The Federal Circuit: Thwarting Software Innovation

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THE FEDERAL CIRCUIT: THWARTING SOFTWARE INNOVATION

Bernardo Rocha*

I. INTRODUCTION

Without the development and use of computer programming languages, the world would have been deprived of basic computer applications and the internet.[1] Throughout the past century, dozens of programming languages have been created, facilitating the development of modern computers.[2] Among the dozens of programming languages available today, Java remains one of the most relevant and widely used programming languages in the software industry.[3]

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[1] COMPUTER HOPE, *Programming Language* (last visited Sept. 23, 2018), https://www.computerhope.com/jargon/p/proglanghtmComputer programming languages are special languages that programmers use to communicate with computers, via written instructions.

[2] Andrew Ferguson, *A History of Programming Languages* (Sept. 23, 2018), https://cs.brown.edu/~adf/programming_languages.html

[3] COMPUTER SCIENCE.ORG, *What Are Computer Programming Languages* (last visited Sept. 23, 2018), https://www.computerscience.org/resources/computer-programming-languages/Java was developed at Sun Microsystems in 1990, introduced to the public in 1995, and is currently owned by Oracle Corporation.

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Java's popularity and appeal comes from the fact that Java can be used on a wide variety of platforms.[4] Once a programmer writes the code for a program using Java, any platform that uses the Java virtual machine can utilize that code.[5] The Java programming language consists of words, symbols and other characters, which are organized by and follow certain syntax rules.[6] The Java programming language takes the lines of symbols that a programmer inputs, and converts them into "bytecode" an intermediate form of code, and then the Java virtual machine converts the bytecode into binary instructions, which computer hardware can follow. [7]

Given the fact that programing languages are integral to modern computer usage, and that a significant amount of time and energy is spent on creating programming languages, one must wonder how programming languages are protected. In the 2014 *Oracle Am., Inc. v. Google Inc.* decision, the United States Court of Appeals for the Federal Circuit decided that the structure, sequence, and organization of API packages in Java are entitled to copyright protection.[8] The case at issue is a continuation of the *Oracle Am., Inc. v. Google Inc.* case, however, now the issue has shifted to whether Google's use of some Java API packages is protected by the Fair Use Act.[9] The Fair Use Act and cases involving computer programs in the United States have been linked since as early as

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[4] Nick Langley, *Write Once, Run Anywhere?*, COMPUERWEEKLY.COM, (May, 2002), https://www.computerweekly.com/feature/Write-once-run-anywhere

[5] *Id.*

[6] *Oracle Am., Inc. v. Google Inc.*, 750 F.3d 1339 (Fed. Cir. 2014).

[7] *Id.* at 1348.

[8] *Id.* at 1339

[9] *Oracle Am., Inc. v. Google Inc.*, 886 F.3d 1179, 1185 (Fed. Cir. 2018).

1990.[10] The Federal Circuit's most recent decision in *Oracle* shows a misapplication of the Fair Use Act, and sets a precedent contrary to the purpose of copyright law, which is to promote the progress of science and useful arts.[11]

Part II of this note will discuss background information on the Fair Use Act, and how courts have applied it to cases involving computer programs and code.[12] Part III will discuss the central opinion of this case note, *Oracle Am., Inc. v. Google Inc.*, in which the court decided that Google's use of Java API packages in Google's Android platform could not be protected by fair use.[13] Part IV will discuss how the United States Court of Appeals for the Federal Circuit misapplied the four factors of the Fair Use Act. It will also address why the incorrect application of the four Fair Use Act factors is adverse to the law's purpose, and sets a precedent contrary to the purposes of Copyright law.[14] Part V will discuss the future implications of the ruling in *Oracle*, and how it may affect the computer programming and software industry.[15] Part VI will summarize the significance of this case, and will conclude the overall discussion.[16]

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[10] COPYRIGHT.GOV, *U.S. Copyright Office Fair Use Index* (last visited Sept. 24, 2018), https://www.copyright.gov/fair-use/fair-index.html

[11] U.S. CONST. art. I, § 8, cl. 8.

[12] *See infra* notes 17 – 51 and accompanying text.

[13] *See infra* notes 52 – 86 and accompanying text.

[14] *See infra* notes 87 – 148 and accompanying text.

[15] *See infra* notes 149 – 166 and accompanying text.

[16] *See infra* notes 167 – 175 and accompanying text.

II. BACKGROUND

During the development of Java, Sun Microsystems, Inc. wrote various "ready-to-use" Java programs that would instruct a computer to perform common functions.[17] These ready-to-use programs were organized into groups called "packages."[18] Sun Microsystems defined code meant to perform a specific operation or function as a "method," groups of specific methods are called "classes," groups of classes are the aforementioned "packages."[19] An analogy used by the Federal Circuit describes the "collection of packages . . . like a library, [where] each package is like a bookshelf in the library, each class is like a book on the shelf, and each method is like a how-to chapter in a book."[20] By 2008, the Java platform contained over 6,000 methods, 600 classes, all grouped into 166 "application programming interfaces" (API) packages.[21]

The first U.S. Copyright Act was passed in 1790, and the act has been revised various times throughout American history, with the most current being the Copyright Act of 1976.[22] The primary purpose of the Copyright Act has always been to follow the Intellectual Property Clause, Art. I § 8 cl. 8 of the U.S. Constitution, "to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their

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[17] *Oracle Am., Inc. v. Google Inc.*, 750 F.3d 1339, 1348-49 (Fed. Cir. 2014). Sun Microsystems, Inc. was the predecessor of Oracle, who developed the Java platform.

[18] *Id.* at 1349.

[19] *Id.*

[20] *Id.*

[21] *Id.*

[22] Association of Research Libraries, *Copyright timeline: A History of Copyright in the United States*, (last visited Sept. 24, 2018), http://www.arl.org/focus-areas/copyright-ip/2486-copyright-timeline#.W6khFfYnaCg.

respective writings and discoveries."[23] The Copyright Act of 1976 grants the owner of a copyright the exclusive rights to do and or authorize any of the following:

> (1) to reproduce the copyrighted work in copies or phonorecords; (2) to prepare derivative works based upon the copyrighted work; (3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending . . ..[24]

The Copyright Act also lays out that anyone who violates the exclusive rights of a copyright holder is an infringer of the copyright.[25]

One of the affirmative defenses to copyright infringement is fair use.[26] Fair use of a copyrighted work includes the reproduction of a copyrighted work for the purposes of criticism, comment, news reporting, teaching, scholarship, or research.[27] In determining whether the use of a copyrighted material is fair use, the following factors must be considered:

> (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

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[23] *Id.*

[24] 17 U.S.C. § 106 (2018).

[25] 17 U.S.C. § 501 (2018). (as provided in sections 106 through 122)

[26] 17 U.S.C. § 107 (2018).

[27] *Id.*

the potential market for or value of the copyrighted work.[28]

Determining whether fair use exists requires weighing the four factors, on a case-by-case examination.[29]

A. Purpose and Character of the Use

Courts tend to weigh the commercial use of a copyrighted work against a finding of fair use.[30] As the Second Circuit explained in *Am. Geophysical Union v. Texaco*, most secondary users of copyrighted material seek to, at least in some manner, have commercial gain from their use.[31] This means that undue emphasis of commercial character would make fair use overly restrictive.[32] In addition to examining whether the use of the copyrighted material is for commercial purposes, it is equally important to consider if the use is for educational, non-profit, criticism, comment, news reporting, teaching, scholarship, or research purposes.[33] A finding that the purpose and character of the use was for one of the aforementioned purposes generally indicates fair use.[34]

The term "transformative" is not in the Copyright Act; nevertheless, the Supreme Court has stated that the primary objective of the "purpose and character of use" factor is to determine

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[28] *Id.*

[29] *Harper & Row, Publrs. v. Nation Enters.*, 471 U.S. 539, 549 (1985).

[30] *Id* at 562.

[31] *Am. Geophysical Union v. Texaco Inc.*, 60 F.3d 913, 921 (2nd Cir. 1994).

[32] *Id.*

[33] *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 576 (1994).

[34] 17 U.S.C. § 107 (2018).

whether a secondary use is transformative.[35] A use is transformative when it is more than a duplication of the previous work, and the secondary use provides a value separate from what the original work provided.[36] A barometer that can be used in examining whether the secondary use is transformative is determining whether the use is likely to contribute to new intellectual value, and foster advancement in the sciences and the arts.[37]

B. Nature of the Copyrighted Work

The nature of a copyrighted work draws on the substance of the work.[38] This factor requires that courts recognize that some forms of works line up closer to what copyright law seeks to protect.[39] Copyright law seeks to protect original works of authorship fixed in a tangible medium of expression.[40] Copyright law does not extend to any "idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work."[41] It has been argued that computer programming languages merely embody ideas and functional concepts, which cannot be protected by copyright law.[42] Courts have nonetheless found that computer software falls within the scope of copyright

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[35] *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 579 (1994); *Oracle Am., Inc. v. Google Inc.*, 886 F.3d 1186, 1198 (Fed. Cir. 2018).

[36] *Am. Geophysical Union v. Texaco Inc.*, 60 F.3d 913, 923 (2nd Cir. 1994).

[37] *Id.*

[38] *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 586 (1994).

[39] *Id.*

[40] 17 U.S.C. § 102 (2018).

[41] *Id.*

[42] *Sega Enters. V. Accolade, Inc.*, 977 F.2d 1510, 1519 (9th Cir. 1992).

protection.[43]

C. *Amount and Substantiality of the Portion Used*

The third factor looks to the amount and significance of the portion copied, in the context of the original copyrighted work, as opposed to the role of the copied portion in the context of the secondary work.[44] Unintuitively, there are scenarios in which a work may be copied in nearly its entirety, without barring the fair use defense.[45] A work can be copied verbatim without precluding fair use per se, because it is the purpose and character of the use that determines the extent of permissible copying.[46] It is important to highlight here that the four fair use factors are interdependent.

D. *Effect of the Use Upon the Potential Mark for the Copyrighted Work*

The final fair use factor looks at the effect of the secondary use on the market for or the value of the copyrighted work.[47] The primary idea behind this factor is that secondary use should be limited to copying a work in a manner that does not materially impair the marketability of the original work.[48] Courts have deemed

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[43] *Wall Data Inc. v. L.A. County Sheriff's Dep't*, 447 F.3d 769, 780 (9th Cir. 2006).

[44] *Oracle Am., Inc. v. Google Inc.*, 750 F.3d 1339, 1375 (Fed. Cir. 2014).

[45] *Worldwide Church of God v. Philadelphia Church of God, Inc.*, 227 F.3d 1110, 1118 (9th Cir. 2000) (citing *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 449–50 (1984)).

[46] *Id.*

[47] *Oracle Am., Inc.*, 750 F.3d at 1376.

[48] *Id.*

this factor to be the most important when determining if there is fair use.[49] This factor requires that courts consider

> not only the extent of market harm caused by the particular actions of the alleged infringer, but also whether unrestricted and widespread conduct by the particular actions of the sort engaged by in the defendant . . . would result in a substantially adverse impact on the potential market for the original.[50]

Further, the importance of the effect of the use upon the potential market will depend on both the amount of harm to the marketability of the original work and the relative strength of the other three fair use factors.[51]

III. ORACLE AM., INC. V. GOOGLE LLC

A. *Factual Background*

In 2005 Google acquired Android, Inc. to develop a software platform for mobile devices.[52] That same year, Google and Sun Microsystems, Inc. began discussing licensing the Java platform to Google, so that Google may use and adapt the platform for mobile devices.[53] The two companies never reached an agreement due to Google wanting mobile device manufacturers to be able to use and

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[49] *Id.*

[50] *Oracle Am., Inc. v. Google Inc.*, 886 F.3d 1179, 1207 (Fed. Cir. 2018) (quoting *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 590(1994)).

[51] *Id.*

[52] *Id.* at 1187.

[53] *Id.*

modify the Java APIs in Android freely.[54]Although the Android team had been working on creating its own APIs, Google later chose to copy verbatim the code of 37 Java API packages.[55] Google then wrote its own implementing code, and announced the Android software platform for mobile devices in 2007.[56] Google provides the Android platform for free to smartphone manufactures, and publishes the source code for free, as an open source license.[57] Google does not charge users of the Android platform directly; instead Android's revenue comes from advertising.[58]

Oracle purchased Sun Microsystems, Inc. in 2010.[59] Oracle claimed that Android interfered with its licensing strategy and that many of its customers have switched to Android, or have used the existence of Android as leverage in negotiations.[60] Oracle brought copyright and patent infringement claims against Google in 2010.[61] The case came before the United States Court of Appeals for the Federal Circuit in 2014.[62] The Federal Circuit determined that the 37 Java API packages were entitled to copyright protection, and remanded the case to find if Google's use of the packages fell under the fair use defense.[63]

B. United States Court of Appeals for the Federal Circuit's 2018 Opinion

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[54] *Id.*

[55] *Id.* (The 37 Java API packages consisted of 11,500 lines of code.)

[56] *Oracle Am., Inc.*, 886 F.3d at 1187.

[57] *Id.*

[58] *Id.* (Android has generated over $42 billion.)

[59] *Id.*

[60] *Id.* at 1187–88.

[61] *Oracle Am., Inc. v. Google Inc.*, 872 F.Supp.2d 974, 975 (N.D Cal. 2012).

[62] *Oracle Am., Inc. v. Google Inc.*, 750 F.3d 1339 (Fed. Cir. 2014).

[63] *Id.* at 1381.

The Federal Circuit reviewed this case on Oracle's appeal of the district court's denial of Oracle's motion for judgment as a matter of law, and its judgment in favor of Google.[64] The district court had entered judgment, in accordance with the jury's finding, that Google's use of the 37 API packages constituted fair use.[65] The Federal Circuit used the four-factor Fair Use test to determine whether the district court reached the correct legal conclusion.[66]

C. *Purpose and Character of the Use*

The court looked to determine whether the use was commercial, and whether the work was transformative.[67] The court stated that Google's use of the API packages served commercial purposes.[68] The court found that Google's non-commercial motives were irrelevant as a matter of law. The court also found that Google's use was not transformative because: (1) it did not fall within the types of fair use explicitly listed in the Copyright Act; (2) the API packages maintained the same function; (3); Google did not alter the API packages; and (4) Google did not change the context the API packages were used in.[69] The court decided that the highly

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[64] *Oracle Am., Inc. v. Google Inc.*, 886 F.3d 1186, 1186 (Fed. Cir. 2018).

[65] *Id.* at 1189–90.

[66] *Id.* The four Fair Use factors are (1) the Purpose and Character of the Use; (2) the Nature of the Copyrighted Work; (3); the Amount and Substantiality of the Portion Used and (4) the Effect of the Use Upon the Potential Market for the Copyrighted Work.

[67] *Id.* at 1196.

[68] *Id.* at 1197-98.

[69] *Id.* at 1199.

commercial and non-transformative character of Google's use weighed against a finding of fair use.[70]

D. *Nature of the Copyrighted Work*

The court looked at whether the "work was informational or creative."[71] The court considered that on the first appeal of the case, it was determined that the API packages had a minimal degree of creativity, sufficient for copyrightability.[72] The court concluded that reasonable jurors could have determined that the functional aspects of the API packages were substantial and important, and thus this factor weighed in favor of a fair use finding.[73] However, the court emphasized that the nature of the copyrighted work factor carries the least amount of weight in the fair use analysis.[74]

E. *Amount and Substantiality of the Portion Used*

The court looked to the quantitative amount and the qualitive value of the original work used in relation to Google's use.[75] The court concluded that the amount coped was quantitively significant because only 170 lines of code were technically necessary to write in the Java language, and Google copied 11,500 lines of code.[76] The court asserted that the copied portion was qualitatively significant because Google copied the code to utilize the existing community

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[70] *Oracle Am., Inc. v. Google Inc.*, 886 F.3d 1186, 1204 (Fed. Cir. 2018).
[71] *Id.*
[72] *Id.*
[73] *Id.*
[74] *Id.* at 1205.
[75] *Id.*
[76] *Oracle Am., Inc.*, 886 F.3d at 1206.

of Java developers.[77] The court concluded that this factor was neutral at best, but contended that it weighed against a finding of fair use.[78]

F. Effect of the Use Upon the Potential Market for the Copyrighted Work

The court looked at whether Google's use of the API packages materially impaired the marketability of the work which was copied.[79] The court reasoned that smartphones were one of Oracle's reasonably potential markets, and that Android was a competitor in that market.[80] The court concluded that Google's copying would have an adverse impact on Oracle's potential market.[81] Thus, the effect of the use upon the potential market for the copyrighted work factor weighed heavily against a finding of fair use.[82]

G. Balancing the Factors

After considering the four fair use factors, the court was left with balancing the factors "in light of the purposes of copyright."[83] The court determined that the first and fourth factors of the Fair Use test weighed heavily against a finding of fair use, the second factor weighed for a finding of fair use, and the third factor was neutral, at

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[77] *Id.* at 1207.

[78] *Id.*

[79] *Id.*

[80] *Id.* at 1209-10.

[81] *Id.*

[82] *Oracle Am., Inc.*, 886 F.3d at 1209-10.

[83] *Id.* at 1210.

best.[84] The court concluded that weighing the four factors together shows that Google's use of the 37 API packages was not fair use as a matter of law.[85]

H. Holding

The Federal Circuit reversed the district court's holding denying Oracle's motion for judgment as a matter of law and remanded the case for a trial on damages.[86]

IV. ANALYSIS

The court misapplied two of the four Fair Use factors, namely, the purpose and character of the use factor and the effect of the use upon the potential market for the copyrighted work.

A. The Purpose and Character of the Use

In looking into the purpose and character of the use factor, the court looked to determine whether the use was commercial in nature and whether the new work was transformative.[87] The court stated that it was undisputed that Google's use of the API packages served commercial purposes.[88] However, this factor looks at more than whether the use served commercial purposes.[89] The commercial or nonprofit educational character is not conclusive; the

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[84] *Id.*

[85] *Id.*

[86] *Id.* at 1211.

[87] *Oracle Am., Inc.*, 886 F.3d 1186 (Fed. Cir. 2018).

[88] *Id.* at 1197.

[89] *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 585 (1994).

character must be weighed along with other facts in fair use determinations.[90] Google had elected to make Android open source and free for all to use.[91] It would have been reasonable for a jury to have concluded that although Google's use served commercial purposes, it also served non-commercial purposes.[92] The court was incorrect in determining that Google's non-commercial motives were irrelevant as a matter of law, because the commercial purposes and non-commercial purposes must be weighed together.[93]

Given that Google's use was commercial, it becomes increasingly important to determine if the use was also transformative as it mitigates a finding against fair use.[94] Transformative use is found if the secondary use adds something new, with a further purpose or different character, altering the first use with new expression, meaning, or message.[95] Google copied 37 API packages, verbatim.[96] Nevertheless, the court was incorrect in determining that the purpose of the API packages in Android was the same as the purpose of the packages in the Java platform; and that Google's use was not transformative.[97] Google selected 37 out of 166 API packages to be used in Android, which shows that Google only copied a fraction of an entire work to create a new

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[90] *Id.*

[91] *Oracle Am., Inc. v. Google Inc.*, No. C 10-03561, 2016 WL 3181206, at *7 (N.D Cal. June 8, 2016).

[92] *Id.*

[93] *Id.*

[94] *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 579 (1994).

[95] *Id.*

[96] *Oracle Am., Inc. v. Google Inc.*, No. C 10-03561, 2016 WL 3181206, at *10 (N.D Cal. June 8, 2016).

[97] *Oracle Am., Inc. v. Google Inc.*, 886 F.3d 1186, 1199 (Fed. Cir. 2018).

work, in a new context.[98] Google created new implementing code to operate the API packages in the context of a smart phone, which Oracle's original work did not extend to.[99] Finally, Google created new methods, classes, and packages for the smartphone platform.[100] This is analogous to parody, in which certain elements have to be copied exactly in order for a work to be useable in a new context.[101] Google created new implementing code, and put the copied code in the context of Android's code, making the overall function of the API packages materially different from desktop purpose that Oracle's API packages were used for.[102] This outweighs the fact that Google copied the API packages verbatim.[103]

One way to illustrate the difference in use is to imagine a patented bicycle consisting of many different gears, then taking a few of those gears and implementing them in a Rube Goldberg machine.[104] Although the same gears are being used, and operating in the same manner, the net function has shifted from turning to move a bike, to turning to crack a walnut.[105] A use is transformative

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[98] *Oracle Am., Inc. v. Google Inc.*, No. C 10-03561, 2016 WL 3181206, at *9 (N.D Cal. June 8, 2016).

[99] *Id.*

[100] *Id.*

[101] *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 598 (1994).
Parody works need to copy elements of an original work to create a new and functional work, which provides commentary on the original work.

[102] *Oracle Am., Inc. v. Google Inc.*, No. C 10-03561, 2016 WL 3181206, at *9 (N.D Cal. June 8, 2016).

[103] *Id.*

[104] David Olsen & Mark J. Nelson, *The Narrative Logic of Rube Goldberg Machines* 5–7 (2017), http://www.kmjn.org/publications/RubeGoldberg_ICIDS17.pdf.
Rube Goldberg machines incorporate simple objects such as gears and pulleys to move as usual, and to a trigger a series of complex steps to complete a very simple and arbitrary task, such as cracking a nut.

[105] *Id.*

when it is not merely a duplication of the previous work, which would be the case in the example provided, and in Google's implementation of API packages in a smartphone platform.[106] In addition, a use is transformative when the secondary use is likely to contribute to new intellectual value, which fosters the advancement of the sciences and the arts.[107] Google's implemented Android in smartphones as early as 2008, and provided the Android platform for free to smart phone manufactures.[108] The creation of a free and widely available smartphone platform jumpstarted the entire smartphone industry.[109] Thus, Google's use of the API packages was highly transformative.[110]

Given that Google had non-commercial motives in conjunction with its commercial motives, in copying Oracle's API packages, and Google's use was highly transformative, the purpose and character of the use factor should weigh in favor of a finding of fair use.[111]

B. Nature of the Copyrighted Work

Copyright law seeks to protect original works of authorship fixed in a tangible medium of expression.[112] This factor looks to whether the work is informational or creative, as the scope of fair use is greater if the original work is more informational than

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[106] *Am. Geophysical Union v. Texaco Inc.*, 60 F.3d 913, 923 (2nd Cir. 1994).

[107] *Id.*

[108] *Oracle Am., Inc. v. Google Inc.*, 886 F.3d 1186, 1187 (Fed. Cir. 2018).

[109] WORDSTEAM, *Android OS: Google-Powered Devices and Apps* (Oct. 14, 2018), https://www.wordstream.com/android-os

[110] *Oracle Am., Inc. v. Google Inc.*, No. C 10-03561, 2016 WL 3181206, at *11 (N.D Cal. June 8, 2016).

[111] *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569 (1994).

[112] 17 U.S.C. § 102 (2018).

creative.[113] Google pointed out that Oracle's APIs were only sufficiently creative to obtain copyright protection, and the court concluded that a jury could find the functional aspects of the packages to be relevant to the fair use defense.[114] Earlier in the history of the *Oracle* case, the California Northern District Court held that the structure, sequence and organization features in the Java API packages could not be protected by copyright because there are limited ways to write code that can carry out the relevant system of commands.[115] Although the United States Court of Appeals for the Federal Circuit reversed the district court's decision, it did note that the Java API packages' functional elements may be relevant in a fair use analysis.[116] It was thus reasonable for the court here to conclude that this factor should weigh in favor of a finding of fair use.[117]

C. *Amount and Substantiality of the Portion Used*

The court overestimated the significance of both the quantitative amount and qualitive value of the API packages that Google copied.[118] Quantitatively it is easy to determine that a very small amount of the Oracle's code was copied.[119] Google copied approximately 11,500 lines of code, out of roughly 2.86 million lines; or 0.4% of the Java SE libraries.[120] The court noted that the

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[113] *Worldwide Church of God v. Philadelphia Church of God, Inc.*, 227 F.3d 1110, 1118 (9th Cir. 2000).

[114] *Oracle Am., Inc. v. Google Inc.*, 886 F.3d 1186, 1204–05 (Fed. Cir. 2018).

[115] *Oracle Am., Inc. v. Google Inc.*, 872 F. Supp. 974, 1002 (N.D. Cal. 2012).

[116] *Oracle Am., Inc. v. Google Inc.*, 750 F.3d 1339, 1376–81 (Fed. Cir. 2014).

[117] *Oracle Am., Inc*, 886 F.3d at 1205.

[118] *Id.*

[119] *Id.* at 1206.

[120] *Id.*

amount and substantiality of the portion use factor "will not weigh against an alleged infringer, even when he copies the whole work, if he takes no more than is necessary for his intended use."[121] The court also noted that the factor can weigh against an alleged infringer if the use was not transformative.[122] The problem arises in the fact that the court had already decided earlier in its opinion that Google's use was not transformative.[123] As mentioned above, there is a strong argument that Google's use was indeed transformative.[124] Thus, the amount and substantiality of the portion used factor will not weigh against Google if Google copied no more than necessary for its intended use.[125] The court contended that because only 170 lines of code were necessary to write in Java language, that it was unnecessary for Google to copy 11,500 lines of code.[126] However, the 170 lines of code is in reference to merely having the capability of writing in the Java language.[127] The court argues that the amount that Google copied is qualitatively significant because it was enough to take advantage of the familiarity it would give to programmers who are already familiar with Java.[128] However, this ignores the fact that the amount that Google copied was the amount reasonably necessary to have a transformative use.[129] If Google had not copied enough code form Java SE, then programmers would not have been

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[121] *Id.*

[122] *Id.*

[123] *Oracle Am., Inc. v. Google Inc.*, 886 F.3d 1186, 1206 (Fed. Cir. 2018).

[124] *See surpa* notes 87-111.

[125] *Oracle Am., Inc*, 886 F.3d at 1206.

[126] *Id.*

[127] *Id.*

[128] *Id.* at 1207.

[129] *Oracle Am., Inc. v. Google Inc.*, No. C 10-03561, 2016 WL 3181206, at *10(N.D Cal. June 8, 2016).

able to use Android effectively, and the smartphone platform would have been rendered ineffective.[130]

Given the amount of code that Google copied was quantitatively insignificant, and that the qualitive value is limited by the fact that Google copied no more than necessary for its intended transformative use, this factor should weigh in favor of a finding of fair use.[131]

D. *Effect of the Use Upon the Potential Market for the Copyrighted Work*

The court erred in its determination that there was enough evidence that Google caused a substantially adverse impact on Oracle's actual and potential markets.[132] The court mentioned testimony that Java SE was being used in a few smartphones prior to Android's release, making Android a direct competitor in the market for mobile devices.[133] The problem is that there is no mention of what the actual degree of harm was; making it nearly impossible to determine what the actual effect was.[134] The court also looked at the fact that Oracle had licensed Java SE to Amazon kindle, and that after Android was released and was freely available, Amazon was able to negotiate a large discount.[135] This does show some degree of actual harm caused by Android being freely available.[136] The court further contended that Android also harmed Oracle's potential smartphone market, which Oracle could have

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[130] *Id.* at *6

[131] *Id.*

[132] *Oracle Am., Inc.*, 886 F.3d at 1210.

[133] *Id.* at 1209.

[134] *Id.* at 1209-1210.

[135] *Id.* at 1209.

[136] *Id.*

naturally expanded into.[137] The court determined the fact that Oracle had not yet developed a smartphone platform did not preclude it from being a potential market.[138]

The court's determination that Google caused a substantially adverse impact on Oracle's actual and potential markets was in error in large part because it ignored the fact that prior to Android being released, all of Java API had become available as free and open source.[139] Sun Microsystems had made all of the Java API packages free under the name OpenJDK, subject only to users having to then share the updates they made, with the Java community.[140] OpenJDK invited anyone to use and duplicate the Java API packages, for commercial purposes, including the same 37 packages that Google copied.[141] Because OpenJDK made API packages freely available, it is reasonable to find that the impact Android had on Oracle's actual or potential markets is the exact same as the impact OpenJDK would have otherwise caused.[142] Therefore, Google's use of the API packages did not materially impair the marketability of Oracle's original work.[143] Furthermore, unrestricted and widespread conduct by the particular actions of the sort engaged by Google would not result in a substantially adverse impact on Oracle's potential market, because analogous conduct would have risen solely through the existence of OpenJDK.[144] Therefore, the effect of the use upon the

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[137] *Id.*

[138] *Oracle Am., Inc. v. Google Inc.*, 886 F.3d 1186, 1210 (Fed. Cir. 2018).

[139] *Id* at 1208-1209.

[140] *Oracle Am., Inc. v. Google Inc.*, No. C 10-03561, 2016 WL 3181206, at *10 (N.D Cal. June 8, 2016).

[141] *Id.*

[142] *Id.*

[143] *Id.*

[144] *Id.*

potential market for the copyrighted work factor should weigh in favor of a finding of fair use.[145]

E. *Balancing the Four Factors*

Determining whether fair use exists requires a case-by-case examination, weighing the four Fair Use factors "in light of the purposes of copyright."[146] Google's copying of the API packages allowed Google to promote software innovation, by creating a new platform, Android.[147] Furthermore, given that all four Fair Use factors weigh toward a finding of fair use, the district court's decision finding that Google's use of the 37 API packages constituted fair use, should have been affirmed by the Federal Circuit.[148]

V. IMPACT OF THE COURT OF APPEALS FOR THE FEDERAL CIRCUIT OPINION

A. *Impact on the Courts*

The Court of Appeals for the Federal Circuit does not have subject matter jurisdiction over copyright cases, and applied the

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[145] *Id.*

[146] *Harper & Row, Publrs. v. Nation Enters.*, 471 U.S. 539, 551 (1985); *Oracle Am., Inc. v. Google Inc.*, 886 F.3d 1186, 1210 (Fed. Cir. 2018).

[147] *Oracle Am., Inc. v. Google Inc.*, No. C 10-03561, 2016 WL 3181206, at *9–12 (N.D Cal. June 8, 2016).

[148] *Id.* at *11.

Ninth Circuit's law in *Oracle*.[149] Hence, its decision in *Oracle* is not binding on other circuits.[150] However, the court's decision in *Oracle* may still be used as a persuasive decision by other circuits, in cases that have similar facts and legal issues.[151] The software industry is large, and has a longstanding industry practice of copying functional works, like APIs.[152] This makes it foreseeable that cases with similar facts and legal issues will arise in courts throughout the United States.[153] Regardless of whether other courts use the *Oracle* decision as persuasive authority, petitioners will still have the availability to tack on patent claims to their software-copyright claims, in order to have their case heard by the Court of Appeals for the Federal Circuit.[154] Unless Google obtains a rehearing en banc before the entire Federal Circuit, or is granted certiorari by the

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[149] Lee Gesmer, *Federal Circuit's Fair Use Decision in Oracle v. Google – Astonishing, But Not Surprising*, (May 2, 2018) https://masslawblog.com/copyright/federal-circuits-fair-use-decision-in-oracle-v-google-astonishing-but-not-surprising/.

[150] *Id.*

[151] Barbara Bintliff, *Mandatory v. Persuasive Cases* 84 (2001) https://info.legalsolutions.thomsonreuters.com/pdf/perspec/2001-winter/winter-2001-7.pdf, (last visited Oct. 15, 2018).

[152] Corynne McSherry, *Federal Circuit Continues to Screw Up Copyright Law and Thwart Innovation*, (2018), https://www.eff.org/deeplinks/2018/03/federal-circuit-continues-screw-copyright-law-and-thwart-innovation, (last visited Oct. 15, 2018).

[153] *Id.*

[154] Krista L. Cox, *Oracle v. Google Is More Evidence That The Federal Circuit Has No Business Deciding Copyright Cases (March 29, 2018) https://abovethelaw.com/2018/03/oracle-v-google-is-more-evidence-that-the-federal-circuit-has-no-business-deciding-copyright-cases/?rf=1.*

Supreme Court, the *Oracle* decision will have a significant impact on the federal courts.[155]

B. Impact on the Software Industry

The court's decision is certain to have a significant impact on software developers and programmers.[156] Prior to the *Oracle* decision, programmers were generally able to reimplement APIs freely which led to the creation of compatible software and APIs on different operating systems and internet browsers.[157] This was beneficial because software or APIs may belong to an individual or company who has abandoned its product or simply does not have the resources or knowledge of how to implement the product to a new system.[158] Considering that the Federal Circuit determined that the practice was not protected by Fair Use in *Oracle*, many programmers are now likely to refrain from engaging in the longstanding industry practice.[159] As a result, there may be less

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[155] Jeffrey Neuburger, *Federal Circuit Again Reveres California Court in Oracle-google Copyright Dispute over Java APIs - Releases a Major Ruling on Fair Use in the Software Context*, (March 30, 2018) https://newmedialaw.proskauer.com/2018/03/30/federal-circuit-again-reverses-california-court-in-oracle-google-copyright-dispute-over-java-apis-releases-a-major-ruling-on-fair-use-in-the-software-context/.

[156] Corynne McSherry, *Dangerous Decision in Oracle v. Google: Federal Circuit Reverses Sensible Lower Court Ruling on APIs*, (May 9, 2014), https://www.eff.org/deeplinks/2014/05/dangerous-ruling-oracle-v-google-federal-circuit-reverses-sensible-lower-court.

[157] *Id.*

[158] *Id.*

[159] *Id.*

development in software industry, leaving consumers with fewer platform alternatives choices.[160]

A slowdown in software industry could extend to more than the industry itself, by creating negative socioeconomic effects on the United States.[161] Modern American society and the software industry are now deeply intertwined.[162] Software has become integral to the United States' developing economy, education, technology development, and infrastructure.[163] The software industry has contributed a substantial amount to the United States' GDP.[164] It has also made communication, shopping, banking and education available at one's fingertips. Additionally, the software industry has guided decision making in economic, medical and other scientific spaces through data modeling.[165] Hindering

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[160] Dugie Standeford, *Federal Circuit Ruling in Oracle v. Google Could Affect Global Software Industry*, (Mar. 4, 2018.), http://www.ip-watch.org/2018/04/03/federal-circuit-ruling-oracle-v-google-affect-global-software-industry/.

[161] *The Growing $1 Trillion Economic Impact of Software*, SOFTWARE.ORG BSA FOUNDATION, (Sept., 2017) https://software.org/wp-content/uploads/2017_Software_Economic_Impact_Report.pdf.

[162] *Software.org Connects the Dots Between Software and Society*, BSA THE SOFTWARE ALLIANCE, (Apr. 4, 2017), https://www.bsa.org/news-and-events/news/2017/april/en04042017softwareorgbsafoundation/?sc_lang=en-US.

[163] *Id.*

[164] *The Growing $1 Trillion Economic Impact of Software*, SOFTWARE.ORG BSA FOUNDATION, (Sept., 2017), https://software.org/wp-content/uploads/2017_Software_Economic_Impact_Report.pdf. (The software industry directly contributed $564.4 billion to the United States' GDP in 2016).

[165] *Id.*

software innovation could ultimately stunt societal and economic progress and the overall quality of life of Americans.[166]

VI. CONCLUSION

The Fair Use act is short and compact, yet it has required statutory interpretation by the Supreme Court of the United States on various occasions.[167] The Supreme Court has explained how the four factors of Fair Use are to be used and weighed in Fair Use determinations.[168] The United States Court of Appeals for the Federal Circuit's decision in the *Oracle* case misapplies two of the four factors and the misapplication led to a wrongful determination that Google's use did not constitute Fair Use.[169] The court's decision in a case involving titans of the software industry is likely to influence other courts' application of the Fair Use Act.[170]

The court's decision will likely influence the decisions of companies and programmers to develop competitive software.[171] Many software programmers may refrain from developing new and competitive software for fear of the legal risks of not being protected

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[166] *Id.*

[167] *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569 (1994); *Harper & Row, Publrs. v. Nation Enters.*, 471 U.S. 539 (1985).

[168] *Id.*

[169] *See supra* notes 87 – 148 and accompanying text.

[170]   Barbara   Bintliff,   *Mandatory   v.   Persuasive   Cases*,   (2001), https://info.legalsolutions.thomsonreuters.com/pdf/perspec/2001-winter/winter-2001-7.pdf.

[171] *See Bridgeport Music, Inc. v. Dimensional Films*, 410 F. 3d 792 (6th Cir. 2005).

under Fair Use.[172] This fear may extend to software development investors as well, further stagnating the industry.[173] The Fair Use Act's purpose is to allow the fair use of copyrighted materials in a manner that facilitates the purpose of copyright law, "to promote the Progress of Science and useful Arts . . . ."[174] It is apparent that the court's decision yields an outcome contrary to the purposes of copyright law by stunting the progress of science and the useful arts.[175]

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[172] Corynne McSherry, *Federal Circuit Continues to Screw Up Copyright Law and Thwart Innovation*, EFF (2018), https://www.eff.org/deeplinks/2018/03/federal-circuit-continues-screw-copyright-law-and-thwart-innovation.

[173] *Id.*

[174] *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 575 (1994)

[175] *Id.*