" requirement in a plaintiff's infringement case, and provide unduly broad protection for computer software. Such protection would amount to incursion into the domain of patent protection. The *Pearl Systems* case also illustrates the weakness inherent in the *Whelan* test. The *Pearl Systems* decision makes bad public policy and should not be followed.

Edward Chungfan Kwok

35. See also *Apple Computer, Inc. v. Formula Int'l, Inc.*, 562 F. Supp. 775, 783 (C.D. Cal. 1983) ("Apple seeks here not to protect ideas (i.e., making the machine perform particular functions) but rather to protect their particular expressions. . ."), *aff'd*, 725 F.2d. 521 (9th Cir. 1984).

36. See *supra* notes 30 and 31 and accompanying text.