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CAN REVERSE ENGINEERING OF SOFTWARE EVER BE FAIR USE? APPLICATION OF *CAMPBELL'S* "TRANSFORMATIVE USE" CONCEPT

John A. Williams*

Abstract: Several years after *Atari v. Nintendo* and *Sega v. Accolade*, debate and confusion remain within the U.S. software industry and legal community concerning the appropriate application of copyright's fair use doctrine to reverse engineering of software. This Comment discusses why and how the U.S. Supreme Court's recent fair use analysis in *Campbell v. Acuff-Rose Music* should be applied to help resolve the reverse engineering issue. Not only would application of *Campbell's* approach promote consistency among courts and confidence within the software industry, but it also would safeguard copyright's ultimate objective: the advancement of society's growth in science and art.

"[O]ne must not manacle science."¹

"Liberty finds no refuge in a jurisprudence of doubt."²

As the above quotations illustrate, copyright law must be flexible enough to promote intellectual growth but at the same time heed the U.S. Supreme Court's warning that legal principles need certainty and stability in their application to be effective. If copyright law's fair use doctrine³ had been codified in bright-line rules, determining whether someone made an excusable copy of copyrighted material would be a relatively straightforward procedure. Rather than provide such bright-line rules, Congress chose to enact a vague provision that merely gives statutory recognition to the doctrine's "equitable rule of reason" principle.⁴ Unfortunately, this principle historically has served as a flexibility device with no boundary or standard other than the caveat that its application ultimately should somehow foster intellectual creativity.

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1. *Cary v. Kearsley*, 170 Eng. Rep. 679, 681 (1803) (first case to allude to fair use doctrine).

2. *Planned Parenthood v. Casey*, 112 S.Ct. 2791, 2803 (1992).

3. Section 107 of the Copyright Act allows copyrighted material to be used without authorization if the infringing use is a "fair use." 17 U.S.C. § 107 (1994) (discussing fair use statute). For discussion of "fair use," see *infra* part I.B.

4. Under an "equitable rule of reason" principle, a court decides a case according to its perception of what a fair outcome would be based on the case's specific facts. See *Folsom v. Marsh*, 9 F. Cas. 342 (C.C.D. Mass. 1841) (No. 4901) (first U.S. case to allude to "fair use"). See *infra* part II.B.

In the case of reverse engineering of software⁵ presented in *Sega Enterprises v. Accolade, Inc.*,⁶ the Ninth Circuit applied an "equitable rule of reason" analysis viewed by many commentators, legal practitioners, and copyright law experts as not only confusing and unpersuasive, but also nontraditional.⁷ Some commentators have even questioned whether the fair use doctrine is ever capable of adequately addressing the issue of reverse engineering.⁸ When addressing questions from abroad regarding the U.S. position on reverse engineering, the U.S. government also appears to be confused by and at odds with *Sega's* fair use analysis.⁹ This confusion undoubtedly affects the U.S. software industry's potential for growth and advancement.¹⁰

Rather than rely on *Sega's* unpersuasive analysis, courts and Congress should look to the U.S. Supreme Court and the Constitution for guidance when addressing the issue of reverse engineering of software and fair use.¹¹ In *Campbell v. Acuff-Rose Music*,¹² the U.S. Supreme Court applied an excellent fair use analysis in the context of parody that answers most questions concerning the fair use doctrine's applicability to reverse engineering of software.

This Comment illustrates how *Campbell's* analysis provides a persuasive and clear approach for determining when a reverse engineering of software qualifies as fair use. This Comment begins with an overview of copyright law, including its purposes and limitations. Next, it discusses *Sega's* facts, analysis, and weaknesses. It then discusses the facts and holdings of *Campbell*. Last, this Comment argues why *Campbell's* approach should be adopted when determining whether a reverse engineering of software is excusable as fair use.

5. See *infra* part II.A.

6. 977 F.2d 1510 (9th Cir. 1992).

7. See *infra* notes 59, 101-02 and accompanying text.

8. See, e.g., S. Carran Daughtry, *Reverse Engineering of Software for Interoperability and Analysis*, 47 Vand. L. Rev. 145 (1994); A. Samuel Oddi, *An Uneasier Case for Copyright Than for Patent Protection of Computer Programs*, 72 Neb. L. Rev. 351 (1993); John C. Phillips, *Sui Generis Intellectual Property Protection for Computer Software*, 60 Geo. Wash. L. Rev. 997 (1992).

9. See *infra* note 69 and accompanying text.

10. See *infra* note 58 and accompanying text.

11. Copyright law originates from the Constitution's copyright and patent clause. U.S. Const. art. I, § 8, cl. 8.

12. 114 S. Ct. 1164, *remand*, 25 F.3d 297 (6th Cir. 1994).

I. COPYRIGHT LAW AND THE FAIR USE EXCEPTION

A. *Copyright's Goal and Its Protection of Software*¹³

“To promote the progress of science and the useful arts,” the Constitution expressly gives Congress the power to provide incentives for the dissemination of new works.¹⁴ Pursuant to this grant of authority, Congress passed the Copyright Act of 1976¹⁵ (“the Act”) which provides special protection for the expression embodied in works of authorship.¹⁶

Under Congress’s plan, the Act awards authors certain exclusive rights over their works of authorship,¹⁷ including the right to reproduce their works,¹⁸ to prepare derivative works,¹⁹ to distribute copies of their works,²⁰ and to perform or display their works in public.²¹ An act inconsistent with any of the copyright owner’s exclusive rights constitutes infringement.²² To prove infringement, the copyright owner must establish that a valid copyright exists²³ and that an unauthorized “copy” was made.²⁴ However, even when a plaintiff proves infringement occurred, a court will excuse it if the defendant satisfies a statutory exception.²⁵ These exceptions exist because copyright’s intermediate

13. Software also can be protected under patent law. *See generally In Re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994); Marshall Leaffer, *Understanding Copyright Law* 22, 82–83 (2d ed. 1995).

14. U.S. Const. art. I, § 8, cl. 8.

15. Act of Oct. 19, 1976, Pub. L. No. 94-553, 90 Stat. 2541 (codified as amended in scattered sections of 17 U.S.C. (1994)).

16. Copyright protection extends over only the *expression* of a work’s ideas rather than over the ideas underlying the expression. 17 U.S.C. § 102(b) (1994). For example, copyright protection can extend over a play’s script but not over its underlying plot. The only requirement for copyright is that the expression be original, meaning that it was independently created by its author; copyright does not require the expression to be novel or unique. *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345–48 (1991).

17. 17 U.S.C. § 106 (1994).

18. § 106.

19. § 106. A “derivative work” is based on an original copyrighted work, such as a screenplay based on a novel, and is still considered a copyright infringement. 17 U.S.C. §§ 101–103 (1994).

20. § 106.

21. § 106. *See also* 17 U.S.C. § 501 (1994).

22. § 106. *See also* § 501.

23. § 106. *See also* § 501; Leaffer, *supra* note 13, at 285–86 (discussing infringement).

24. A “copy” is defined as a material object in which a work is fixed and from which the work can be perceived or reproduced, either directly or with the help of a machine or device. 17 U.S.C. § 101. To show that an unauthorized “copy” exists, the copyright holder must first prove that the defendant had appropriated copyrighted material, and then that this was a misappropriation. William Patry, *Latman’s The Copyright Law* 191 (6th ed. 1986).

25. 17 U.S.C. §§ 107–120 (1994).

goal, the rewarding of authors' creative efforts, is simply a means to copyright's ultimate purpose.²⁶

Despite the U.S. Supreme Court's recurring statement that copyright law's objective is to promote the constitutional mandate of advancing society's intellectual growth through the dissemination of works of authorship,²⁷ other views also have developed. These have been derived, however, from merely copyright law's peripheral aims: (1) to justly reward authors for their creative efforts;²⁸ and (2) to provide incentive for authors to produce creative works.²⁹

Similarly, although Congress declared in 1980 that computer software is copyrightable,³⁰ differing views still exist as to what Congress intended.³¹ But because software is inherently a literary work with both creativity and functionality,³² and whose technological advancements

26. See Staff of House Comm. on the Judiciary, 87th Cong., 1st Sess., *Report of the Register of Copyrights on the General Revision of the U.S. Copyright Law* 5 (Comm. Print 1961) ("As reflected in the Constitution, the ultimate purpose of copyright legislation is to foster the growth of learning and culture for the public welfare, and the grant of exclusive rights to authors for a limited times is means to that end."); see also *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349-50 (1991).

27. See *Fogerty v. Fantasy, Inc.*, 114 S. Ct. 1023, 1029-30 (1994); *Feist*, 499 U.S. at 349-50; *Stewart v. Abend*, 495 U.S. 207, 222 (1990); *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 545-46, 558-59 (1985); *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 428-29 (1984); *Twentieth Century Music Co. v. Aiken*, 422 U.S. 151, 156 (1975); *Mazer v. Stein*, 347 U.S. 201, 219 (1954); see also Dennis S. Karjala, *Copyright Protection of Computer Documents, Reverse Engineering, and Professor Miller*, 19 Dayton L. Rev. 975, 978-79 (1994); Oddi, *supra* note 8, at 358 n.11; Peter A. Wald et al., *Standards for Interoperability and the Copyright Protection of Computer Programs*, 390 Practising Law Institute 481, 481-83 (1994).

28. See *Harper & Row*, 471 U.S. at 546; see also *Stewart*, 495 U.S. at 229.

29. See *Sony*, 464 U.S. at 450.

30. See 17 U.S.C. §§ 101, 117 (1994).

31. The only available evidence of Congress's reasons for protecting computer programs is one short paragraph in a congressional report. This paragraph merely stated that Congress chose to adopt the recommendations of a specially appointed commission, The National Commission on New Technological Uses of Copyrighted Works (CONTU). See H.R. Rep. No. 1307, 96th Cong., 2d Sess., pt. 1, at 1, 23-24 (1980), reprinted in 1980 U.S.C.C.A.N. 6460, 6482-33. CONTU believed software programs were creative literary works that deserved copyright protection to encourage their creation and broad dissemination. Final Report of the National Commission on New Technological Uses of Copyrighted Works 10-13 (1979) [hereinafter CONTU Report]. The CONTU Report generally is regarded as the authoritative guide to Congress's intent behind codifying software copyrightability. See *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1519 n.5 (9th Cir. 1992); Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 Harv. L. Rev. 977, 1022 (1993).

32. "Literary works" are works . . . expressed in words, numbers, or other verbal or numerical symbols." 17 U.S.C. § 101. "Functional works" are those which people cannot easily read, listen to or view but rather serve some specific function. See Leaffer, *supra* note 13, at 73-76.

heavily depend on the utilization of creative ideas,³³ only one of copyright's asserted aims is relevant for its protection. Copyright protection is needed to encourage the public dissemination of new software which, in turn, will further the constitutional goal of advancing technology and intellectual growth.³⁴

B. *The Fair Use Exception*

Even though awarding limited monopoly protection to works of authorship will serve copyright's purpose, Congress recognized that in some instances broad protection would stifle, rather than promote, copyright's ultimate aim.³⁵ Consequently, Congress enacted statutory exceptions to pardon infringements that the Act would otherwise prohibit,³⁶ including the fair use exception³⁷ addressed by this Comment.

Originally, the fair use doctrine was a common-law principle based on the "equitable rule of reason"³⁸ and has changed very little in substance³⁹ since first being articulated in 1841.⁴⁰ When codifying the fair use doctrine, Congress intended to give statutory recognition only to the

33. See Gary R. Ignatin, *Let the Hackers Hack*, 140 Pa. L. Rev. 1999, 2014–22 (1992); Karjala, *supra* note 27, at 976–85, 996–98 (discussing how software technology advances incrementally by utilizing existing ideas); see also *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349–50 (1991); Pierre N. Leval, *Toward a Fair Use Standard*, 103 Harv. L. Rev. 1105, 1109, 1112 (1990).

34. See, e.g., *Fogerty v. Fantasy, Inc.*, 114 S. Ct. 1023, 1029–30 (1994).

35. See *supra* note 27 and accompanying text.

36. 17 U.S.C. §§ 107–120 (1994).

37. 17 U.S.C. § 107. The statute provides:

[T]he fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified . . . , for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include—

- (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- (2) the nature of the copyrighted work;
- (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- (4) the effect of the use upon the potential market for or value of the copyrighted work.

The fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors.

38. See *supra* note 4 for explanation of "equitable rule of reason."

39. Leaffer, *supra* note 13, at 318–19.

40. See *Folsom v. Marsh*, 9 F. Cas. 342 (C.C.D. Mass. 1841) (No. 4901).

existing "equitable rule of reason" principle.⁴¹ Hence, Congress did not provide a concise definition or rule for fair use, and as a result, fair use has been described as "the most troublesome area in copyright law."⁴²

The U.S. Supreme Court defined fair use as the privilege to use another's copyrighted material in a reasonable manner without the copyright owner's consent.⁴³ In an attempt to balance the rights of existing copyright owners with the aim of promoting the dissemination of new intellectual works that benefit society, the Court has utilized the fair use exception to prevent rigid application of the Act which might otherwise frustrate intellectual growth.⁴⁴

In determining whether an infringement is fair use, the statute mandates courts to always consider at least four factors: (1) the purpose and character of the infringement; (2) the nature of the copyrighted work; (3) the amount and substantiality⁴⁵ of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the infringement upon the potential market for or value of the original and its derivative works.⁴⁶ In addition to a general presumption against findings of fair use, courts, until *Campbell v. Acuff-Rose Music*,⁴⁷ identified the following characteristics within each fair use factor, respectively, as presumptively weighing against fair use: (1) the infringement served a commercial or monetary purpose;⁴⁸ (2) the copyrighted work was either unpublished or of a non-factual or creative nature;⁴⁹ (3) the entire copyrighted work was copied;⁵⁰ and (4) the infringement involved a commercial purpose, which strongly indicates that the work would suffer unfair market harm.⁵¹

41. 17 U.S.C.A. § 107, *Historical and Statutory Notes* (West 1977 & Supp. 1995). See also *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 451 n.31 (1984).

42. Leaffer, *supra* note 13, at 319 (citing *Iowa State Univ. Res. Found., Inc. v. American Broadcasting Co.*, 621 F.2d 57, 60 (2d Cir. 1980)).

43. *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 549 (1985).

44. See *Campbell v. Acuff-Rose Music*, 114 S. Ct. 1164, 1170 (1994); *Stewart v. Abend*, 495 U.S. 207, 236 (1990).

45. "Substantiality" means the importance or significance or value of that portion utilized from the original. *Campbell*, 114 S. Ct. at 1175.

46. 17 U.S.C. § 107, *supra* note 37.

47. 114 S. Ct. 1164.

48. See, e.g., *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 451 (1984). But see *Campbell*, 114 S. Ct. at 1174; *infra* part III.B.1 (discussing how a commercial purpose is not a dispositive indication of an unfair use).

49. See *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 554 (1985).

50. *Id.* at 560; *Sony*, 464 U.S. at 450.

51. *Sony*, 464 U.S. at 450-51. But see *Campbell*, 114 S. Ct. at 1177 (discussing how a dispositive presumption is inapplicable under circumstances that are different from *Sony*).

The four statutory factors were not meant to be exhaustive,⁵² however, and Congress intended no factor to carry more weight than any other.⁵³ The intent behind drafting flexibility into the statute was to allow courts to adapt the fair use doctrine to society's evolving needs, especially during times of rapid technological change.⁵⁴ Unfortunately, it is this flexibility that causes the current uncertainty as to how fair use should apply, if at all, to reverse engineering of software.⁵⁵

II. CASE LAW ON REVERSE ENGINEERING OF SOFTWARE

Although many software developers now engage in some amount of reverse engineering, the industry remains uncertain as to the extent this practice is legal under the fair use statute.⁵⁶ As a result, many software developers are hesitant to invest in the expensive research and development required to create highly sophisticated and innovative software.⁵⁷ Despite two recent court cases holding that reverse engineering can be fair use as a matter of law,⁵⁸ confusion and debate remain and will continue⁵⁹ unless courts or Congress clarify the issue.

A. *Reverse Engineering of Software*

Although software programs are considered literary works under the Act, their unique characteristics differentiate them from traditional

52. See *Campbell*, 114 S. Ct. at 1175–81; *Sony*, 464 U.S. at 447–57.

53. See 17 U.S.C. § 107; Leaffer, *supra* note 13, at 322. In the past, the U.S. Supreme Court viewed the fourth factor as being the most significant. *Stewart v. Abend*, 495 U.S. 207, 238 (1990); *Harper & Row*, 471 U.S. at 566. However, the Court has now implied that the first factor is as equally important as the fourth. See *Campbell*, 114 S. Ct. at 1171–72.

54. H.R. Rep. No. 94-1476, 94th Cong., 2d Sess. 66 (1976).

55. See generally Oddi, *supra* note 8, at 351–58; D.C. Toedt III, *Why Are We Re-Inventing the Wheel? Arguments Against Copyright Protection for Command-Driven Software Interfaces*, 5 Software L.J. 385 (1992).

56. This information was received from informal discussions with copyright law and software licensing attorneys in the Seattle area. See also *infra* note 59 and accompanying text.

57. See Ignatin, *supra* note 33, at 2022. If the fair use doctrine remains in its current state of confusion, investors will be less enthusiastic to risk capital for new expensive software if others easily can exploit the programmer's creative efforts. See Oddi, *supra* note 8, at 366. Cf. *Software Patent Hearings*, Softlaw Outlook 1 (Christensen O'Connor Johnson Kindness, Seattle, Wash., Spring 1994) (discussing effects from uncertainty of software patents).

58. *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992); *Atari Games Corp. v. Nintendo of America, Inc.*, 975 F.2d 832 (Fed. Cir. 1992).

59. See, e.g., Melville B. Nimmer & David Nimmer, *Nimmer on Copyright* 13-215 (1995); Pamela Samuelson, *Fair Use for Computer Programs and Other Copyrightable Works in Digital Form*, 1 J. Intell. Prop. L. 49 (1993).

literary works such as books, films, and music. Software is distributed to the public only in a machine-readable format known as object code, rather than in a human-readable form known as source code.⁶⁰ Also, software has machine-like characteristics in that it is created solely to make computers function in certain ways. Hence, unlike most types of copyrightable works, software is said to have specific functionality.⁶¹

In simple terms, reverse engineering of software is the process in which one takes apart (“reverse engineers”) a program to learn how it operates and how it was created. Through reverse engineering, one can access and copy uncopyrightable elements, as well as copyrighted expression, hidden within software. This process requires the program’s object code to be converted into human-readable source code. Only after the source code is obtained can a reverse engineer fully understand what exactly makes a program operate the way it does.⁶²

The only reverse engineering processes that allow a complete analysis of software are known as “disassembly” and “decompilation.” In either process, a program’s object code is first copied and then translated into a human-readable source code program.⁶³ “Reverse engineering for interoperability” is a specific type of reverse engineering.⁶⁴ It allows one to obtain an existing program’s hidden compatibility specifications so that a new program can operate and interface with that existing program or with other software and hardware.⁶⁵

Because reverse engineering involves intermediate copying of an original program and building the source code program is the creation of a derivative work of the original, both acts violate the exclusive rights granted to the copyright.⁶⁶ Building the source code program is considered an infringement because it is a derivative work of the original object code program.⁶⁷ It is essentially a translation of an original work, similar to a Spanish translation of *Catcher in the Rye*.

60. Object code exists strictly in computer language that only a computer can readily decipher. Source code, however, is what programmers actually write before a compiler converts the source code into object code. See Ignatin, *supra* note 33, at 1999–2003; Karjala, *supra* note 27, at 991–92.

61. See Ignatin, *supra* note 33, at 1999–2003; Karjala, *supra* note 27, at 991–92.

62. Ignatin, *supra* note 33, at 1998–2002.

63. *Id.* at 1999–2003.

64. *Id.* at 2000–03.

65. Nimmer & Nimmer, *supra* note 59, at 13-215.

66. Reverse engineering possibly could create additional acts of infringement. See, e.g., *Apple Computer v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984); Ignatin, *supra* note 33, at 2010.

67. Ignatin, *supra* note 33, at 1999–2003.

Reverse engineers, however, contend that conversion of object code into source code is excusable under copyright's fair use doctrine. First, they assert that copying software and creation of derivative works are necessary steps for accessing a program's uncopyrightable ideas and functions, which otherwise are unreadable in object code format. Second, they argue that both acts of infringement are only intermediate and temporary because neither incorporates an original's copyrightable expression into final works.⁶⁸

B. Uncertainty of Fair Use's Application to Reverse Engineering

Commentators, legal scholars, and even countries differ as to whether reverse engineering should be fair use.⁶⁹ This controversy arises because the reverse engineering process itself seems to weigh against fair use if strictly examined under the Act's four factors.⁷⁰ Yet, this process often is the only viable means for accessing software's uncopyrightable, but hidden, ideas and functions⁷¹ which, in turn, can be utilized to create new and better software.⁷² Two appellate court cases, *Atari Games Corp. v. Nintendo of America, Inc.*,⁷³ and *Sega Enterprises v. Accolade, Inc.*,⁷⁴ first recognized this problem when addressing whether reverse engineering for interoperability could be fair use. Both courts concluded that reverse engineering could be fair use under certain circumstances,⁷⁵ but only the *Sega* court examined each of the four statutory factors.⁷⁶ Hence, courts and Congress are more apt to rely on *Sega* than on *Atari*.

68. See Miller, *supra* note 31, at 1020–22.

69. See, e.g., Joseph Sofer et al., *Software Reverse Engineering Under Review in Japan*, 6 J. Propriety Rts. 32 (1994); John Espenshade Titus, *Right To Reverse Engineer Software: Is Japan Next and Does It Really Matter?*, 19 N.C. J. Int'l L. & Com. Reg. 49 (1994); Graeme Browning, *Code Breakers*, The Nat'l J., Mar. 12, 1994, at 594 (discussing how most U.S. companies are distressed that Japanese law may be amended to allow significant amounts of reverse engineering); R. Duff Thompson, Position Paper on the Study of Protection of Computer Software Under Japanese Copyright Law, Before the Collaborators Council of the Agency for Cultural Affairs (Dec. 13, 1993) (on file with *Washington Law Review*). But see Peter Behr, *A Software Fight's Blurred Battle Lines*, Wash. Post, Jan. 11, 1994, at D3 (discussing how some U.S. companies favor Japan's proposal to permit reverse engineering).

70. Patry, *supra* note 24, at 401; Nimmer & Nimmer, *supra* note 59, at 13-218.

71. Copyright only protects the "expression" of ideas. See *supra* note 16.

72. See *supra* note 33 and accompanying text.

73. 975 F.2d 832 (Fed. Cir. 1992).

74. 977 F.2d 1510 (9th Cir. 1992).

75. In *Atari*, the fact that the defendant's copy was purloined destroyed any chance for fair use. 975 F.2d at 843.

76. 977 F.2d at 1520–28.

1. *The Facts and Holding of Sega v. Accolade*

Sega Enterprises (“Sega”) manufactures and sells a videogame entertainment system, known as “Genesis,” comprised of a console and videogame cartridges. Concerned about software piracy and its economic survival, Sega created a “trademark security system” (TMSS) for its Genesis console to prevent it from playing unauthorized videogames. To be compatible with the Genesis console, a videogame cartridge had to be programmed with the TMSS code. Sega licensed this copyrighted TMSS code to other game developers.⁷⁷

Accolade, Inc. (“Accolade”), a developer of entertainment software, abandoned its efforts to become a Sega licensee. Instead, Accolade reverse engineered Sega’s software to identify the compatibility specifications for Genesis and incorporated this information into its own videogames.⁷⁸ Sega filed suit alleging that Accolade infringed its copyright by engaging in “illegal reproductions and adaptations.”⁷⁹ In response, Accolade offered four arguments to excuse its reverse engineering.⁸⁰ The district court rejected all four arguments and held that Accolade inexcusably infringed Sega’s copyright.⁸¹ On appeal, the Ninth Circuit, although finding Accolade’s reverse engineering to be an infringement, excused it under the fair use doctrine.⁸²

2. *The Ninth Circuit’s Rationale in Sega*

The Ninth Circuit reasoned that reverse engineering could be fair use if it was the only means available for accessing the ideas and functional concepts within “operations systems, system interface procedures, and other programs that are not visible to the user when operating.”⁸³ But rather than adopt a per se right to reverse engineer software, the court stated that it would decide the issue on a case-by-case, equitable rule of

77. *Id.* at 1514–15.

78. *Id.* at 1514–16.

79. *Sega Enters. v. Accolade, Inc.*, 785 F. Supp. 1392, 1396 (N.D. Cal. 1992).

80. Accolade’s four arguments were: (1) infringement does not occur unless its final products from copying infringe original copyrighted works; (2) reverse engineering for ideas and functionality is lawful per se under § 102(b) of the Copyright Act; (3) reverse engineering is lawful per se under § 117; and (4) reverse engineering is fair use under § 107. *Sega*, 977 F.2d at 1517–18.

81. 785 F. Supp. at 1396–99.

82. *Sega*, 977 F.2d at 1520.

83. *Id.*

reason approach.⁸⁴ After performing its fair use analysis, the court concluded that the first, second, and fourth statutory factors supported Accolade's fair use defense, and that the third factor was insignificant.⁸⁵

In examining the first fair use factor—the purpose and character of Accolade's infringement—the court reasoned that although Accolade's purpose was commercial in nature, other aspects favored fair use. The court stated that Accolade's infringement was only intermediate, that any commercial exploitation of Sega was merely incidental and indirect, and that Accolade's direct purpose was to study the functional requirements needed for Genesis-compatibility. From this rationale, the court concluded that Accolade copied not for a commercial purpose, but copied for a legitimate and beneficial purpose that led to public dissemination of more works of authorship.⁸⁶

In evaluating the fourth statutory factor—the purpose and character of Accolade's infringement—the Ninth Circuit again applied its belief that Accolade's infringement would cause Sega no substantial market harm.⁸⁷ The court reasoned that although an infringement that would effectively usurp the market of a copyrighted work was dispositively unfair, this rule did not apply to an infringement that simply enabled the copier to compete against the copied work.⁸⁸ Believing that consumers would buy more than one of the same videogame, the court held that Accolade's infringement would not substantially harm Sega's revenue.⁸⁹ In addition, the court stated that public policy favored competition, and hence, any of Sega's "minor economic loss" was outweighed by public benefit.⁹⁰

Under the second statutory factor—the nature of Sega's copyrighted work—instead of focusing on the unpublished nature of Sega's software,⁹¹ the Ninth Circuit focused on the non-factual nature of Sega's code.⁹² Although it recognized that the creative and non-functional aspects of Sega's software constituted copyrightable expression, the court reasoned that software in general is "unique" because it provides

84. *Id.*

85. *Id.* at 1527.

86. *Id.*

87. *Id.* at 1523–24.

88. *Id.*

89. *Id.*

90. *Id.* at 1524.

91. The lower court focused on the unpublished nature of Sega's code. *Sega Enters. v. Accolade, Inc.*, 785 F. Supp. 1392, 1398 (N.D. Cal. 1992). Courts generally hold that the unpublished or non-factual nature of the copyrighted work weighs against fair use. *See supra* text accompanying note 49.

92. *Sega*, 977 F.2d at 1524.

no viable means, other than reverse engineering, for a person to access and utilize its uncopyrightable elements.⁹³ It explained that by excusing Accolade's reverse engineering, the court ensured that Sega received copyright protection only for its creative expression and not for its functional aspects.⁹⁴

Lastly, the court held that the third statutory factor—the amount and substantiality of material copied from Sega's copyrighted work—carried little weight. Although Accolade's reverse engineering involved intermediate copying of entire Sega software programs, the court reasoned that Accolade's copying was limited to an intermediate step and thus could cause only an indirect effect on Sega's market value.⁹⁵

The court then concluded by declaring a new rule: When reverse engineering is the "only way" available for gaining access to the ideas and functional aspects of software, and when a "legitimate reason" exists for such access, reverse engineering is fair use as a matter of law.⁹⁶

C. *The Shortcomings of Sega*

Sega's analysis is contrary to most prior decisions. Historically,⁹⁷ courts have maintained a strong presumption against fair use if an infringement had a commercial purpose,⁹⁸ copied the entire copyrighted work, and caused substantial market harm to the original.⁹⁹ Though *Sega's* ultimate holding is based partially on not wanting to wrongfully protect Sega's uncopyrightable ideas or inhibit the growth of creative

93. *Id.* at 1525–26. See 17 U.S.C. § 102(b) (1994) (discussing how ideas, functions, and processes are not protected by copyright law).

94. *Sega*, 977 F.2d at 1526.

95. *Id.* at 1526–27.

96. *Id.* at 1527–28.

97. The term "historically" refers to those cases decided before *Campbell v. Acuff-Rose Music*, 114 S. Ct. 1164 (1994). *Campbell* showed how the fair use doctrine is supposed to adapt when needed to serve copyright's ultimate goal. *Id.* at 1165.

98. See, e.g., *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 442–50 (1984). Courts generally have not permitted aggressive, commercial competitors to rebut this presumption but instead have reserved rebuttal for copying that has no financial effect on the potential market of the infringed work. Joe L. Gage, *Copyright Law and Reverse Engineering: Have Recent Decisions Taken the Fair out of Use?*, 46 *Baylor L. Rev.* 183, 197–98 (1994).

99. *Sony*, 464 U.S. at 451.

expression,¹⁰⁰ its fair use analysis is unpersuasive because it fails to show how it expressly relates to copyright's objective.¹⁰¹

1. *First Statutory Factor: Purpose and Character of the Infringement*

Historically, there has been a presumption against fair use if the infringement has a commercial purpose.¹⁰² The *Sega* court glossed over the commercial aspect of Accolade's reverse engineering, however. It reasoned that Accolade's infringement was only an intermediate use and, as such, could commit only indirect or derivative commercial exploitation and thus cause only minor commercial harm.¹⁰³

The court's reasoning is unpersuasive, however. First, Accolade's admitted purpose behind its infringement was to allow Accolade to directly compete against Sega videogames,¹⁰⁴ which should have been sufficient to convince the court that Accolade's ultimate aim was direct commercial exploitation.¹⁰⁵ The court asserted, however, that Accolade's purpose was merely to study the functional requirements needed for Genesis-compatibility, and thus, believed that its infringement only had a minimal commercial aspect because of its "legitimate, essentially non-

100. 977 F.2d at 1523, 1526.

101. The court's holding that disassembly is fair use as a matter of law so long as it is "necessary" and for a "legitimate reason," *id.* at 1527–28, also creates two requirements which are not only vague but also unprecedented in copyright law. See David A. Rice, *Sega and Beyond: A Beacon for Fair Use Analysis . . . At Least As Far As It Goes*, 19 U. Dayton L. Rev. 1131, 1188–90 nn.268–69 (1994); John T. Soma et al., *Software Interoperability and Reverse Engineering*, 20 Rutgers Computer & Tech. L.J. 189, 220–23 (1994). The only requirement for courts in a fair use analysis is to weigh all four statutory factors. See *supra* text accompanying notes 43–51; see also *Campbell*, 114 S. Ct. at 1174 n.18 ("If the use is otherwise fair, then no permission need be sought or granted.")

102. "[E]very [unauthorized] commercial use of a copyrighted material is presumptively an unfair exploitation of the monopoly privilege that belongs to the owner of the copyright." *Stewart v. Abend*, 495 U.S. 207, 237 (1990) (quoting *Sony*, 464 U.S. at 451). "The crux of the profit/nonprofit distinction . . . [is] whether the [secondary] user stands to profit from exploitation of the copyrighted material without paying the customary price." *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 562 (1985). Before engaging in the first factor analysis, the court acknowledged the tradition that if "copying is for a commercial purpose [it] weighs against a finding of fair use." *Sega*, 977 F.2d at 1522.

103. *Sega*, 977 F.2d at 1522.

104. *Id.* By gaining interoperability, Accolade wanted to directly compete against Sega and prosper in the Genesis videogame market, which it succeeded in doing. *Id.* at 1522, 1526.

105. By way of comparison, commentators generally have agreed that disassembly by a computer science student to learn programming techniques should be permissible as fair use, but that wholesale duplication and disassembly for financial gain should not. See, e.g., *Victor de Gyarfas, Sega v. Accolade: A Step Forward for Reverse Engineering*, 23 Sw. U. L. Rev. 571, 578 nn.160–61 (1994).

exploitative purpose.”¹⁰⁶ Unfortunately, this reasoning fails to address the commercial benefits Accolade had intended to secure through its “research” of Sega’s code. The U.S. Supreme Court has stated that research itself is seldom performed unless there is some prospect of financial gain and commercial success.¹⁰⁷ Though the inherent “research” nature of reverse engineering could always be characterized as serving a legitimate purpose (e.g., accessing uncopyrightable elements), the purpose of Accolade’s reverse engineering was undeniably commercial. It was a serious oversight by the court to not squarely address the commercial benefits that accrued to Accolade.

Without any further discussion or detailed fact-finding, the court then concluded by simply asserting that Accolade’s infringement, regardless of its commercial impact on Sega, conferred public benefit by encouraging growth in creative expression through an increase in the availability of videogames.¹⁰⁸ While growth of creative works is indeed the overall objective of copyright law, copyright protection is to be removed under fair use only when protection would needlessly stifle the flow of other creative works into society.¹⁰⁹ Copyright protection is not to be stripped from its owner whenever a fair use exception would cause an increase in creative works.¹¹⁰ If software innovators are easily stripped of the copyright incentives and rewards that first coaxed them into producing and disseminating their works, the growth of creative works in society undoubtedly will decrease.¹¹¹ Accordingly, because Sega had invested significant resources in the creation of its Genesis entertainment system and had already given licenses to other game developers, even offering one to Accolade, the court should have more carefully considered whether Sega’s copyright needed protection against the fair use doctrine to justly reward Sega’s extensive efforts.¹¹²

In sum, the *Sega* court should not have tried to trivialize the clear commercial purpose behind Accolade’s infringement. Instead, it should

106. *Sega*, 977 F.2d at 1522–23.

107. *Campbell v. Acuff-Rose Music*, 114 S. Ct. 1164, 1174 (1994).

108. *Sega*, 977 F.2d at 1523.

109. *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 549 (1985). See *Campbell*, 114 S. Ct. at 1170; *Stewart v. Abend*, 495 U.S. 207, 236 (1990).

110. *Harper & Row*, 471 U.S. at 562–64; Miller, *supra* note 31, at 1022.

111. Miller, *supra* note 31, at 1019–21.

112. *Id.* Note, this is not similar to the “sweat of the brow” argument that was rejected in *Feist v. Rural Telephone Service Co.*, 499 U.S. 340 (1991). Unlike the factual compilation in *Feist*, Sega’s code was original, copyrightable matter. Compare *id.* at 359–60 with *Sega*, 977 F.2d at 1514–18.

have determined whether the commercial purpose was outweighed by the more important aim of intellectual growth.¹¹³

2. *The Second Factor: Nature of the Copyrighted Work*

The court's second factor analysis also is questionable. In holding that software deserved a lower degree of protection than other literary works because of its functional nature,¹¹⁴ the court contradicted Congress's intent in making software copyrightable. Congress intended to protect software programs without regard to how ideas or functions were embedded within these works.¹¹⁵ By emphasizing how different software is from other literary works, *Sega* carves a special niche in copyright law that is not authorized by statute.¹¹⁶ Moreover, copyright does not impose a duty on copyright owners to allow unrestrained access to their works.¹¹⁷ This principle is as true for software developers as it is for authors of other types of literary works.

Rather than ignore Congress's intent, the *Sega* court should have focused on the general nature of software development rather than on software's functional nature and hidden ideas. The court could have stated that the nature of creating new software usually requires building on existing software ideas and functions, which generally are hidden within object code until reverse engineering occurs.¹¹⁸

3. *Third Factor: Amount and Substantiality of the Original Copied*

The court's analysis here is the least persuasive. Although Accolade made intermediate copies of entire *Sega* programs, the court held this to be insignificant.¹¹⁹ In its reasoning, however, the court made two errors.

113. See *infra* parts III.B.1., IV.A.2.a.

114. *Sega*, 977 F.2d at 1524–27.

115. See CONTU Report, *supra* note 31, at 1, 9–22; Miller, *supra* note 31, at 1022–23.

116. See Miller, *supra* note 31, at 1022.

117. Commentators have questioned the court's generalization that software deserves less copyright protection in spite of the fact that *Sega*'s software unquestionably contained non-functional, copyrightable expression. See, e.g., Lloyd G. Farr, *Sega v. Accolade: Another Generation of Computer Program Copyright Cases Has Growing Pains*, 27 Ga. L. Rev. 903, 926 (1993); Gyrfas, *supra* note 105, at 577–78 nn.146–56; Miller, *supra* note 31, at 1022.

118. See *infra* parts III.B.3., IV.A.2.b.

119. *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1526–27 (9th Cir. 1992). But see *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 560 (1985); *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 450 (copying of entire copyrighted material generally weighs against fair use).

First, the court exclusively relied upon *Sony Corp. of America v. Universal City Studios*.¹²⁰ Second, it contradicted itself in its rationale.

Although *Sony* holds that copying an entire work does not necessarily preclude a finding of fair use,¹²¹ *Sega's* reliance on *Sony* was misplaced. The *Sega* court failed to recognize that *Sony* expressly limits its holding to cases that involve "time-shifting."¹²² Reverse engineering of software, not time-shifting, was the sole issue in *Sega*.¹²³

In addition, the court contradicted itself when it reasoned that Accolade's infringement was insignificant because Accolade's ultimate works made only a limited use of *Sega's* code.¹²⁴ In other words, the court reasoned that only intermediate copying, and not permanent copying, had caused the copyright infringement.¹²⁵ Not only is this inconsistent with the court's earlier statement that intermediate copying is an infringement regardless of whether the end product of the copying is an infringement,¹²⁶ but it is contrary to copyright law's accepted notion that intermediate copying is just as much an infringement as permanent copying.¹²⁷ Even more importantly, under *Sega's* rationale, those who reverse engineer software are given a privilege that historically has been denied to infringers of other types of literary work. *Sega* implies that reverse engineers may copy as much software code as they want so long as they limit the amount of code they use in their ultimate products.¹²⁸ This privilege clearly contradicts Congress's intent that copyright law treat all literary works equally.¹²⁹ Accordingly, most courts have rejected the proposition that intermediate copying deserves more lenient

120. *Sega*, 977 F.2d at 1526 (citing *Sony*, 464 U.S. at 449-50).

121. 464 U.S. at 449-50.

122. *Gage*, *supra* note 98, at 198. "Time-shifting" means videotaping the original broadcast of a show on a VCR in order to watch that show at a later time. *Sony*, 464 U.S. at 421.

123. *Gage*, *supra* note 98, at 198.

124. *Sega*, 977 F.2d at 1526-27.

125. Although the court never explained how Accolade's ultimate use was only "limited" (and thus insignificant), presumably the court meant that Accolade's final works (Genesis-compatible videogames) contained no copyrighted expression and thus made only "limited" use from the disassembly of *Sega's* software. *Id.*

126. *Id.* at 1518-19.

127. The Copyright Act is said to unambiguously proscribe "intermediate copying." *See id.* at 1518, 1526-27 (stating this principle earlier but then ignoring it later); *Walker v. University Books*, 602 F.2d 859, 864 (9th Cir. 1979); *Walt Disney Prods. v. Filmmation Assocs.*, 628 F. Supp. 871, 875-76 (C.D. Cal. 1986).

128. *Miller*, *supra* note 31, at 1018.

129. *See supra* notes 31, 115-16 and accompanying text.

treatment under fair use.¹³⁰ Hence, instead of relying on rationale that is unpersuasive and inconsistent with Congress, the *Sega* court should have determined whether Accolade's copying of entire Sega programs was "reasonable" with regard to promoting copyright's aim.¹³¹

4. *Fourth Factor: Effect on the Market Value of the Original*

The court's rationale in considering the fourth factor also was unpersuasive. Even though Accolade created videogames that directly competed with Sega's,¹³² the court wrongfully concluded that Accolade's infringement would only affect Sega's videogame sales indirectly and cause Sega only minor economic loss.¹³³

First, the court erred in believing that Sega's market value would go unscathed because it thought consumers typically buy more than one videogame of the same type.¹³⁴ Instead, most consumers cannot afford to, nor would want to, purchase two similar videogames. Hence, Sega likely would suffer significant revenue losses as more companies follow in Accolade's footsteps to make their games Genesis-compatible.¹³⁵ Moreover, if reverse engineering of Sega's code were to become widespread,¹³⁶ Sega not only would lose substantial profits, but some of its games might be completely usurped by rival games.

In addition, Sega is now at serious risk of losing its licensing opportunities. Instead of purchasing a license from Sega, those wanting to develop Genesis-compatible videogames can simply reverse engineer Sega's software. Surprisingly, the court never addressed the potential

130. See *MAI Systems Corp. v. Peak Computer, Inc.*, 991 F.2d 511 (9th Cir. 1993), *cert. dismissed*, 114 S. Ct. 671 (1994); *Bly v. Banbury Books, Inc.*, 638 F. Supp. 983 (E.D. Pa. 1986); *Walt Disney Prods. v. Filmation Assocs.*, 628 F. Supp. 871, 875-76 (C.D. Cal. 1986); *Hubco Data Prods. Corp. v. Management Assistance, Inc.*, 219 U.S.P.Q. (BNA) 450, 456 (D. Idaho 1983). *But see Sega*, 977 F.2d at 1518-19 (glossing over numerous cases that held intermediate copying an infringement); Soma et al., *supra* note 101, at 209-11 (discussing cases that held intermediate copying to be non-infringement).

131. See *infra* parts III.B.3., IV.A.2.c.

132. For example, Accolade's "Mike Ditka Football" obviously targeted the same consumers who were likely to purchase Sega's "Joe Montana Football." *Sega*, 977 F.2d at 1516, 1523.

133. *Id.* at 1523-24.

134. *Id.*

135. The *Sega* court failed to consider the effect on Sega's potential market if the infringing use were to become "widespread." *Id.* at 1523-24, 1527. *Sega* focuses on the infringing use of only one competitor, Accolade. *Id.*

136. See *Campbell v. Acuff-Rose Music*, 114 S. Ct. 1164, 1177 (1994) (looking at market effect if "widespread conduct" occurred).

harm this posed to Sega's existing licensing market¹³⁷ despite its knowledge that other developers already had purchased Sega licenses.¹³⁸

The court also ignored why Sega created the TMSS software for Genesis.¹³⁹ Contrary to the court's belief, Sega's licensing system indicated that Sega was not trying to make it "impossible for others to compete"¹⁴⁰ so that it could monopolize the Genesis-compatible videogame market. First, Sega had offered licenses to those wanting to develop Genesis-compatible videogames. These licenses were an essential component of Sega's goal to prevent pirated¹⁴¹ videogames from operating on Genesis.¹⁴² Second, through licensing, Sega also hoped to regulate the types, not quantity, of videogames that could operate on its proprietary Genesis system so as to protect Sega's overall quality and customer satisfaction.¹⁴³ By not recognizing the detrimental effect that Accolade's disassembly would have upon Sega's market value, the court unjustly trivialized Sega's incentives for developing Genesis.¹⁴⁴

It is tempting to conclude that the court molded its analysis to support a predetermined outcome, and thus, did not give serious regard to copyright law's objective. The court might well have found in favor of Sega rather than Accolade.¹⁴⁵ Unfortunately, because fair use is based on the flexible "equitable rule of reason" principle, courts, as in *Sega*, may engage in an approach that insufficiently considers copyright's ultimate aim.

137. *Sega*, 977 F.2d at 1523. Perhaps the *Sega* court never addressed this issue because it was more interested in "facilitating the entry of a new competitor" against Sega. *Id.*

138. *Id.* at 1514.

139. Miller, *supra* note 31, at 1020.

140. *Sega*, 977 F.2d at 1523-24.

141. The term "pirated" as used here and by the court means copying software verbatim so that the end product is an identical duplication of the original software. Under U.S. copyright law, pirated software (or "piracy") is considered an inexcusable infringement. See, e.g., Karjala, *supra* note 27, at 975-76, 985, 1012.

142. *Sega*, 977 F.2d at 1515-16.

143. *Id.* at 1514-16.

144. Copyright protection is seen usually as providing a limited monopoly incentive to authors to stimulate their creativity. Miller, *supra* note 31, at 1020-21; Wald et al., *supra* note 27, at 504-06.

145. See *infra* parts III.B.2., IV.A.2.d.

III. CAMPBELL'S APPROACH FOR A FAIR USE INQUIRY

A. *The Facts and Holding of Campbell v. Acuff-Rose Music*

In 1964, Roy Orbison and William Dees wrote and recorded the song *Oh, Pretty Woman*. In 1989, Luther Campbell, the lead vocalist and song writer for the musical group "2 Live Crew," wrote what he called a parody-rap of *Oh, Pretty Woman*, entitled *Pretty Woman*. Upon Campbell's request for permission to use music and lyrics from the original, Acuff-Rose (the copyright owner of *Oh, Pretty Woman*) refused to "permit the use of a parody" of *Oh, Pretty Woman*.¹⁴⁶ Despite this rejection, Campbell released his rap. As a result, Acuff-Rose sued for copyright infringement. The trial court granted summary judgment to Campbell, reasoning that Campbell's commercial purpose was no bar to a finding of fair use because his song was a parody.¹⁴⁷

The Sixth Circuit reversed and remanded the lower court's decision. The court accepted Campbell's argument that his song was a parody but still found that the lower court wrongfully neglected the fact that Campbell's infringement was for a commercial purpose and thus an unfair use. The court mainly based its rationale on *Sony Corp. of America v. Universal City Studios, Inc.*, in which the U.S. Supreme Court held that "every commercial use of copyrighted material is presumptively . . . unfair."¹⁴⁸ The court concluded that the parody-rap's "blatantly commercial purpose . . . prevent[ed] [Campbell's infringement] from being a fair use."¹⁴⁹ The Supreme Court, however, reversed and remanded the case, holding that Campbell's parody could be a fair use despite its commercial purpose.¹⁵⁰

B. *The U.S. Supreme Court's Fair Use Analysis*

The U.S. Supreme Court held that because Campbell's song involved a "transformative use" the appellate court had erred in giving dispositive weight to its commercial character.¹⁵¹ The Court stated that an infringement is transformative if it "adds something new, with a further

146. *Campbell v. Acuff-Rose Music*, 114 S. Ct. 1164, 1168 (1994).

147. *Id.* at 1166.

148. *Campbell v. Acuff-Rose Music*, 972 F.2d 1429, 1437 (6th Cir. 1992) (quoting *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 451 (1984)).

149. *Id.* at 1439.

150. *Campbell*, 114 S. Ct. at 1179.

151. *Id.*

purpose or different character, altering the [original] with new expression, meaning, or message" so that the infringement avoids superseding or supplanting the original's expression or purpose.¹⁵² Although other courts and commentators have on occasion mentioned a transformative use approach for the fair use analysis,¹⁵³ *Campbell* is the first U.S. Supreme Court case to utilize this concept.

1. *First Statutory Factor: Purpose and Character of the Infringement*

The Court rejected the Sixth Circuit's holding that an infringement's commercial character conclusively weighed against fair use.¹⁵⁴ It specifically criticized the Sixth Circuit for not considering the transformative character of Campbell's parody-rap.¹⁵⁵ The Court announced that an infringement's transformative purpose makes its commercial purpose less significant because such uses usually further copyright's ultimate goal.¹⁵⁶ The Court based this statement, in part, on the Act's clear intent that an infringement's commercial character is only one element to consider.¹⁵⁷

2. *Fourth Factor: Effect on the Market Value of the Original*

The Court stressed that a strong likelihood of a transformative use could rebut the presumption that an infringement having a commercial purpose caused unfair market harm.¹⁵⁸ The Court explained that although market substitution of an original almost always indicates market harm, unfair substitution and harm were unlikely to occur with a transformative use.¹⁵⁹ The Court held that Campbell's song was unlikely to cause unfair

152. *Id.* at 1171. In applying this concept, the Court relied on Judge Leval's commentary, *see* Leval, *supra* note 33, at 1111, and also on Justice Blackmun's dissent in *Sony*, 464 U.S. at 478-80 (Blackmun, J., dissenting). *Campbell*, 114 S. Ct. at 1171.

153. *See* *Twin Peaks Prods., Inc. v. Publications Int'l, Ltd.*, 996 F.2d 1366, 1375 (2d Cir. 1993); *American Geophysical Union v. Texaco, Inc.*, 802 F. Supp. 1, 12-14 (S.D.N.Y. 1992), *aff'd*, 37 F.3d 881 (2d Cir.), *amended and superseded by* 60 F.3d 913 (2d Cir. 1994); William W. Fisher III, *Reconstructing the Fair Use Doctrine*, 101 Harv. L. Rev. 1659, 1768 (1988); Leval, *supra* note 33, at 1105-10.

154. *Campbell*, 114 S. Ct. at 1173-74, 1179.

155. *Id.* at 1179.

156. *Id.* at 1171.

157. *Id.* at 1174 (citing 17 U.S.C. § 107(1) (1994)).

158. "No 'presumption' or inference of market harm . . . is applicable to a case involving something beyond mere duplication for commercial purposes." *Id.* at 1177.

159. *Id.* at 1177-78.

market harm because parodies usually represent a different type of work and serve a different audience than the original works.¹⁶⁰

3. *Second and Third Factors: Nature of the Copyrighted Material and the Amount and Substantiality of the Original Copied*

Instead of relying on the presumption that the nature of the copyrighted original weighs against fair use if the original is of a fictional or creative nature,¹⁶¹ the Court scrutinized the nature of the infringement rather than the original that had been infringed.¹⁶² By stating that parodies almost always target and utilize copyrighted material to build newly creative and fictional works, the Court suggested that the nature of parodies justifies a certain degree of copying.¹⁶³

Likewise, rather than simply stating that considerable copying tended to weigh against a finding of fair use,¹⁶⁴ the Court held that substantial copying only sometimes could indicate that the infringement lacked a transformative character and, thus, only sometimes could cause unfair market harm to the copyrighted work.¹⁶⁵

C. *Campbell's "Transformative Use" Concept Revives the "Productive Use" Theory*

Though the Court employed the phrase "transformative work" several times in its discussion, it intended the phrase to be equivalent to the term "transformative use." Several statements by the Court support this observation. First, and most importantly, the Court repeatedly modified "use" with "transformative."¹⁶⁶ Further, when the Court first mentioned

160. *Id.*

161. Fictional works generally receive more copyright protection than factual or functional works. *Id.* at 1175; *Rosemont Enters. v. Random House, Inc.*, 366 F.2d 303, 307 (2d Cir. 1966), *cert. denied*, 385 U.S. 1009 (1967).

162. *Campbell*, 114 S. Ct. at 1171. The fair use statute, however, mandates that courts focus on the nature of the original copyrighted work, not on the nature of the infringing work. 17 U.S.C. § 107(2) (1994); *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 554 (1985).

163. *Campbell*, 114 S. Ct. at 1175–76.

164. *See Harper & Row*, 471 U.S. at 560; *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 450 (1984).

165. *Campbell*, 114 S. Ct. at 1175–76.

166. For example, the Court stated: "Although such transformative use is not absolutely necessary for a finding of fair use . . .", *id.* at 1171; verbatim copying "may reveal a dearth of transformative character or purpose . . . , with little added or changed, [and thus] is more likely to be a merely superseding use.", *id.* at 1176; "But when . . . the second use is transformative . . .", *id.* at 1177; "No such evidentiary presumption is available to address either the first factor, the character and

the transformative use theory, it cited Judge Leval's article that argues how "transformative uses" are infringements that deserve the fair use exception.¹⁶⁷ Moreover, copyright law never differentiates between the types of infringements that can occur, but only considers whether any infringement actually has transpired and equates intermediate copying with permanent copying.¹⁶⁸ Hence, although *Campbell* involved only a "permanent" copying of copyrighted expression, the Court likely would accord the same treatment to an infringement consisting of only intermediate, rather than permanent, copying.

Of even greater significance, however, the Court revived the theory that "productive uses" play an important role in a finding of fair use.¹⁶⁹ This revival is evidenced by the Court's favorable citation to Judge Leval's explanation of how a transformative use is fundamentally a productive use.¹⁷⁰ Furthermore, the Court specifically relied on Justice Blackmun's discussion in *Sony* about why productive uses were generally fair uses.¹⁷¹ As a result, it is clear that the Court's transformative use concept is essentially the productive use theory.¹⁷²

In short, *Campbell* establishes the following new fair use concepts: (1) the preamble to the fair use statute¹⁷³ provides only illustrative uses that might promote copyright's purpose; the four statutory factors, on the other hand, are a subset of copyright's objective, and as such, only by evaluating the four statutory factors is a court competent to determine

purpose of the use, or the fourth, market harm, in determining whether a transformative use, such as parody, is a fair one.", *id.* at 1179.

167. *Id.* at 1171; *see also* Leval, *supra* note 33, at 1111.

168. *See* MAI Systems Corp. v. Peak Computer Inc., 991 F.2d 511 (9th Cir. 1993), *cert. dismissed*, 114 S. Ct. 671 (1994); *Bly v. Banbury Books, Inc.*, 638 F. Supp. 583 (E.D. Pa. 1986); *Walt Disney Prods. v. Filmation Assocs.*, 628 F. Supp. 871, 875-76 (C.D. Cal. 1986); *Hubco Data Prods. Corp. v. Management Assistance, Inc.*, 219 U.S.P.Q. (BNA) 450, 456 (D. Idaho 1983).

169. "Productive uses" are those in which copiers ultimately build onto the works of others by adding their own original contribution and creativity to that which is copied. *See* Leaffer, *supra* note 13, at 320-21. Before *Sony Corp. of America v. Universal City Studios, Inc.*, many believed that for an infringement to be a fair use it had to be a productive use. *See id.*; Nimmer & Nimmer, *supra* note 59, at 13-163. The Court in *Sony*, however, held that a fair use did not necessarily have to be a productive use. 464 U.S. 417, 455 n.40 (1984). Some have believed mistakenly that the productive use theory was no longer valid after *Sony*. *See* Leaffer, *supra* note 13, at 320-21; Nimmer & Nimmer, *supra* note 59, at 13-163; Pierre N. Leval, *Campbell v. Acuff-Rose: Justice Souter's Rescue of Fair Use*, 13 *Cardozo Arts & Ent. L.J.* 19 (1994).

170. *Campbell*, 114 S. Ct. at 1171.

171. *Id.* (citing *Sony*, 464 U.S. at 478-80 (Blackmun, J., dissenting)).

172. The Court's definition of a transformative use is what others such as Judge Leval and Justice Blackmun call a "productive use." *See supra* note 152 and accompanying text.

173. 17 U.S.C. § 107, *supra* note 37.

whether an infringement necessarily advances intellectual growth and is therefore a fair use;¹⁷⁴ (2) though a fair use is not necessarily a transformative use, a transformative use usually indicates a fair use;¹⁷⁵ and (3) an infringement generally is not a fair use if it serves a commercial purpose and fails to serve any transformative purpose.¹⁷⁶

D. Campbell's Analysis Is Applicable to Non-Parody Contexts

Because transformative uses usually advance copyright's objective,¹⁷⁷ *Campbell's* approach also applies to non-parody contexts. Several statements by the Court support a broad application of its new concept.

First, the Court stated that the central purpose behind considering "the purpose and character of the infringing use"¹⁷⁸ is to inquire into the extent an infringement serves a transformative purpose.¹⁷⁹ Thus, the Court implicitly held that its transformative use concept was generally applicable under any analysis of the first fair use factor.

Next, the Court also relied on its transformative use concept when considering the third and fourth statutory factors. The Court explained that inquiry into whether the infringer copied a substantial portion of the original¹⁸⁰ was relevant because the answer could indicate a lack of "transformative" character, which in turn might indicate unfair market harm.¹⁸¹ Similarly, in discussing the effect upon the market value,¹⁸² the Court explained that if an infringement is "transformative," then the presumption that a commercial purpose will cause unfair market harm is inappropriate because market harm is less likely to occur.¹⁸³

As an example of *Campbell's* broad applicability to fair use disputes, a recent decision by the Second Circuit expressly utilized *Campbell's* transformative use concept in a dispute that solely involved

174. See 114 S. Ct. at 1171. The only other time *Campbell* refers to the preamble was to support its rationale that "commerciality" was not presumptive under the first statutory factor. *Id.* at 1174.

175. *Id.* at 1171.

176. *Id.* at 1176–79.

177. *Id.* at 1171.

178. 17 U.S.C. § 107(1) (1994).

179. *Campbell*, 114 S. Ct. at 1171.

180. 17 U.S.C. § 107(3) (1994).

181. *Campbell*, 114 S. Ct. at 1175–76.

182. 17 U.S.C. § 107(4) (1994).

183. *Campbell*, 114 S. Ct. at 1177–78.

photocopying of copyrighted material.¹⁸⁴ The Second Circuit's application of *Campbell* to a non-parody context is an excellent illustration of how courts can enlist *Campbell*'s approach to resolve fair use disputes in all types of contexts, including those involving software.

IV. APPLYING *CAMPBELL* TO REVERSE ENGINEERING

A. *Why Campbell's Approach Should Be Applied*

Campbell provides courts with a consistent and effective approach for determining when reverse engineering of software is fair use. Equally important, following *Campbell* would better promote copyright's ultimate goal.¹⁸⁵ Compared to *Campbell*'s approach, *Sega*'s fair use analysis is severely insufficient.¹⁸⁶ Unlike *Sega*, the *Campbell* Court repeatedly and persuasively explained how its fair use analysis was directly related to serving copyright's objective.¹⁸⁷ Thus, when applying a fair use analysis to reverse engineering of software, courts and Congress should rely on *Campbell*'s approach rather than *Sega*'s.

1. *General Scheme for Applying Campbell to Reverse Engineering*

Because fair use is an affirmative defense, the infringing party still must overcome the presumption that each of the four statutory factors weighs against a finding of fair use.¹⁸⁸ This presumption, however, could be rebutted if the reverse engineering had certain characteristics, including a transformative use.¹⁸⁹ Specifically, courts would employ

184. *American Geophysical Union v. Texaco Inc.*, 37 F.3d 881, 888-92 (2d Cir.), *amended and superseded by* 60 F.3d 913 (2d Cir. 1994).

185. See *supra* text accompanying note 27 (discussing copyright's objective). Also, by using *Campbell*, courts could avoid *Sega*'s two new requirements. See *supra* note 101.

186. See *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1523-24, 1527 (9th Cir. 1992). Some have mistakenly assumed that *Campbell* indirectly affirmed *Sega*'s fair use analysis and ultimate holding simply because at the end of its first factor analysis the Court referred to *Sega* in a list of cases cited to with the signal "[s]ee generally." *Campbell*, 114 S. Ct. at 1174. See Wald et al., *supra* note 27, at 504-05 (stating that *Campbell* affirmed *Sega*'s underlying "rationale and policies"). *Campbell* does not cite *Sega* to illustrate that *Sega*'s analysis and holding were correct. *Campbell* cites *Sega* merely to illustrate that other cases also hold that an infringement's commercial purpose is not dispositively indicative of an unfair use. 114 S. Ct. at 1174.

187. 114 S. Ct. at 1171-74.

188. *Id.* at 1177.

189. Because fair use is an affirmative defense, the defendant carries the burden to rebut. *Id.*

Campbell's approach of balancing each of the four statutory factors¹⁹⁰ solely with respect to copyright's goal of promoting intellectual growth. Thus, a reverse engineering's "transformative use" characteristics (if any) could counter, and perhaps outweigh, any of its unfair use characteristics.¹⁹¹ *Campbell's* approach, however, would not necessarily mean that the infringement had to be a transformative use before it could be a fair use.¹⁹² The Court itself rejected any such rule.¹⁹³

2. *Applying Campbell for Each Fair Use Factor Analysis*

a. *First Statutory Factor: Purpose and Character of the Infringement*

By adopting *Campbell's* analysis of the first statutory factor, courts could persuasively explain why the commercial aspect of a reverse engineering can be of less importance, or even ignored, under certain circumstances. Under *Campbell's* approach, courts would infuse copyright's ultimate purpose directly into the first factor analysis.¹⁹⁴ For example, if a reverse engineering is done merely for interoperability or for accessing uncopyrightable ideas to develop or disseminate new creative software, the infringement likely deserves the fair use exception.¹⁹⁵ This type of reverse engineering should be excused because it usually would promote copyright's ultimate aim without unjustifiably stripping copyright protection from the original software.

Whereas the *Sega* court tried to minimize the commercial purpose of an infringement that clearly had a commercial motive, *Campbell's* approach would free a court to reconcile the commercial character of a reverse engineering with the societal benefits of allowing utilization of

190. See *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 454, 455 n.40 (1984).

191. See *Campbell*, 114 S. Ct. at 1177.

192. See *Sony*, 464 U.S. at 455 n.40, 456, 479–80 (rejecting idea that every fair use must first be a "productive use").

193. *Campbell*, 114 S. Ct. at 1171 ("[T]ransformative use is not absolutely necessary for a finding of fair use.").

194. See *id.* (stating that transformative uses generally further copyright's goal).

195. Some argue that any reverse engineering is unfair because technologically sophisticated disguises might allow reverse engineers to pirate copyrighted expression in ways that are undetectable. See, e.g., Miller, *supra* note 31, at 1026. But see Daughtry, *supra* note 8, at 152; Karjala, *supra* note 27, at 997; Oddi, *supra* note 8, at 371. In any event, a ban on all reverse engineering would be detrimental to copyright's ultimate objective because software technology advances by building on existing software. See generally Ignatin, *supra* note 33, at 2014–22; Karjala, *supra* note 27, at 976–85, 996–98; see also *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349–50 (1991).

uncopyrightable but hidden material. For instance, if the *Sega* court had first performed adequate fact-finding (and its fact-finding so dictated),¹⁹⁶ then it could have reasoned under the following rationale that despite the commercially-exploitative purpose of Accolade's reverse engineering, the infringement was a fair use. First, Accolade's infringement merely allowed access to Sega's uncopyrightable functions, which, in turn, permitted Accolade to publicly disseminate its own works of authorship. Hence, Accolade's commercial intent was outweighed by its strong showing of transformative use of Sega's work.¹⁹⁷ Second, and more importantly, in light of copyright's overall objective, this transformative use also prevented Accolade's works from being unjustifiably denied entry into society.¹⁹⁸ This rationale is much more persuasive and straightforward than the Ninth Circuit's current approach.¹⁹⁹

b. The Second Factor: Nature of the Copyrighted Work

Courts relying on *Campbell* could avoid contradicting Congress's expressed intent that software receive just as much copyright protection as other literary works.²⁰⁰ Courts could assert that the nature of creating new software usually requires disassembly of existing software. Such an argument would be persuasive because not only is software's object code unintelligible without reverse engineering,²⁰¹ but the creation of new software tends to build on the ideas and functions of existing software.²⁰²

c. Third Factor: Amount and Substantiality of the Original Copied

Under *Campbell's* approach, courts could not gloss over the significance of the third factor, as in *Sega*.²⁰³ Specifically, courts would

196. For example, fact-finding should have addressed, among other issues, exactly which Sega interoperability specifications were copyright-protected and which were not. *See supra* note 117.

197. *See Campbell*, 114 S. Ct. at 1171.

198. *See supra* text accompanying note 111.

199. *See supra* text accompanying notes 98–112.

200. *See supra* notes 115–17 and accompanying text.

201. *See supra* part II.A.

202. *See Ignatin, supra* note 33, at 2014–22; Karjala, *supra* note 27, at 976–85, 996–98. *Cf. Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349–50 (1991) (“[C]opyright . . . encourages others to build freely upon the ideas and information conveyed by a work.”); Leval, *supra* note 33, at 1109 (“Each advance stands on building blocks fashioned by prior thinkers.”).

203. *See supra* notes 116–25 and accompanying text (discussing *Sega*). Congress intended all four fair use factors to be equally determinative. *See supra* note 53 and accompanying text.

thoroughly analyze the third factor as Congress has mandated,²⁰⁴ and, more importantly, they would do so in direct deliberation of copyright's goal. For example, courts should weigh the third factor in favor of the reverse engineer if the intermediate copying of an entire program is "reasonable" with respect to promoting copyright's objective.²⁰⁵

d. Fourth Factor: Effect on the Market Value of the Original

By using *Campbell*, courts could avoid *Sega's* tenuous rationale for why market harm caused by reverse engineering may not negate fair use.²⁰⁶ Instead, courts could explain how an infringement with a commercially exploitative purpose can rebut the presumption of unfair market harm if the infringement also has a transformative purpose.

For example, when reverse engineers disassemble copyrighted software only to allow independently created programs²⁰⁷ to enter the market, or merely to develop new software programs that build solely upon the uncopyrightable elements of existing software, any market harm caused to the original should be considered fair. The resulting market harm is excusable because it justifiably²⁰⁸ promotes the dissemination of creative expression, which in turn promotes society's intellectual growth.²⁰⁹ Similarly, though software developers also might allege that reverse engineering causes them to lose licensing opportunities,²¹⁰ this type of market harm is fair. Market impairment of licensing opportunities for a program's functions and interoperability

204. See *supra* notes 46, 52–55 and accompanying text.

205. See *Campbell v. Acuff-Rose Music*, 114 S. Ct. 1164, 1175–76 (1994) (discussing how "reasonable" infringement can be fair use); *supra* note 41 and accompanying text. Because unintelligible object code prevents one from differentiating between a software program's copyrightable and non-copyrightable material, intermediate copying of the entire program is not only reasonable but often necessary for full comprehension of the program's ideas and functions. See Ignatin, *supra* note 33, at 2008–10; Karjala, *supra* note 27, at 992–95.

206. See *supra* notes 130–33 and accompanying text (discussing *Sega's* rationale).

207. "Independently created works" are those that are not copied from another's work but rather whose originality was independently created by its author. See Leaffer, *supra* note 13, at 41–42.

208. The infringement is "justifiable" in the sense that the copyright holder has not been needlessly stripped of any copyright protection over the original software. See *supra* text accompanying notes 115. Here, the copyright holder is essentially losing no copyright protection because copyright law never protected his software's ideas or functions to begin with. See *supra* note 16 and accompanying text.

209. See *Campbell*, 114 S. Ct. at 1177–79.

210. Software developers may allege that the ultimate works that result from reverse engineering are additional infringements. This type of claim, however, is separate from that against reverse engineering. See *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1528 (9th Cir. 1992).

specifications is not actionable under copyright law because copyrights do not protect authors from harm caused by the access to and utilization of their ideas.²¹¹

By applying this type of rationale, the *Sega* court's conclusion could have been the same, but now its analysis in reaching that conclusion would have expressly discussed how Accolade's infringement served copyright's ultimate plan. Though reverse engineering allowed Accolade videogames to compete directly against Sega videogames, and thereby undoubtedly injure Sega's market value,²¹² this market harm was likely fair. But it was not fair on the basis that it appeared to be "minor,"²¹³ nor because it appeared that Sega was attempting to monopolize the Genesis videogame market.²¹⁴ Instead, this market harm was fair because a finding to the contrary would have unjustifiably suppressed Accolade's independently created works of authorship from being disseminated, and thus would have needlessly undermined copyright's ultimate aim.²¹⁵

V. CONCLUSION

If properly applied, *Campbell* could help resolve the uncertainty regarding the fair use doctrine and reverse engineering of software. Not only would *Campbell's* analysis prove effective for determining when a reverse engineering warrants the label of fair use, but more importantly, it would safeguard copyright's objective of advancing society's growth in the arts and sciences.

Campbell demonstrates that the fair use doctrine does not solely require an analysis of the four statutory factors, but that it commands, foremost, consideration of copyright law's ultimate purpose. Specifically, *Campbell* dismisses the notion that the four fair use factors

211. See *supra* note 16; see also *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349–50 (1991). Other forms of legal protection such as patents are specifically available to protect ideas. See generally *In Re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994).

212. See *Sega*, 977 F.2d at 1523–24.

213. *Id.* See also *supra* text accompanying notes 137–38 (criticizing the court's rationale for labeling the market harm to Sega as "minor").

214. See *supra* notes 142–44 and accompanying text. A copyright owner can lawfully monopolize expression but not the market the expression serves. See CONTU Report, *supra* note 31, at 10–13.

215. It appeared that Accolade had only appropriated uncopyrightable functional elements that were required for interoperability rather than any copyrightable expression from Sega's software. *Sega*, 977 F.2d at 1515–17. Moreover, intuition suggests that the competition that stems from new independently created works of authorship entering into society will most likely "stimulate artistic creativity for the general public good." *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 432 (1984).

can be molded in any fashion thought to be “equitable.” Instead, *Campbell* shows how the fair use doctrine must be construed in a manner that specifically serves the constitutional goal of promoting intellectual growth. The four fair use factors are only benchmarks that help indicate when a copyright infringement bolsters, rather than undermines, this constitutional goal.

Other countries, weary of waiting for U.S. courts or Congress to act, have begun to enact their own copyright laws that specifically address reverse engineering of software.²¹⁶ Until U.S. courts and Congress address this issue again, the U.S. software industry, one of the most profitable industries in our nation, must remain in a state of uncertainty. Meanwhile, international rivals, capitalizing on straightforward laws on reverse engineering, are free to invest in expensive software development and enter emerging markets.

216. See, e.g., Marc A. Ehrlich, *Fair Use or Foul Play? The EC Directive on the Legal Protection of Computer Programs and Its Impact on Reverse Engineering*, 13 Pace L. Rev. 1003 (1994); Herald Jongen & Alfred P. Meijboom, *Copyright Software Protection in the EC* (1995); *supra* note 69 and accompanying text.

