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Sega Enterprises LTD. v. Accolade, Inc.: What's so Fair about Reverse Engineering?

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NOTES

SEGA ENTERPRISES LTD. v. ACCOLADE, INC.: WHAT'S SO FAIR ABOUT REVERSE ENGINEERING?

I. INTRODUCTION

You are the president of a major corporation that develops and distributes computer video game cartridges and the consoles on which the games can be played. Your company has maintained a majority of the market share by remaining at the forefront of the game cartridges field. Your company's ability to be the first to incorporate all the latest enhancements is due to the efforts of one man—your chief designer of game concepts. If he were to leave, your company's position as number one in the industry would be jeopardized.

One day, your chief designer demands that if he is not made an executive vice-president and equity shareholder in the company he will resign and take with him a new concept he has been privately developing at home that will take video game technology to the next level. You believe he is bluffing. Even if he leaves, he does not possess the resources necessary to manufacture a console that will play his games. Confident he will change his mind, you decide to let him go. Two weeks pass, and he has not returned. Although you are surprised he has not come back, you figure that since you have a copyright on your game console, the only way he can make any money on his own video games is to arrange for a licensing agreement to make his games compatible with your consoles. If he approaches you for such an agreement, you will offer him an arrangement that will prevent him from making any money, forcing him to either design his own console (an impossibility since he does not have the necessary resources) or come back to you for his old job.

Eight months later, you are attending your industry's annual trade convention where you see your former chief designer in his lavish hospitality suite. He has designed a series of video games that employ technology never before seen in the industry. As you watch his demonstration, you witness what can only be described as a minor miracle. If he is able to get these games on the market, they will be in such demand that he will easily take away a majority of your sales, placing your company in ruin. Remembering that he never came to you to set up a licensing agreement to make his games compatible with your consoles, on whose

console is he demonstrating his games? Was he able to manufacture his own console after all? Upon closer inspection, you see he is demonstrating his video games on *your* company's console! How can this be? Doesn't owning a copyright mean you have the exclusive right to decide to whom you sell licensing agreements?[1] If someone uses your consoles without permission, isn't that copyright infringement?[2]

Unfortunately, a recent court decision enables competitors to work around copyright restrictions, allowing them to produce programs that duplicate the functions and results of copyrighted software without infringing the owner's copyright.[3] In *Sega Enterprises Ltd. v. Accolade, Inc.*,[4] the Ninth Circuit Court of Appeals addressed the issue of reverse engineering, one of the latest headaches in intellectual property law.[5]

The recent growth in computer technology has brought an equal, if not greater, expansion in copyright law.[6] Copyright law remains the main source of intellectual property protection for computer programs.[7] Copyright protection attaches when an original software program is "fixed in any tangible medium of expression."[8] A copyright protects the expression of an idea, but not the idea itself.[9]

Reverse engineering is a practice which involves stripping a copyrighted computer program down to its basic, uncopyrighted elements to understand how these elements work, without infringing on the copyright of the program.[10] In *Sega*, the Ninth Circuit held that this use of a copyrighted computer work to gain an understanding of the unprotected functional elements was fair use of the copyrighted work.[11]

This Note discusses how the holding in *Sega* essentially enables a software competitor to ignore a manufacturer's copyright protection and produce similar computer programs. After providing a brief background on copyright law,[12] this Note will review both the facts[13] and the procedural

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1. *See* 17 U.S.C. § 106 (1988).
2. *See* 17 U.S.C. § 501(a) (1988).
3. Sega Enterprises Ltd. v. Accolade, Inc., 977 F.2d 1510 (9th Cir. 1992).
4. *Id.*
5. Richard C. Reuben, *What's New in Intellectual Property: Business is Booming in Copyright, Trademark and Patent Law*, A.B.A. J., Jan. 1993, at 75.
6. *Id.*
7. *Id.*
8. 17 U.S.C. § 102(a) (1988).
9. *Id.* § 102(b).
10. Reuben, *supra* note 5, at 75.
11. *Sega*, 977 F.2d at 1527.
12. *See* discussion *infra* part II.
13. *See* discussion *infra* part III.A.

history of this case in both the district[14] and appellate courts.[15] Next, this Note will review the Ninth Circuit Court of Appeal's decision in *Sega*, examining how the court rejected Accolade's first three defenses to the charge of copyright infringement, but accepted their fourth defense of the fair use doctrine.[16] This Note will then review the errors in both the court's analysis and its decision that Accolade's intermediate copying of Sega's computer software programs was not a copyright infringement.[17] This Note concludes with a discussion concerning the result of this decision, that the court will apply the Copyright Act ("the Act") not only to permit, but to actually encourage the infringing process of reverse engineering.[18] In essence, this holding forces software manufacturers to reconsider their decision to create new computer software programs, since copyright protection has been rendered impotent.

II. COPYRIGHT LAW

Article I of the Constitution provides that Congress shall have the power "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[19] It is from this clause that the power to enact both copyright and patent legislation is derived. The Framers' intent was to give Congress the authority to provide incentives for creativity by granting in the authors the exclusive rights to their works for a limited time.[20] These exclusive rights include the right to reproduce, sell, perform, distribute and license their original work.[21]

A copyright is an "intangible, incorporeal right granted by statute to the author or originator of certain literary or artistic productions whereby he is invested, for a specified period, with the sole and exclusive privilege of multiplying copies of the same and publishing and selling them."[22] Copyright protection attaches when an original work of "authorship [is] fixed in any tangible medium of expression."[23] A copyright protects the

14. Sega Enterprises Ltd. v. Accolade, Inc., 785 F. Supp. 1392 (N.D. Cal. 1992).
15. *See* discussion *infra* part III.B.
16. *See* discussion *infra* part IV.
17. *See* discussion *infra* part V.
18. *See* discussion *infra* part VI.
19. U.S. CONST. art. I, § 8, cl. 8.
20. *See* 17 U.S.C. §§ 106, 302 (1988).
21. *See* 17 U.S.C. § 106 (1988).
22. BLACK'S LAW DICTIONARY 336 (6th ed. 1991).
23. 17 U.S.C. § 102(a) (1988).

expression of an idea, but not the idea itself.[24] This distinction between the author's idea and his expression is a fundamental principle of copyright law, commonly known as the idea/expression dichotomy.[25]

Section 501(a) of the Act defines a copyright infringer as "[a]nyone who violates any of the exclusive rights of the copyright owner as provided by sections 106 through 118. . . ."[26] Statutory limitations on the exclusive rights are provided in section 106 of the Act.[27] Section 107 provides that, notwithstanding the exclusive rights provided in section 106, the fair use of the copyrighted work, such as reproduction for the purposes of "teaching[,] . . . scholarship, or research," is not an infringement of a copyright.[28] Similarly, section 117 states that making another copy or adaptation of the program is not copyright infringement, provided that the copy or adaptation is an essential step in either the utilization of the program or for archival purposes.[29]

III. BACKGROUND

A. Sega Enterprises Ltd. v. Accolade, Inc.: *Statement of Facts*

Sega Enterprises Ltd. (Sega) develops and markets the Genesis video game console and video game cartridges.[30] Accolade, Inc. (Accolade) is an independent developer and manufacturer of computer game cartridges, some of which are compatible with the Genesis console.[31]

Sega licenses its copyrighted computer code[32] to independent manufacturers of computer game software, who in turn develop and sell Genesis-compatible video game cartridges in direct competition with Sega.[33] Accolade attempted to enter into a licensing agreement with Sega,

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24. *Id.* § 102(b).

25. *See* 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 2.03[D] (1993).

26. 17 U.S.C. § 501 (1988).

27. 17 U.S.C. § 106 (1988).

28. 17 U.S.C. § 107 (1988).

29. 17 U.S.C. § 117 (1988).

30. *Sega*, 977 F.2d at 1514.

31. *Id.*

32. The computer code is made up of an object code and a source code. The object code is a "computer readable form" of the source code. The source code is the alpha numeric language in which computer programs are written. *Id.* at 1514 n.2.

33. *Id.*

but abandoned the effort because Sega required that it "be the exclusive manufacturer of all games produced by Accolade."[34]

Accolade used reverse engineering to learn how to make their video games compatible with the Sega Genesis console.[35] "Reverse engineering" involves going backwards from a finished product in order to determine how a particular program works.[36] Accolade accomplished this by using a "disassembly" process,[37] transforming the object code contained in retail copies of Sega's game cartridges into the more easily read source code.[38] Accolade disassembled the video display microprocessor in the Genesis console so it could develop and market Genesis-compatible video games.[39]

After the reverse engineering process, Accolade created a manual that incorporated the requirements for a Genesis-compatible game.[40] Accolade employees who worked on the manual said it contained only "functional descriptions of the interface requirements, and did not include any of Sega's codes."[41] In creating its own game cartridges, Accolade maintained that "none of the code in its own games is derived in any way from its examination of Sega's code."[42]

While Accolade was creating the manual, Sega had developed a system to protect its trademark rights in response to counterfeiters in the United States and abroad.[43] In March 1990, Sega licensed a patented process for its trademark security system (TMSS).[44] The TMSS process made Accolade's video games incompatible with the latest Genesis III consoles.[45] Accolade then disassembled more Sega video game cartridges in search of the TMSS code.[46] Accolade found the TMSS code and copied it into its own video game programs, which then prompted the "Sega Message" when played on the Genesis III console.[47]

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34. *Sega*, 977 F.2d at 1514.
35. *Id.*
36. *Sega*, 785 F. Supp. at 1394-95.
37. *Sega*, 977 F.2d at 1514.
38. *Id.*
39. *Id.* at 1515.
40. *Id.*
41. *Sega*, 977 F.2d at 1515.
42. *Id.*
43. *Id.*
44. *Sega*, 785 F. Supp. at 1395.
45. *Sega*, 977 F.2d at 1515.
46. *Id.*
47. The Sega Message is a visual display which, when prompted, reads "PRODUCED BY OR UNDER LICENSE FROM SEGA ENTERPRISES LTD." *Id.*

In 1991, Accolade released five more games for use with the Genesis III console.[48] At the time the games were released, Accolade was not aware that in addition to enabling its software to operate on the Genesis III, the TMSS code caused the display of the Sega Message.[49] "Accolade admits that the Sega message as displayed on its games is a false message since the games displahying the message are not produced under license from [Sega.]"[50]

Accolade's Genesis-compatible games are all packaged in a similar fashion, with the back of the box containing the following statement:

> Sega and Genesis are registered trademarks of Sega Enterprises, Ltd. Game 1991 Accolade, Inc. All rights reserved. Ballistic is a trademark of Accolade, Inc. Accolade, Inc. is not associated with Sega Enterprises, Ltd. All product and corporate names are trademarks and registered trademarks of their respective owners.[51]

B. Procedural History

Sega filed suit against Accolade on October 31, 1991. The suit alleged trademark infringement and false designation of origin in violation of sections 32(1) and 43(a) of the Lanham Act. Sega amended its complaint on November 29, 1991 to include a claim for copyright infringement.[52] Accolade followed with a counterclaim against Sega for false designation of origin under section 43(a) of the Lanham Act. Each party filed a cross-motion for a preliminary injunction on the respective claims.[53] The district court granted Sega's motion, concluding that "the TMSS code was not functional and that Accolade could not assert a functionality defense[54] to Sega's claim of trademark infringement."[55]

The district court rejected Accolade's first contention in defense of Sega's copyright claim, that intermediate copying of computer object codes

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48. The games were "Star Control," "Hardball!" "Onslaught," "Turrican," and "Mike Ditka Power Football." *Id.* at 1516.

49. *Id.*

50. *Sega*, 785 F. Supp. at 1395.

51. *Sega*, 977 F.2d at 1516.

52. *Id.*

53. *Id.*

54. *See* discussion *infra* part IV.D.2.

55. *Sega*, 977 F.2d at 1516-17.

does not constitute infringement under the Act.[56] Next, the district court found that Accolade had disassembled Sega's code for commercial purposes, resulting in a likely decrease of Sega's sales.[57] The district court also found there were alternatives to the disassembly process available to Accolade to study the functional requirements for Genesis compatibility.[58] As a result, the district court rejected Accolade's fair use defense[59] to Sega's copyright infringement claim.[60] The district court also enjoined Accolade from continuing its practice of reverse engineering to make compatible video game cartridges.[61] This injunction was later modified, ordering the recall of Accolade's infringing games within ten business days.[62]

Following the injunction Accolade filed a motion in the district court on April 14, 1992 for a stay of the preliminary injunction pending appeal.[63] The district court failed to rule on the motion for a stay by April 21st (ten business days after the recall order), prompting Accolade to file a motion for an emergency stay in the Ninth Circuit Court of Appeals with its notice of appeal.[64] On April 23rd the Ninth Circuit stayed the April 9th recall order.[65] On August 28th, the court ordered the April 3rd injunction dissolved, and announced that its opinion would follow.[66] The Ninth Circuit's decision on the copyright infringement question is the subject of this Note.

IV. THE NINTH CIRCUIT'S OPINION IN *SEGA V. ACCOLADE*

Accolade presented four defenses in support of their position that disassembly of the object code in a copyrighted computer program does not constitute copyright infringement:

> 1. [I]ntermediate copying[67] does not infringe the exclusive rights granted to copyright owners in section 106 of the Act

56. *Id.*
57. *Id.*
58. *Id.*
59. *See infra* note 91 and accompanying text.
60. *Sega*, 977 F.2d at 1517.
61. *Id.*
62. *Id.*
63. *Id.*
64. *Id.*
65. *Sega*, 977 F.2d at 1517.
66. *Id.*
67. *See* discussion *infra* part IV.A.

> unless the end product is substantially similar to the copyrighted work;
> 2. disassembly of object code in order to gain an understanding of ideas and functional concepts embodied in the code is lawful under section 102(b) of the Act;
> 3. disassembly is authorized by section 117 of the Act, which entitles the lawful owner of a copy of a computer program to load the program into a computer;
> 4. disassembly of object code in order to gain an understanding of the ideas and functional concepts embodied in the code is a fair use that is privileged by section 107 of the Act.[68]

The court concluded that neither the language of the Act nor precedent supported the first three defenses, but that Accolade's final defense based on the fair use exception shielded Accolade from liability.[69]

A. Intermediate Copying

Accolade first argued that its "intermediate copying [of the Sega video game software] does not infringe [upon] the exclusive rights granted to copyright owners in section 106 of the . . . Act unless the end product . . . is substantially similar to the copyrighted work."[70] An intermediate copy of a copyrighted work is simply an inchoate copy which is not substantially similar to the whole work from which it was copied.[71] The Ninth Circuit held that in light of the unambiguous language of the Act, intermediate copying infringes on those rights.[72] The court reasoned that "[if] intermediate copying is permissible under the Act, authority for such copying must be found in one of the statutory provisions to which the rights granted in section 106 are subject."[73] In the majority opinion, Judge Stephen Reinhardt determined that certain items obtained by Accolade during the reverse engineering process satisfied the statutory

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68. *Sega*, 977 F.2d at 1517-18.
69. *Id.* at 1518.
70. *Sega*, 977 F.2d at 1517.
71. *See* Walker v. University Books, 602 F.2d 859, 864 (9th Cir. 1979).
72. *Sega*, 977 F.2d at 1519 (citing *Walker*, 602 F.2d at 864).
73. *Id.*

requirements of a "copy."[74] Judge Reinhardt stated that Accolade's intermediate copying fell "squarely within the category of acts that are prohibited by the statute."[75] He concluded that "intermediate copying of [the] computer object code may infringe [on] the exclusive rights granted to the copyright owner . . . regardless of whether the end product of the copying also infringes those rights."[76]

B. The Idea/Expression Distinction

In its second defense, Accolade claimed that the disassembly of the computer object code was necessary to gain access to the ideas and functional concepts embodied in the code.[77] This access is allowed under section 102(b), which exempts ideas and functional concepts from copyright protection.[78] Amendments to the Act in 1980[79] extended copyright protection to computer programs and did not distinguish "between the copyrightability of those programs which directly interact with the computer user and those which simply manage the computer system."[80] Rather than recognizing a per se right to disassemble object codes (as Accolade proposed), the court stated that the unique nature of the computer object code would be more appropriately considered as part of a case-by-case fair use analysis[81] authorized by section 107 of the Copyright Act.[82]

C. Section 117 Defense

In its third argument, Accolade claimed that disassembly is authorized by section 117 of the Act, which entitles the lawful owner of a

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74. These items were the computer file generated by the disassembly program, the printouts of the disassembled code, and the computer files containing Accolade's modifications of the code. *Id.* at 1518.

75. *Id.*

76. *Id.* at 1519.

77. *Sega*, 977 F.2d at 1519.

78. *Id.* at 1517.

79. 1980 amendment to the Copyright Act, Pub. L. No. 96-517, § 10, 94 Stat. 3028 (codified at 17 U.S.C. §§ 101, 117) (1980); *See* National Commission on New Technological Uses of Copyrighted Works, Final Report 1 (1979) [hereinafter CONTU Report].

80. *Sega*, 977 F.2d at 1519 (citing Apple Computer, Inc. v. Formula Int'l Inc., 725 F.2d 521, 525 (9th Cir. 1989)).

81. *See* discussion *infra* part IV.D.

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

copy of a computer program to load the program into a computer.[83] Section 117 allows the owner to either copy or adapt the program only if the new copy or adaptation is necessary in utilizing the program with the computer.[84] Any other use of the new copy or adaptation constitutes copyright infringement.[85]

Based on the recommendation of the National Commission on New Technological Uses of Copyrighted Works (CONTU), the 1980 amendments to the Act extended copyright protection to computer programs.[86] The placement of a copyrighted computer program into a computer results in the preparation of a copy because the program is loaded into the computer's memory.[87] As a result, CONTU felt that the law should provide that persons in rightful possession of copies of programs should be allowed to use the programs without the threat of exposure to copyright infringement.[88]

The Ninth Circuit reasoned that Accolade's use of Sega's computer programs went beyond the usage contemplated by CONTU and allowed by section 117.[89] The court stated that section 117 "does not . . . protect a user who disassembles object code, converts it from assembly into source code, and makes printouts and photocopies of the refined source code version."[90]

D. Fair Use Defense

The fair use doctrine is a statutory limit on the exclusive rights held by the copyright owner.[91] The Ninth Circuit interpreted the doctrine as providing that disassembly for purposes of such study or examination constitutes a fair use where there is good reason for studying or examining the unprotected aspects of a copyrighted computer program.[92]

The court rejected Sega's claim that section 117 constituted a legislative determination that "any copying of a computer program other

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83. *Id.* at 1517.
84. 17 U.S.C. § 117(1) (1988).
85. *Id.*
86. *See supra* note 79 and accompanying text.
87. *Sega*, 977 F.2d at 1520 (citing CONTU Report at 13).
88. *Id.*
89. *Id.*
90. *Id.*
91. 17 U.S.C. § 107 (1988).
92. *Sega*, 977 F.2d at 1526.

than that authorized by section 117 cannot be considered a fair use of that program."[93] The court determined that section 117 was not intended to preclude a fair use defense with respect to uses of computer programs that are not covered by the section, nor has section 107 been amended to exclude computer programs from its scope.[94]

The court also dismissed Sega's next contention, "that the language and legislative history of section 906 of the Semiconductor Chip Protection Act of 1984 . . . established that Congress did not intend that disassembly of [the] object code [would] be considered a fair use."[95] The court pointed out that the instant case dealt with the copying of a computer program, which was governed by the Act.[96]

The Ninth Circuit applied the fair use defense and found that Accolade did not infringe Sega's copyright.[97] Section 107 of the Act lists four factors which are to be considered in determining whether a particular use of a copyrighted product is a fair use.[98] These factors are:

(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 on the potential market for or value of the copyrighted work.[99]

1. The Purpose and Character of the Use

The court reviewed the purpose and character of the challenged use, including whether such use was of a commercial nature or for nonprofit educational purposes.[100] The court determined that the use at issue was an intermediate use, and that "any commercial 'exploitation' was indirect or derivative."[101] Although Accolade's ultimate purpose was the sale of

93. *Id.* at 1520 (emphasis omitted).
94. *Id.* at 1521.
95. *Id.*
96. *Id.* at 1521.
97. *Sega*, 977 F.2d at 1522.
98. 17 U.S.C. § 107 (1988).
99. *Sega*, 977 F.2d at 1521-22.
100. *Sega*, 977 F.2d at 1522.
101. *Id.*

Genesis-compatible game cartridges, its "direct purpose" in copying Sega's copyrighted code was to study its functional requirements for so it could make existing games compatible with the Genesis console.[102] Thus, the court concluded that Accolade copied Sega's code for a "legitimate, essentially non-exploitative purpose."[103]

The court took a public policy approach in deciding this first factor. It found that the public was served by Accolade's identification of the functional requirements for Genesis compatibility in that this identification increased the "number of independently designed video game programs offered for use with the Genesis console."[104] The Act was intended to promote such "growth in creative expression, based on the dissemination of other creative works and the unprotected ideas contained in those works . . . ."[105] The court found the fact that Genesis-compatible video games may not be scholarly works was insignificant.[106]

2. The Nature of the Copyrighted Work

In finding that the second statutory factor also favored Accolade, the court noted that not all copyrighted works are entitled to the same level of protection.[107] "To the extent that a work is functional or factual, it may be copied . . . ."[108] Fictional works will receive greater protection than works with strong factual or functional elements.[109] The court stated that computer programs may be "highly creative and idiosyncratic."[110] In essence, though, computer programs are utilitarian articles containing "many logical, structural, and visual display elements that are dictated by the function to be performed, by considerations of efficiency, or by external factors such as compatibility requirements and industry demands."[111]

Although Accolade copied the entire program, the court found that disassembly of the copyrightable "object code in Sega's video game cartridges was necessary . . . to understand the functional requirements for

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102. *Id.*
103. *Id.* at 1523.
104. *Id.*
105. *Sega*, 977 F.2d at 1523.
106. *Id.*
107. *Id.* at 1524.
108. *Id.* (citing Baker v. Selden, 101 U.S. 99, 102-04 (1879)).
109. *Sega*, 977 F.2d at 1524 (citing Maxtone-Graham v. Burtchaell, 803 F.2d 1253, 1263 (2d Cir. 1988)).
110. *Sega*, 977 F.2d at 1524.
111. *Id.* (citing Computer Assoc. Int'l, Inc. v. Altai, Inc., 892 F.2d 693 (2d Cir. 1992)).

Genesis compatibility," and that this disassembly necessarily entailed copying.[112] The district court agreed with Sega that the disassembly of its object code was not the only available method for gaining access to the interface specifications for the Genesis console.[113] However, the record established that humans cannot read object code, and that the translation of a program from object code into source code cannot be accomplished without making copies of the object code.[114] Also, there was no support for the argument that there existed a viable alternative to disassembly.[115]

The court continued with its public policy rationale when it reasoned that "[if] disassembly of copyrighted object code is *per se* an unfair use, [then] the owner of the copyright gains a *de facto* monopoly over the functional aspects of [the work] . . . ."[116] Judge Reinhardt noted that those aspects are "expressly denied copyright protection by Congress."[117] Thus, Sega's video game programs were entitled to a lower degree of protection than more traditional literary works because they contained unprotected parts.[118] As a result, the second statutory factor weighed in favor of Accolade.

3. The Amount and Substantiality of the Program Used

Since Accolade disassembled the entire program, the third factor should have weighed against Accolade and precluded a finding of fair use.[119] However, the court stated that although the entire work was copied a finding of fair use was not precluded.[120] The Supreme Court in *Sony Corp. v. Universal City Studios*[121] held that the noncommercial use of a home video recording of a television program, though copied in its

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

113. *Sega*, 785 F. Supp. at 1394.

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

115. However, the district court suggested that Accolade could have avoided infringement by programming in a "clean room," a procedure used to prevent direct copying of a competitor's code during the development of a competitor's product. *Sega*, 785 F. Supp. at 1399.

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

117. *Id.* (citing 17 U.S.C. § 102(b) (1988)).

118. *Sega*, 977 F.2d at 1526 (citing Computer Assoc. Int'l, Inc. v. Altai, Inc., 982 F.2d 693 (2d Cir. 1992)).

119. *Id.*

120. *Id.*

121. 464 U.S. 417, 449-50 (1984).

entirety, did not constitute copyright infringement.[122] In light of *Sony Corp.*, the Ninth Circuit in *Sega* accorded the third statutory factor little weight since the ultimate purpose of the copying was limited to ensuring compatibility, and not to reproducing Sega's games.[123]

4. The Effect on the Potential Market for the Copyrighted Work

The court analyzed the fourth statutory factor in light of "the distinction between the copying of works in order to make independent creative expression possible and the simple exploitation of another's creative efforts."[124] Accolade did not attempt to preclude Sega from releasing any games, but sought to become a legitimate competitor in the field of Genesis-compatible video games.[125]

There is no doubt that Accolade's disassembly of Sega's software affected the market for Genesis-compatible software.[126] However, the court stated that because a consumer of video game cartridges typically purchases more than one game, there really is no basis for assuming a particular Accolade video game has substantially affected the market for a particular Sega video game.[127] Furthermore, "an attempt to monopolize the market by making it impossible for others to compete runs counter to the statutory purpose of promoting creative expression . . . ."[128] Consequently, notwithstanding the minor economic loss to Sega, the fourth statutory factor was decided in favor of Accolade.[129]

In summarizing the result of the court's fair use analysis, the "key" to the case was its focus on computer software, "a relatively unexplored

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122. *Id.* Petitioner Sony Corp. manufactured home video tape recorders (VTR). Respondents Universal City Studios, et al, brought a copyright infringement action against Sony Corp. in federal district court, alleging that VTR consumers had been recording some of respondent's copyrighted works which were shown on commercially sponsored television. The district court held that all non-commercial home use recordings of material broadcast over the public airwaves are a fair use of copyrighted works. The Court of Appeals reversed, and the Supreme Court in turn reversed the appellate court, holding in favor of the petitioner.

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

124. *Id.* at 1523.

125. *Id. But see* Harper & Row Publishers, Inc. v. Nation Enters., 471 U.S. 539, 560 (1985) In Harper & Row, the defendant printed excerpts from President Ford's memoirs verbatim with the stated [intent] of "scooping" a *Time* magazine review of the book.

126. *Id.* at 1523.

127. *Id.*

128. *Id.* at 1523-24.

129. *Id.* at 1524.

area in the world of copyright law."[130] While the work at issue may not have been largely functional, it incorporated functional elements which were not entitled to protection.[131] The equitable considerations involved favored public access, thus disassembly under specified circumstances was a fair use of the copyrighted work.[132] The court cautioned, however, that its conclusion did not "insulate Accolade from a claim of copyright infringement with respect to its finished products."[133]

V. CRITIQUE OF THE NINTH CIRCUIT'S OPINION IN *SEGA V. ACCOLADE*

In light of the court's decision in *Sega*, what can copyright owners of computer software do to maximize their chances of protection? *Sega's* procedural context makes it a much narrower decision than it first appears. The Ninth Circuit merely vacated a preliminary injunction, holding that the district court, as a matter of law, had misapplied the four-factor fair use test.[134] Fair use must be decided on a case-by-case basis, requiring the court to consider all of the facts and circumstances.[135]

The central policy justification of the Ninth Circuit's opinion—the need to foster the exchange of ideas and prevent monopolization—is contrary to the constitutional underpinnings of copyright law. The Framers intended through Article I of the Constitution to "promote the Progress of Science and useful Arts," and give Congress the authority to provide incentives to creators by granting them, for a limited time, monopolies in their work.[136] In permitting copying by reading an anti-monopolization policy into the fair use test, the court has contradicted the Framers' intent, basically eliminating the essence of copyright law.

In assessing the "purpose and character of the use," focusing solely on the commercial quality of the interim use is arguably disingenuous when the copy is used to create a competing product—the quintessential commercial use. Even interim use causes commercial consequences. The United States Supreme Court announced in *Harper & Row Publishers, Inc. v. Nation Enterprises*[137] that the proper test for commercial use is "whether

130. *Id.*
131. *Sega*, 977 F.2d at 1527.
132. *Id.*
133. *Id.* at 1528.
134. *Id.* at 1514.
135. *See Sega*, 977 F.2d at 1522.
136. *See supra* notes 14 and 20 and accompanying text.
137. 471 U.S.539 (1985).

the user stands to profit from exploitation of the copyrighted material without paying the customary price."[138]

As the *Sega* opinion noted, but failed to address, Sega licenses its copyrights to other game cartridge manufacturers.[139] Accolade considered becoming a licensee, but chose to copy Sega's code rather than pay "the customary price."[140] Allowing Accolade's interim copying without a license defeats Sega's ability to market its licenses, effectively depriving Sega of an important part of its copyright privileges and encouraging other software companies to copy the code as Accolade did.[141] As the Supreme Court stated in *Harper & Row*, "[i]f the defendant's work adversely affects the value of any of the rights in the copyrighted work . . . the use is not fair."[142] Although Accolade was copying the program to ensure compatibility, its ultimate purpose was to market a competing game cartridge, which is obviously commercial in its intent. It seems clear that interim use directly causes commercial damage, even on *Sega's* facts.

The Supreme Court has held the "effect on the market" to be the most important factor in the analysis.[143] The Ninth Circuit rejected the district court's finding that Sega had "likely lost sales as a result of Accolade's copying,"[144] reasoning that although both companies make game cartridges, this does not necessarily evidence lost sales because consumers are likely to buy more than one video game.[145] Even though the Accolade game cartridges are compatible with the Genesis console, what if the consumer finds the Accolade games more appealing and stops buying Sega game cartridges altogether? The consumer's decision to purchase Accolade's video games as opposed to Sega's would most likely be based on the attributes of the game itself,[146] not because of the game's ability to function on a Genesis console. Therefore it is not the copying of the game that leads to a decrease of Sega's amrket share. For the Ninth Circuit to reject the district court's finding of lost sales on this somewhat

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138. *Id.* at 562 (citations omitted).

139. *Sega*, 977 F.2d at 1514.

140. *Id.* Accolade did not find Sega's terms favorable because Sega would have to be the exclusive manufacturer of any Accolade product. *Id.*

141. 17 U.S.C. § 117 (1988).

142. *Harper & Row*, 471 U.S. at 568 (citing 3 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 13.05[B]).

143. *Harper & Row*, 471 U.S. at 566 (footnotes omitted).

144. *Sega*, 785 F. Supp. at 1398.

145. *See supra* note 12 and accompanying text.

146. These attributes can include the theme of the game (such as hockey, car driving, adventure, or street fighting), the audio-visual special effects (blood spurting, digital quality sound), and the levels of difficulty.

flimsy rationale is just one example of the inadequacy of its fair use analysis.

Another error in the Ninth Circuit's analysis of the fourth fair use factor is that even in cases of noncommercial use, plaintiffs need only show "that some meaningful likelihood of future harm exists" to establish a prima facie case for damages.[147] Sega did not show any loss of sales since it was impossible to do so. In light of the Ninth Circuit's decision, the best course for copyright owners is to gather evidence of lost sales and to highlight the true nature of the use, thereby tipping the equities in favor of the copyright owner.

The Ninth Circuit placed its greatest emphasis on the second fair use doctrine factor, "the nature of the copyrighted use." The court found that object code is functional in nature and thus is not entitled to copyright protection.[148] Also, because there was no other access to these functional codes, the copying was permissible.[149] Ironically, Judge Reinhardt noted that the holding of this case closely followed the Federal Circuit's holding in *Atari Games Corp. v. Nintendo of America, Inc.*[150] In *Atari*, however, the Federal Circuit found that Nintendo's object code, even though it is a functional idea, incorporated "arbitrary programming instructions and arranged them in a unique sequence to create a purely arbitrary data stream. This data stream serve[d] to unlock the [Nintendo game console]. Nintendo may protect this creative element of [their program] under copyright."[151] The Ninth Circuit did not follow the *Atari* decision as closely as it claims.

The Ninth Circuit in *Sega* should not have dismissed the security code as functional. Copying the code, as Accolade did, copied its expression, not just the unprotectable idea or functional elements, so the fair use defense should not have applied. Moreover, even under Sega's "no other means of access" test,[152] a litigant could demonstrate that there are

147. Sony Corp. v. Universal City Studios, 464 U.S. 417, 449-50 (1984) (emphasis omitted).

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

149. *Id.*

150. *Id.* at 1513-14 n.1 (discussing Atari Games Corp. v. Nintendo of Am., Inc., 975 F.2d 832 (Fed. Cir. 1992)). The cause of action in *Atari* is identical to that of *Sega*, Nintendo sued Atari for, among other things, copyright infringement as a result of Atari's unauthorized copying of Nintendo's object code, which enabled Atari to make their video game cartridges compatible to Nintendo's NES consoles without obtaining a license from Nintendo. *Id.*

151. *Atari*, 975 F.2d at 840.

152. *Sega*, 977 F.2d at 1514.

alternative methods of reverse engineering, contrary to the Ninth Circuit's findings.[153]

Finally, the Ninth Circuit was incorrect in contending that the third factor of the fair use test, the substantiality of the use, should be given little weight. [154] Because this factor is phrased in terms of both the amount and the substantiality of the copying, even a small quantity of copying, if the quality were sufficiently substantial, could tip the balance against the copier.[155] The court in *Sega* seemed to ignore this.

VI. IMPLICATIONS AS A RESULT OF THE HOLDING IN *SEGA V. ACCOLADE*

Sega illustrates how a court will apply the Act not only to permit, but to actually encourage an otherwise infringing reverse engineering process as long as such use advances what the court considers to be an important, industry-wide goal, such as software compatibility. This holding has far-reaching implications for computer software copyright owners wanting to enforce their rights against competitors who copy their programs, analyze them, and then create and sell competing products. Unless the Ninth Circuit's view on intermediate copying via reverse engineering is subsequently overruled, software manufacturers will be unable to protect their legal rights from the circumvention of reverse engineering.[156]

In focusing on public policy, the *Sega* court was concerned that precluding reverse engineering of object code deprives society of alternative forms of video games. This seems somewhat short-sighted on the part of the court. Video game programs, let alone video game consoles, are not unique. Consider the proliferation of game manufacturers,[157] and the fact that Nintendo also offers a video game console. Also, the court ignores the

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153. The district court noted that some other alternatives available to Accolade included "peeling" the microchip as set forth in 17 U.S.C. § 906, or programming in a "clean room." *See supra* note 115 and accompanying text. The court went on to say that even though these other two alternatives are more time-consuming and expensive, they are not impossible and do not involve copyright infringement. *Sega*, 785 F. Supp. at 1399.

154. *See supra* note 123 and accompanying text.

155. New Era Public. v. Carol Pub. Group, 904 F.2d 152, 158 (2d Cir. 1990).

156. Unfortunately, patent law will not be able to protect software manufacturers with the protection they seek for their programs. Like a copyright, a patent does not protect the author's idea, but instead protects the process or method of the idea. 35 U.S.C. § 101 (1988).

157. During a recent visit to *Toys "R" Us*, the author tallied over 80 different manufacturers of video game cartridges. Every manufacturer had a licensing agreement with either Sega or Nintendo of America, Inc.

fact that Accolade has two other options available to market its games. First, Accolade could manufacture its own console to operate its games. Second, Accolade could pay Sega for a license to use Accolade's games on Sega's console. Since Accolade chose neither option, it should not be permitted to circumvent Sega's statutory right to sell licenses to its creations by infringing on Sega's protected programs.[158]

The public's need for access to the copyrighted program is satisfied by the copyright owner's marketing of the original program. A competitor who reverse engineers a copyrighted computer program is not concerned with increasing public access to that program. On the contrary, the competitor's only purpose is to get the public to purchase his work rather than the original, in turn eliminating the market for the original. It appears the court's distress against giving a de facto monopoly to Sega is somewhat far-fetched.

Next, where is it said that Sega is required to make its consoles compatible to other video game manufacturers? Let supply and demand take over. Market forces rarely fail in a free market economy. If Sega wishes to not allow anyone to make compatible games, so be it. Not only is it Sega's free market right, it is also its statutory right.[159] If consumers become disenchanted with Sega's games, and no alternative games are compatible with the Genesis console, sales of Sega video games and Genesis consoles will suffer. A significant drop in market share will no doubt force Sega to reevaluate its position. Either Sega will make its consoles compatible to their competitor's video games, or they will attempt to survive on an ever-dwindling market share.

Section 106 of the Act protects Sega's licensing authority.[160] This right to license their protected product is one of the incentives and rewards for obtaining copyright protection. Furthermore, the Ninth Circuit's decision in *Sega* conflicts with the Framers' intent in drafting the Constitution.[161]

VII. CONCLUSION

The Ninth Circuit improperly applied the statutory four-factor fair use analysis as required by section 107 of the Act.[162] With regard to the first

158. 17 U.S.C. § 106 (1988).
159. *Id.*
160. *Id.*
161. *See supra* note 20 and accompanying text.
162. *See supra* notes 98-99 and accompanying text.

factor, the court rationalized that Accolade's interim copying of Sega's program was not for commercial purposes by stating that it was required for compatibility.[163] This is amazing, considering that the end result of Accolade's intermediate copying lead to a competing video game. In its application of the second factor, "the nature of the copyrighted use," the court was too eager to label the security code as functional, and to find that there were no other means of access to research the "functional" elements of the code.[164] Even though the security code contains unprotected functional elements, the security code itself is a protectable expression of these elements.[165]

Further, the court failed to sufficiently address the third factor, the substantiality of the use. Although it seems obvious that Accolade's copying was more than minimal, the court appeared to ignore the criteria by stating that the factor should be given little weight.[166] The court also erred in its analysis of the fourth factor of the fair use test. The Ninth Circuit again superficially applied this factor by deciding that there is no way Sega could have lost any sales even though Accolade put out a competing product.[167]

The Ninth Circuit's holding in Sega not only permits, but actually encourages copyright infringement of computer software. The court justifies its holding by reasoning that society is best served by the increased access to alternative forms of video games.[168] This access, the court believes, will encourage the expansion of ideas, which is the foundation of copyright protection.[169] The court is wrong. Instead, *Sega* encourages a competitor to ignore a software manufacturer's copyright by allowing the use of the reverse engineering process to copy those legally protected programs. Taking away the copyright holder's free market right to license its programs renders the copyright impotent, thus defeating the purpose of copyright laws.[170] Ironically, the court's decision will most likely result in the consequences it feared. By taking away the manufacturer's ability to earn a living off their copyright licenses, the court has chilled the incentive to create new programs, thus decreasing the availability of alternative forms of video game cartridges.

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163. *See supra* notes 100-03 and accompanying text.
164. *See supra* notes 107-15 and accompanying text.
165. *See supra* notes 148-53 and accompanying text.
166. *See supra* notes 154-55 and accompanying text.
167. *See supra* notes 124-29 and accompanying text.
168. *See supra* note 104 and accompanying text.
169. *See supra* note 105 and accompanying text.
170. *See supra* notes 19-22 and accompanying text.

Unfortunately, the holding of *Sega* has the effect of not only decreasing the availability of alternative forms of video games, but also of eliminating the incentive for computer software manufacturers to develop new software products. Without the protection of a copyright, a manufacturer has less incentive to develop new products because someone else can simply copy the work without having to pay for it. This case will have a chilling effect on a society that is growing more dependent on the continued advances of computer technology.

David C. MacCulloch[*]

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* This Note is dedicated to my wife Hillary, and my son Campbell Johannes. It is because of them I am able to keep everything in its proper perspective.