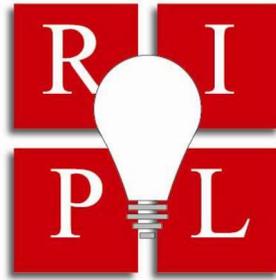


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APIs AND COPYRIGHT PROTECTION: THE POTENTIAL IMPACT ON SOFTWARE COMPATIBILITY IN THE PROGRAMMING INDUSTRY

DARIA VASILESCU-PALERMO

ABSTRACT

In *Oracle v. Google*, the Federal Circuit set precedent when it decided to grant copyright protection to APIs. This comment examines the potential impact the computer programming industry will face now that APIs are deemed copyrightable. This comment also discusses Google's success in using fair use as an affirmative defense in order to use copyrightable APIs and what that means for the rest of the computer programming industry. Due to the fast-paced and ever-changing world of technology, this comment also proposes that the abstract-filtration-comparison test is the appropriate test to be used in determining API copyrightability if the issue is raised at the Supreme Court level.

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I. INTRODUCTION

Google, Inc. (“Google”) copied nine lines of code from Oracle America’s (“Oracle”) Java software program for its Android project. The result: the eruption of a multi-million-dollar lawsuit that changed the world of computer software programming at least for now.¹ The nine lines of code Google copied amounts to only three percent of the source code that was at issue in the initial lawsuit.² Over 50,000 files and more than eleven million lines of code make up the Android platform.³

The matter at issue was Oracle’s Application Programming Interfaces (APIs) used in Google’s Android smart-phone platform.⁴ APIs play an integral and functional role in telling one application how to speak to another, and they are present in most of our day-to-day technology.⁵ APIs can be found in cell phones, laptops, computers, and even television applications such as Netflix, Hulu+, and Amazon Instant.⁶

* © Daria Vasilescu-Palermo 2016. Juris Doctor Candidate, The John Marshall Law School, 2017; Bachelor of Arts, Northeastern University. I want to thank the 2015-16 and 2016-17 RIPL boards. I could not have published this comment without the help of some great editors. I would also like to thank my husband and family, who supported and loved me throughout the entire writing process.

¹ Oracle Am., Inc. v. Google Inc., 872 F. Supp. 2d 974 (N.D. Cal. 2012), *rev’d*, 750 F.3d 1339 (Fed. Cir. 2014), *cert. denied*, 135 S.Ct. 2887 (2015).

² *Id.* at 979.

³ Motion for Summary Judgment for Defendant at *9, Oracle Am., Inc., v. Google Inc. No. C 10-03561 WHA (N.D. Cal. 2011).

⁴ Brief for Petitioner at 1-2, Oracle Am., Inc., v. Google Inc., 3:10-cv-03561-WHA (2012), 2012 U.S. Dist. Ct. Briefs LEXIS 1258 (Oracle alleging that “Google is liable for copyright infringement because Google copied from and prepared derivative works from Oracle’s copyrighted materials to create Android specifications and implementations which it then distributed.”); Jonathan Stempel, *Oracle sues Google over Android*, REUTERS (Aug. 13, 2010), *available at* <http://www.reuters.com/article/2010/08/14/us-google-oracle-android-lawsuit-idUKTRE67B5G720100814> (reporting that “Google ‘knowingly, directly and repeatedly infringed Oracle’s Java-related intellectual property’ in developing Android”).

⁵ Julie Samuels, *Oracle v. Google and the Dangerous Implications of Treating APIs as Copyrightable* (May 7, 2012), *available at* <https://www.eff.org/deeplinks/2012/05/oracle-v-google-and-dangerous-implications-treating-apis-copyrightable> (arguing that “setting aside the practical consequences, there’s a perfectly good legal reason not to treat APIs as copyrightable material: they are purely functional.” Samuels writes that “the law is already clear that copyright cannot cover programming languages, which are merely mediums for creation (instead, copyright may potentially cover what one creatively writes in that language”); *See also* Opening Expert Report of Dr. Owen Astrachan at 133, Oracle Am., v. Google, Inc., 3:10-cv-03561-WHA (2011), 2011 Misc. Filings LEXIS 585 (providing expert opinion testimony on the functional aspect of the APIs at question in the Oracle case).

⁶ Brian Proffitt, *What APIs Are And Why They’re Important*, READWRITE (Sep. 19, 2013) <http://readwrite.com/2013/09/19/api-defined> (explaining how APIs serve as great time savers for web based services and “viewed more broadly . . . APIs make possible a . . . array of Web-service ‘mashups,’ in which developers use mix and match APIs from . . . Google or Facebook or Twitter to create entirely new apps and services”).

APIs are useful because they can prevent a software programmer from wasting time by having to rewrite existing code.⁷ They supply programmers with pre-packaged declarations to write programming that is compatible with other applications.⁸

Google attempted to form a partnership with Sun Microsystems, Inc., to come up with a mobile phone platform, but no agreement was ever reached.⁹ In 2007, Google announced plans to join the smart-phone industry by creating a mobile device that ran on Android software.¹⁰ In 2010, Oracle purchased Sun Microsystems Inc., who held the interest in Java.¹¹ Nandini Ramani, who serves as the Vice President of Development for the Java Platform for Oracle also claims that Java is the “global standard for developing and delivering applications everywhere from small devices to the Cloud.”¹²

An API is a “set of core libraries that facilitates the development of applications for the Java platform by providing basic system or language functionalities.”¹³ The Java language is similar to other high-level programming languages and enables computer programmers to write programs that can run on different applications without the need to recreate the code declarations for each application.¹⁴ The Java declarations that Google used to call on functions in Android had to be written in a specific way in order for the method of operation to function correctly.¹⁵

Google copied thirty-seven Java APIs, including the names and headers for the Java language that allow the developers on Android to use Java functions.¹⁶ The Java language has precise declarations which dictate how a specific method function will be called on or used in the program, and this is Google’s claim for copying the nine lines of declaration code and going on to write millions of lines of their own program code for Android.¹⁷

Part I of this comment provides a brief background of existing copyright law, and discusses the decision in the *Oracle v. Google* case. Part II of this comment examines

⁷ *Oracle Am.*, 872 F. Supp. 2d at 982.

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.* at 976.

¹¹ *Id.*

¹² Oracle Announces Java 8 (March 25, 2014), <http://oracle.com.edgesuite.net/timeline/java/> (last visited Jan. 25, 2016).

¹³ Motion for Summary Judgment for Defendant at *5, *Oracle Am., Inc., v. Google Inc.*, No. C 10-03561 WHA (N.D. Cal. May 31, 2011).

¹⁴ *Oracle Am.*, 872 F. Supp. 2d at 977 (discussing Java language and APIs in terms of their use in computer programming.); *See also* Motion for Summary Judgment for Defendant at *3, *Oracle Am., Inc., v. Google Inc.*, No. C 10-03561 WHA (N.D. Cal. May 31, 2011) (Google arguing that the Java language contains rules and functions that cannot be varied and must be used in specific ways).

¹⁵ *See Oracle Am.*, 872 F. Supp. 2d at 981. The court stating “if someone wants to implement a particular function, the declaration specification can only be written in one way.”; *see also* Opening Expert Report of Dr. Owen Astrachan at *22, *Oracle Am., Inc., v. Google Inc.*, 3:10-cv-03561-WHA (2011) 2011 Misc. Filings LEXIS 585 (explaining the importance of method names contained within Java APIs and how programmers must know the exact names of the methods in order to call on their function within a program otherwise an imprecise name will result in an error.)

¹⁶ Brief for Petitioner Re: Copyright Issues at *13, *Oracle Am., Inc., v. Google Inc.*, 2012 U.S. Dist. Ct. Briefs LEXIS 1258 (Oracle stating that Google admitted that the Android specifications for the APIs had substantial similarities to the Java APIs at issue.); Stephen McJohn, *Top Tens in 2012: Patent, Trademark, Copyright and Trade Secret Cases*, 11 NW. J. TECH. & INTELL. PROP. 173, 205 (2013).

¹⁷ *Oracle Am.*, 872 F. Supp. 2d at 979.

the impact that the Oracle decision will have on the computer programming industry now that the Federal Circuit has ruled that APIs fall under the protection of copyright and that fair use is a valid affirmative defense. Part III provides a proposal that an abstract filtration test should be adopted when assessing the copyrightability of APIs. Part IV provides a conclusion that ultimately the Supreme Court, if the issue is presented before them, should adopt the abstraction filtration test when assessing API copyrightability.

II. BACKGROUND

A. Copyright Protection: Functional and Non-Functional Elements

Copyright protection is rooted in the United States Constitution, with a guideline for establishing copyright protection through one of Congress' enumerated powers.¹⁸ The Copyright Act of 1976, set forth the rights of copyright owners.¹⁹ It was later amended to incorporate copyright protection for television and computers.²⁰

The subject matter entitled to copyright protection is "in original works of authorship fixed in any tangible medium of expression".²¹ A pivotal case in copyright law is *Baker v. Selden*.²² There, the Supreme Court held that copyright protection extends only to creative expressions and not to methods of operation or functional expressions.²³ Courts cite these principles to determine whether a work is a copyright-protectable creative expression, or a patent-protectable function or method.²⁴ *Baker* set a foundation for future cases, stating "recognition that excluding systems, methods,

¹⁸ U.S. Const. art. I, § 8, cl. 8 ("to 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 17 U.S.C. § 106 (1976).

²⁰ L. Ray Patterson, *Free Speech, Copyright, and Fair Use*, 40 VAND. L. REV. 1, 10 (1987) (discussing how the confusion of copyright laws in the courts played a part in incorporating new technologies into the Copyright Act of 1976. There was a clear issue with applying old law to new technology).

²¹ 17 U.S.C. § 102 (1976).

²² See generally *Baker v. Selden*, 101 U.S. 99, 103 (1879).

The copyright of a work on mathematical science cannot give to the author an exclusive right to the methods of operation which he propounds, or to the diagrams which he employs to explain them, so as to prevent an engineer from using them whenever occasion requires. The very object of publishing a book on science or the useful arts is to communicate to the world the useful knowledge which it contains. But this object would be frustrated if the knowledge could not be used without incurring the guilt of piracy of the book.

Id.

²³ The Court in *Baker* held:

The description of the art in a book, though entitled to the benefit of copyright, lays no foundation for an exclusive claim to the art itself. The object of the one is explanation; the object of the other is use. The former may be secured by copyright.

The latter can only be secured, if it can be secured at all, by letters-patent.

Baker, 101 U.S. at 105.

²⁴ *Oracle Am., Inc. v. Google Inc.*, 750 F.3d 1339, 1355 (Fed. Cir. 2014), *cert.denied*, 135 S.Ct. 2887 (2015).

and useful arts from the scope of copyright's protection not only promotes the ongoing progress of science (that is, knowledge creation and dissemination), but also promotes ongoing innovation and competition in the marketplace."²⁵ *Baker* also distinguished the use of patents and copyrights in obtaining protection for an exclusive right to an art, manufacture, or invention.²⁶

The Court in *Baker* continued by stating that "the description of the art in a book, though entitled to . . . copyright, lays no foundation for an exclusive claim to the art itself. The object of the one is explanation; the object of the other is use. The former may be secured by copyright, the latter . . . by letters-patent."²⁷

To show ownership of the copyright, the petitioner must show proof of originality and that the work was entitled to copyright protection.²⁸ For the owner of a copyright to show that their work was infringed upon they must satisfy several elements.²⁹ The copyright owner: 1) must show that they have ownership of the valid copyright, and 2) that actual copying of integral elements of the work that are original occurred.³⁰ In order to find that an infringement occurred, there must be a substantial copying of copyrighted material.³¹ Though copyright owners have many rights and protections available to them, when an individual infringes on that copyright that individual can plead an applicable affirmative defense, such as fair use.

In *Lotus Dev. Corp. v. Borland Int'l*, the court held that no copyright infringement occurred when a competitor copied a menu command hierarchy into their computer program to make it compatible with Lotus' program, because the menu was a method of operation that was not entitled to copyright protection.³² In *Sony Computer Entertainment, Inc. v. Connectix Corp.*, the court held that a fair use occurred when object code containing functional expressions not entitled to copyright protection, was copied to develop a compatible gaming system.³³

The court in *Computer Assocs. Int'l v. Altai*, followed a three-step abstract-filtration procedure to test for substantial similarity for computer programs and their non-literal elements.³⁴ The procedure is used in an effort to sift out all non-protected material and compare what is left to see if an infringement occurred.³⁵ The first step is referred to as abstraction.³⁶ Abstraction analyzes a computer from its lowest level

²⁵ Pamela Samuelson, *Frontiers of Intellectual Property: Why Copyright Law Excludes Systems and Processes from the Scope of Its Protection*, 85 TEX. L. REV. 1921, 1934 (2007); See also Ben Depoorter, *Technology And Uncertainty: The Shaping Effect on Copyright Law*, 157 U. PA. L. REV. 1831, 1841 (2009) (discussing how copyright laws cannot keep up with all of the technological changes and how the unpredictable nature of innovation and technology makes it difficult for lawmakers to write laws in anticipation of new technologies).

²⁶ *Baker*, 101 U.S. at 103.

²⁷ *Id.* at 105.

²⁸ See *Eng'g Dynamics, Inc. v. Structural Software, Inc.*, 26 F.3d 1335, 1340 (5th Cir. 1994).

²⁹ *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 361 (1991).

³⁰ See *Id.* (holding that copyright infringement did not occur when the defendant published a directory composed of information taken from the white pages by the petitioner).

³¹ *Id.* at 360.

³² *Lotus Dev. Corp. v. Borland Int'l*, 49 F.3d 807, 810, 819 (1st Cir. 1995).

³³ *Sony Computer Entertainment, Inc. v. Connectix Corp.*, 203 F.3d 596, 608 (9th Cir. 2000).

³⁴ *Computer Assocs. Int'l v. Altai*, 982 F.2d 693, 706 (2d Cir. 1992) (setting out a three part procedure to analyze substantial similarity for purposes of copyright infringement issues.)

³⁵ *Id.*

³⁶ *Id.*

to its highest level, ultimately arriving at the main function of the program.³⁷ The second step is filtration.³⁸ Filtration is used to examine whether the “structural components” were included as “idea” or were “dictated by considerations of efficiency.”³⁹ Filtration serves the purpose of “defining the scope of the plaintiff’s copyright.”⁴⁰ The final step is comparison.⁴¹ The analysis at this point will dive into whether the defendant copied what was left over after the first two steps were completed, which is held to be the core of what is protectable expression, and assess how important the alleged copyrighted material is to the plaintiff’s program.⁴²

B. Fair Use as an Affirmative Defense to Copyright Infringement

In some cases, a minimal amount of copying has constituted a fair use of the original work.⁴³ A court also assesses fairness by looking to see if the use is transformative.⁴⁴ Transformative works further the goal of copyright, as they promote innovation.⁴⁵

Courts must decide if the alleged protected matter falls under copyright protection before they can even get to the question of an affirmative defense of fair use.⁴⁶ Courts have struggled with the fair use doctrine in copyright matters.⁴⁷ According to NIMMER, fair use has two distinct interpretations in the copyright world.⁴⁸ One interpretation is that it is viewed as an equitable rule of reason.⁴⁹ The other is that fair use can either

³⁷ *Id.* at 707 holding that:

At the lowest level of abstraction, a computer program may be thought of in its entirety as a set of individual instructions organized into a hierarchy of modules. At a higher level of abstraction, the instructions in the lowest-level modules may be replaced conceptually by the functions of those modules. At progressively higher levels of abstraction, the functions of higher-level modules conceptually replace the implementations of those modules in terms of lower-level modules and instructions, until finally, one is left with nothing but the ultimate function of the program.

Id.

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Computer Assocs. Int’l*, 982 F.2d at 707.

⁴¹ *Id.* at 710

⁴² *Id.*

⁴³ *Id.* at 715.

⁴⁴ *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 579 (1994) (discussing that under the first of the four § 107 factors):

‘The purpose and character of the use, including whether such use is of a commercial nature’ . . . the enquiry focuses on whether the new work merely supersedes the objects of the original creation, or whether and to what extent it is ‘transformative,’ altering the original with new expression, meaning, or message. The more transformative the new work, the less will be the significance of other factors, like commercialism, that may weigh against a finding of fair use.

⁴⁵ *Id.*

⁴⁶ 2 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 12 [14][III] (1958) [hereinafter NIMMER].

⁴⁷ *Id.*

⁴⁸ NIMMER, *supra* note 46, at § 12 [14][III].

⁴⁹ *See Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1522 (9th Cir. 1992); *see also* L. Ray Patterson: *Free Speech, Copyright, and Fair Use*, 40 VAND. L. REV. 1, 40 (1987) (discussing the evolution of the fair use doctrine and how it is no longer competitive in nature as it now applies to

be viewed as an excusable technical infringement or as no infringement where there was no copyright protection.⁵⁰ The fair use doctrine is a mixed question of law and fact.⁵¹ A fair use defense is determined on a case-by-case basis.⁵² Courts look at four factors when determining if fair use applies.⁵³ The four 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 upon the original work.”⁵⁴ Courts are generally free to consider the public benefit of an alleged copyright infringement use for a material when analyzing a fair use defense, though the infringer may have commercial gain from the use.⁵⁵ Courts in the past have held that a commercial use does not necessarily block a finding of fair use.⁵⁶

In *Campbell v. Acuff-Rose Music, Inc.*, the Court held that a parody rap version of a popular song constituted fair use.⁵⁷ The Court analyzed the first and fourth elements of fair use, finding that even if there was a commercial aspect involved, the copying of the lyrics was not excessive in light of the song’s purpose. Further, the parody rap version is a transformative use of the original because the artists wrote and produced a distinctive song.⁵⁸

The court in *Sega Enters. v. Accolade, Inc.*, held that a fair use occurred when Accolade used reverse engineering to get to the initialization code of a game, which the court ruled was a functional feature and not entitled to copyright protection.⁵⁹ In addition, Sega failed to prove that the product feature Accolade copied was non-functional.⁶⁰ Computer programmers as a general practice comply with the

both consumers as well as competitors. He goes on and describes it as a “free floating doctrine of equitable reason.”)

⁵⁰ NIMMER, *supra* note 48, at § 12 [14][II].

⁵¹ See *Sega Enters.*, 977 F.2d at 1522 (holding that, “where the district court has found facts sufficient to evaluate each of the statutory factors, an appellate court may resolve the fair use question as a matter of law.”).

⁵² *Oracle Am.*, 750 F.3d at 1373.

⁵³ 17 U.S.C. § 107 (1976) (using the following factors to determine if the use is fair: “(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 upon the original work”).

⁵⁴ *Id.*

⁵⁵ See *Sega Enters.*, 977 F.2d at 1523 (discussing that public benefit that comes from using a copyright and how the public benefit may be weighed against any commercial gain in an analysis for a finding of fair use, regardless of whether the intended public use was tangible or intangible, as long as it serves a public interest).

⁵⁶ *Campbell*, 510 U.S. at 587.

⁵⁷ *Id.*

⁵⁸ *Id.* at 579 (discussing transformative use in a fair use context and that the degree of how transformative a work is matters in terms of how other factors will weigh against a finding of fair use such as commercialism).

⁵⁹ See *Sega Enters.*, 977 F.2d at 1531; see also *Oracle Am., Inc. v. Google Inc.*, 872 F. Supp. 2d 974, 1000 (N.D. Cal. 2012) (holding that: “the Ninth Circuit decisions in *Sega* and *Sony*, although not on all fours, are close analogies. Both decisions held that interface procedures that were necessary to duplicate in order to achieve interoperability were functional aspects not copyrightable under Section 102(b).”) *Contra Eng’g Dynamics, Inc. v. Structural Software, Inc.*, 26 F.3d 1335 (5th Cir. 1994) (holding that computer interfaces, in the form of input and output formats, were entitled to copyright protection because plaintiff showed that a creative endeavor was put into expressive content in selecting, sequencing, and coordinating inputs).

⁶⁰ See *Oracle Am.*, 872 F. Supp. 2d at 982; see also *Sega Enters.*, 977 F.2d at 1531 (explaining that *Sega*, bearing the burden to prove non-functionality, failed to prove that their sequencing code used by *Accolade* was not necessary in ensuring that *Accolade*’s cartridges would work on *Sega*’s consoles.).

compatibility requirements of other programs, in an effort to promote interoperability and innovation.⁶¹

In *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, the court held that just because an entire work is copyrightable, it does not grant copyright protection to every element contained in the work, thus providing a thin veil of copyright protection for factual compilations.⁶² The Court in *Feist* held that an individual was free to use the same facts contained in another's publication in order to prepare their own competing work as long as the competing work did not contain the same selection and arrangement of the copied work.⁶³ However, facts are not copyrightable.⁶⁴ Google, in using Oracle's APIs argued that there was only one way to call on certain functions, which is why they copied the thirty-seven API package, similar to the theory that facts cannot be copyrighted.⁶⁵

Google, in utilizing Oracle's APIs, allowed programmers to write programs with a uniform way of calling on methods for Java and Android in an effort to promote interoperability and to further the public benefit.⁶⁶

C. *Google v. Oracle*

Case law in the past had not provided much guidance on the copyrightability of APIs. Oracle initially lost its case against Google in a district court decision in 2012, which held that APIs were not entitled to copyright protection.⁶⁷ The district court's decision provided an in-depth scientific analysis as to why Java's APIs were purely functional. In addition, it went further to provide an explanation of what function APIs played in computer programs.⁶⁸

The district court decision in *Oracle* was a matter of first impression and the court relied heavily on *Baker*.⁶⁹ In *Baker*, the Supreme Court held that a book about a book-keeping system was copyright-protectable, but the system itself was not. The Court held that a copyright holder should not be able to exclude others from using a method

⁶¹ See *Computer Assocs. Int'l*, 982 F.2d at 709-10 (holding that "a programmer's freedom of design choice is often circumscribed by extrinsic considerations such as . . . compatibility requirements of other programs with which a program is designed to operate in conjunction[,] . . . demands of the industry being serviced[,] and . . . widely accepted programming practices within the computer industry.").

⁶² *Feist Publ'ns, Inc.*, 499 U.S. at 348 (holding that originality is key to copyright and copyright protection extends only to the elements of a work that are original regardless if the entire work is copyrighted).

⁶³ *Id.* at 349.

⁶⁴ *Id.* at 350.

⁶⁵ *Oracle Am.*, 872 F. Supp. 2d at 998.

⁶⁶ Motion for Summary Judgment for Defendant at *26, *Oracle Am., Inc., v. Google Inc.*, 3:10-cv-03561-WHA (2011) (Google claiming that "it would be 'absurd' to require that Android use . . . different names than Oracle did for common mathematical methods, or for Android to group mathematical methods in different packages than Oracle did").

⁶⁷ See *Oracle Am.*, 872 F. Supp. 2d at 1000 (holding that the Java API packages used by Google qualified as a functional system or command structure under 17 U.S.C. § 102(b) and were not entitled to copyright protection thus dismissing Oracle's copyright claims. The jury in the district case also dismissed Oracle's patent infringement claims against Google).

⁶⁸ *Id.* at 998.

⁶⁹ *Id.* at 984-985.

of operation.⁷⁰ Similarly, in *Oracle*, Judge Alsup stated that a code could be protected as an expression, but the method or function carried out by the code could not be.⁷¹

The district court in *Oracle* initially dismissed the copyright claim holding that APIs were a method of operation and thus, not entitled to copyright protection for a number of reasons.⁷²

Oracle argued that the “overall system of organized names” were a taxonomy and thus, entitled to copyright protection.⁷³ A taxonomy is a “way of describing items in a body of knowledge or practice; it is not a collection or compilation of bits and pieces of ‘reality.’”⁷⁴ This was key to Oracle’s claim that the APIs were entitled to copyright protection because they were not purely functional and contained an expressive element.⁷⁵

In *Oracle*, at the district court level, the case produced a hung jury as to Google’s fair use defense based on jury instructions that instructed the jury to assume that APIs were copyrightable.⁷⁶ Oracle had to prove to the court that they owned the copyright on the APIs that Google used and that the APIs were not purely functional.⁷⁷

Oracle appealed the district court’s decision regarding copyrightability and the decision was later overturned at the appellate level.⁷⁸ The Federal Circuit was the first to rule on the issue of the copyrightability of APIs.⁷⁹

After the Federal Circuit’s ruling, Google applied for a writ of certiorari to the Supreme Court, which was subsequently denied.⁸⁰ The Federal Circuit, which held that APIs are indeed copyrightable, remanded the case back down to the district court level for a ruling on Google’s fair use defense in using Oracle’s APIs.⁸¹ The Supreme Court has been silent on whether copyright protection extends to functionality in software directly in the *Oracle* case as well as many other cases.⁸²

The Federal Circuit court in *Oracle* disagreed with the district court and held “given . . . that the declaring code could have been written and organized in any number of ways and still have achieved the same functions, we conclude that Section

⁷⁰ *Baker*, 101 U.S. at 99.

⁷¹ See *Oracle Am.*, 872 F. Supp. 2d at 976 (holding that “when there is only one way to express an idea or function, then everyone is free to do so and no one can monopolize that expression”).

⁷² *Id.* at 974.

⁷³ *Id.* at 999.

⁷⁴ *ADA v. Delta Dental Plans Ass’n*, 126 F.3d 977, 980 (7th Cir. 1997) (holding taxonomies to be entitled to copyright protection as an original literary work).

⁷⁵ *Oracle Am.*, 750 F.3d at 1359.

⁷⁶ See *Oracle Am.*, 872 F. Supp. 2d at 975.

⁷⁷ *Oracle Am.*, 750 F.3d. at 1339.

⁷⁸ See *id.* at 1381 (holding that “the thirty-seven API packages were entitled to copyright protection” because even an original work that qualifies as a set of commands or acts like a series of instructions is entitled to copyright protection if the person using the material had more than one way to communicate the primary idea).

⁷⁹ *Id.*

⁸⁰ *Oracle Am., Inc. v. Google Inc.*, 135 S.Ct. 2887 (2015).

⁸¹ *Oracle Am.*, 750 F.3d at 1381.

⁸² See *Lotus Dev. Corp. v. Borland Int’l*, 49 F.3d 807, 815 (1st Cir. 1995) (holding that the menu command hierarchy was not copyrightable because it was a method of operation, which does not enjoy the protection of copyright). See also *Lotus Dev. Corp. v. Borland Int’l*, 516 U.S. 233 (1996) (affirming the appellate court’s holding).

102(b) does not bar the packages from copyright protection just because they also perform functions.”⁸³

On remand at the district court level, the jury unanimously held in Google’s favor holding that Google had made fair use of the copyrighted APIs in its Android Mobile platform.⁸⁴ During the trial Google made a public announcement that it would soon run applications it made for Android on its Chromebook laptops.⁸⁵

III. ANALYSIS

A. Oracle’s Copyright Claim

Oracle claimed that Google infringed on certain copyrights owned by Oracle in the Java platform in Google’s Android system.⁸⁶ Oracle described the APIs as “blueprints for the design of Java core class libraries.”⁸⁷ The Copyright Act of 1976, in extending copyright protection to television and computers, did not clarify the exactly what computer aspects were covered by the Act.⁸⁸

Oracle had the burden of proof to show that Google infringed their copyright by first showing ownership.⁸⁹ Not only that they owned the copyright but also that the APIs were not purely functional.⁹⁰ The difficulty in this was that this was a case of first impression and copyright protection did not exist for APIs.⁹¹ Next, Oracle had to show that Google actually copied fundamental aspects of the APIs into their Android platform for their mobile smartphones.⁹² Oracle was successful in showing that the

⁸³ *Id.* at 1367-1368 (holding that APIs are subject to copyright protection and the fact that they might be functional in nature does not preclude their right to copyright protection because they still contain a creative expression).

⁸⁴ Ross Todd, *Alsop Muses on New Trials In Oracle v. Google*, (August 22, 2016) The Recorder, pg. 1 Vol. 140 No. 34; *see also* Oracle Am., Inc. v. Google Inc., 2016 WL 4409233 (N.D.Cal. 2011).

⁸⁵ *Id.*

⁸⁶ Complaint at 4, Oracle America Inc., v. Google, Inc., 3:10-cv-03561-WHA (2010) U.S. Dist. Ct. Pleadings LEXIS 11288 (Oracle stating that Google infringed Oracle’s Java copyrights by reproducing and distributing Android and inducing others to reproduce and distribute Android which contained the alleged copied code from Java).

⁸⁷ Brief of Petitioner at 2, Case No. Oracle Am., Inc., v. Google Inc., 3:10-cv-03561-WHA (2012), 2012 U.S. Dist. Ct. Briefs LEXIS 1258 (Oracle stated that the APIs were akin to “an extraordinarily complex, intricate structure of hierarchy and interdependency, painstakingly designed by Sun engineers over years of effort”).

⁸⁸ L. Ray Patterson, *Free Speech, Copyright, and Fair Use*, 40 VAND. L. REV. 1, 10 (1987) [hereinafter Patterson].

⁸⁹ *Feist Publ’ns, Inc.* 499 U.S. at 361.

⁹⁰ *Oracle Am., Inc.*, 872 F. Supp. 2d at 998; *see also Sega Enters.*, 977 F.2d at 1531 (holding that Sega had the burden of proof of showing that the initialization sequence used by Accolade to develop compatible game cartridges was not a purely functional procedure and thus entitled to copyright protection which it failed to do).

⁹¹ *Oracle Am., Inc.*, 872 F. Supp. 2d at 987.

⁹² *Id.* at 983.

nine lines of code had been copied, however, the argument that the APIs were creative in nature rather than functional was interpreted differently by the two courts.⁹³

B. Oracle's Patent Claim

During the district court case, there were both patent and copyright claims for the jury to decide. A patent can generally be obtained on “any new and useful process, machine, manufacture or composition of matter, or any new and useful improvement thereof.”⁹⁴ A patentable method is “any orderly procedure or process, regular way or manner of doing anything, or set form of procedure adopted in investigation or instruction.”⁹⁵ In order to obtain a patent, an individual must first apply for the patent to the Patent Office at which point the invention will be examined by the office, and if the correct procedures and substantive requirements have been met, a patent will then be issued.⁹⁶

The Court in *Baker* held that protecting a method under copyright frustrates the very theory behind the law of copyright and that is why the law of patent is an option for one seeking an exclusive right to their invention.⁹⁷ Lawful monopolies can be created through the use of obtaining patents, which Oracle held on various components of Java.⁹⁸ Allowing a monopoly on APIs would be dangerous to the world of software programming and would force programmers to re-create already good code.⁹⁹ Oracle claimed infringement of several method patents, however, the jury in Oracle found no patent infringement on Google's use of the thirty-seven API package in creating their Android platform and the patent claims were dismissed.¹⁰⁰

⁹³ Compare *Oracle Am., Inc. v. Google Inc.*, 872 F. Supp. 2d 998 (N.D. Cal. 2012) (holding that functional elements are not entitled to copyright protection and the APIs in question, in an effort to promote interoperability, were functional), with *Oracle Am., Inc. v. Google Inc.*, 750 F.3d 1339, 1368(Fed. Cir. 2014), holding that:

Given the court's findings that the SSO is original and creative, and that the declaring code could have been written and organized in any number of ways and still have achieved the same functions, we conclude that Section 102(b) does not bar the packages from copyright protection just because they also perform functions.

Id.

⁹⁴ 1-1 DONALD S. CHISUM, CHISUM ON PATENTS § 1.01 (2015).

⁹⁵ See *id.* § 1.03.

⁹⁶ Pamela Samuelson, *Frontiers of Intellectual Property: Why Copyright Law Excludes Systems and Processes from the Scope of Its Protection*, 85 TEX. L. REV. 1921, 1973 (2007).

⁹⁷ *Baker*, 101 U.S. at 102.

⁹⁸ *Oracle Am.*, 872 F. Supp. 2d at 998.

⁹⁹ Julie Samuels, *Oracle v. Google and the Dangerous Implications of Treating APIs as Copyrightable* (May 7, 2012) <https://www.eff.org/deeplinks/2012/05/oracle-v-google-and-dangerous-implications-treating-apis-copyrightable> (arguing that “allowing a party to assert control over APIs means that a party can determine who can make compatible and interoperable software . . . put clearly, the developer of a platform should not be able to control add-on software development for that platform”).

¹⁰⁰ *Oracle Am.*, 872 F. Supp. 2d at 976.

C. APIs and Copyright Protection: A Matter of First Impression

There seems to be some uncertainty in the courts as to what falls under patent protection and what falls under copyright protection.¹⁰¹

An important factor to be determined first is what function APIs play in computer programs.¹⁰² APIs by definition are regarded as a method of operation or a function.¹⁰³ The present copyright laws are insufficient and unclear when it comes to keeping up with technological advances, and computer programs specifically, which opens the doors for cases such as *Oracle*.¹⁰⁴ APIs are used by computer programmers to make their programs interact with others.¹⁰⁵ Society relies on the interoperability of technological gadgets to work together and create a seamless web and mobile platform experience.¹⁰⁶

The Federal Circuit court in *Oracle* went in the opposite direction on the theory of copyrightability and APIs, and their decision may prove to be extremely negative for computer programmers.¹⁰⁷ The Federal Circuit court in *Oracle* held “an original work—even one that serves a function—is entitled to copyright protection as long as the author had multiple ways to express the underlying idea.”¹⁰⁸ The Federal Circuit in *Oracle* granted patent-like protection to a method of operation when it held that APIs were subject to copyright protection.¹⁰⁹

¹⁰¹ *Computer Assocs. Int'l*, 982 F.2d at 696 (commenting on courts trying to keep up with the area of computer technology in how it relates to copyright laws and how often times courts are being forced into unfamiliar waters); see also Patterson, *supra* note 88, at 9-10 (“because the issue of copyright as property or regulation remains unresolved, courts have treated copyright as both, sometimes as one, sometimes as the other”). Patterson goes further to discuss the impact this has had on copyright’s relevance to free speech and the function of the fair use doctrine. *Id.*

¹⁰² *Oracle Am.*, 872 F. Supp. 2d at 977.

¹⁰³ See *id.* at 976-77 (holding that APIs are considered functional in nature and not entitled to copyright protection).

¹⁰⁴ Michael A. Carrier, *The 2012 Randolph W. Thorer Symposium Innovation for the Modern Era: Law, Policy, and Legal Practice in a Changing World: Article Increasing Innovation Through Copyright Common Sense and Better Government Policy*, 62 EMORY L.J. 983, 984 (2013) (discussing that vague copyright laws harm innovation and that vague copyright laws may potentially increase the amount of copyright lawsuits and threat of lawsuits involving copyright infringement).

¹⁰⁵ Julie Samuels, *Oracle v. Google and the Dangerous Implications of Treating APIs as Copyrightable* (May 7, 2012), <https://www.eff.org/deeplinks/2012/05/oracle-v-google-and-dangerous-implications-treating-apis-copyrightable>.

¹⁰⁶ See Brian Proffitt, *What APIs Are And Why They’re Important*, READWRITE (Sept. 19, 2013) <http://readwrite.com/2013/09/19/api-defined>, writing that:

APIs make possible a sprawling array of Web-service “mashups,” in which developers use mix and match APIs from the likes of Google or Facebook or Twitter to create entirely new apps and services. In many ways, the widespread availability of APIs for major services is what’s made the modern Web experience possible.

Id.

¹⁰⁷ Julie Samuels, *Oracle v. Google and the Dangerous Implications of Treating APIs as Copyrightable* (May 7, 2012), <https://www.eff.org/deeplinks/2012/05/oracle-v-google-and-dangerous-implications-treating-apis-copyrightable> (discussing that APIs are purely functional, and, further, that copyright protection for APIs may tie up interoperability functionality that computer programmers rely on everyday to create new programs and applications).

¹⁰⁸ *Oracle Am.*, 750 F.3d at 1367.

¹⁰⁹ See *Oracle Am.*, 872 F. Supp. at 984 (discussing the holding in *Baker v. Selden*, in which the court held that exclusive rights to methods would only be granted in patent law which requires an investigation by the Patent Office before obtaining a patent from the government); *But cf. Oracle Am.*,

The abstract-filtration-comparison test that was presented in *Computer Assocs. Int'l.*, was mentioned by both the district and appellate courts, but neither court really applied the steps in an effort to weed out the non-literal elements of the Java program in their analysis.¹¹⁰ The abstraction-filtration-comparison test allows courts to go through a three-step process to strip away portions of contested copyrighted material, and compare the remaining creative product with its alleged infringing counterpart.¹¹¹ At the first level of the test, the abstraction phase, the court analyzes the computer program at issue and breaks it down into its structural components.¹¹² At the filtration step, the court sifts out all non-protectable material, including ideas and expression that is necessarily incidental to those ideas.¹¹³ In the last step, comparison, the court compares the left over material consisting of the creative expression in the program with the infringing product.¹¹⁴ Instead of adopting a bright-line rule in assessing the copyrightability of parts of computer programs, the abstraction-filtration-comparison test allows for a case-by-case dissection of the components of the computer program at issue.¹¹⁵ This case-by-case distinction allows courts to keep up with the ever-changing technology of today's world, instead of applying a blanket rule that does not apply to all computer programs.

The controversy which was presented in *Oracle* was much closer to that which was resolved by the holding in *Lotus*, that a functional computer menu command hierarchy was not entitled to copyright protection. However, with the Federal Circuit's ruling, computer programmers must now be prepared to show why a finding of fair use show be found if they make use of any copyrightable APIs in the future.¹¹⁶ Extending copyright protection to APIs and Google's win on a fair use claim provides hope for the computer programming industry, but that may come with quite a hefty price tag for some developers.¹¹⁷

D. Google's Fair Use Defense

From the beginnings of copyright there has been some opportunity for the defense of fair use.¹¹⁸ Generally, a fair use defense is quite expensive to litigate, which may

750 F.3d at 1380 (discussing the main point of the CONTU report is that "copyright is 'the most suitable mode of legal protection for computer programs'").

¹¹⁰ *Oracle Am.*, 750 F.3d at 1377.

¹¹¹ *Id.* at 1357.

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ See *Lotus Dev. Corp.*, 49 F.3d at 817-18 (holding that "the fact that there may be many different ways to operate a computer program. . . . does not make the actual method of operation chosen copyrightable; it still functions as a method for operating the computer and as such is uncopyrightable"); see Raza Panjwani, *Google v. Oracle Fair Use Victory: How Did We Get Here?* (May 27, 2016), available at <https://www.publicknowledge.org/news-blog/blogs/google-v-oracle-fair-use-victory-how-did-we-get-here>.

¹¹⁷ *Id.*

¹¹⁸ See *Campbell*, 510 U.S. at 575 stating that "from the infancy of copyright protection, some opportunity for fair use of copyrighted materials has been thought necessary to fulfill copyright's very purpose, to promote the Progress of Science and useful Arts" U.S. Const., art. I, § 8, cl. 8.

prevent smaller software companies from pursuing this defense against big name companies.¹¹⁹

In the first trial at the district court level, Google did not dispute that that they had copied the exact names and the exact functions of Oracle's thirty-seven API packages, but rather that the APIs were not copyrightable and if they were there was an applicable fair use.¹²⁰ Google made a strong showing as to the necessity of using those specific APIs, as they were necessary to make Android compatible with Java.¹²¹ Java is made up of keywords, symbols, and pre-written programs that include APIs, whose function is to carry out a myriad of commands.¹²² These are the APIs that must be written in a certain way for the command to function.¹²³

At the district court level, Google argued that while it did copy the APIs, the use was transformative.¹²⁴ Oracle on the other hand, stated that Google's use was not transformative as the Android platform allowed programmers to invoke pre-programmed functions in the same way Java does rather than having the programmer write the code from scratch.¹²⁵ Oracle claimed that this was not a transformative use because "Android does not serve an entirely different function from Java."¹²⁶

Oracle's standpoint was that APIs do not qualify as methods of operation and are much more complex and expressive.¹²⁷ The expressive element would give APIs copyright protection and redefine them as non-functional as they would not be classified as a method of operation.¹²⁸ Google argued that the APIs were functional and that their use was necessary and unavoidable in order to develop a program that would be compatible with the Java Language.¹²⁹ Google had to use the specific APIs in order to create a program that would be compatible and interoperable with others.¹³⁰

¹¹⁹ Michael Barclay and Corynne McSherry, *Bad News: Supreme Court Refuses to Review Oracle v. Google API Copyright Decision* (June 29, 2015), <https://www.eff.org/deeplinks/2015/06/bad-news-supreme-court-refuses-review-oracle-v-google-api-copyright-decision>.

¹²⁰ *Oracle Am.*, 872 F. Supp. 2d at 977.

¹²¹ Google's Motion for Summary Judgment On Oracle's Copyright Infringement Claim at 16, *Oracle Am., Inc., v. Google Inc.*, 3:10-cv-03561-WHA (2011).

¹²² *Oracle Am., Inc.*, 872 F. Supp. 2d at 977.

¹²³ *Id.*

¹²⁴ Google's Motion for Summary Judgment On Oracle's Copyright Infringement Claim at 20, *Oracle Am., Inc., v. Google Inc.*, 3:10-cv-03561-WHA (May 31, 2011).

¹²⁵ Response and Reply Brief of Plaintiff-Appellant at 47, *Oracle Am., Inc., v. Google Inc.*, No. 2013-1021, 1022, 3:10-cv-03561-WHA (2013).

¹²⁶ *Id.* at 47.

¹²⁷ Brief of Petitioner at 29, Case No. *Oracle Am., Inc., v. Google Inc.*, 3:10-cv-03561-WHA (2012), 2012 U.S. Dist. Ct. Briefs LEXIS 1248 (stating that "the Java programming language provides many options that facilitate expressive, copyrightable API design").

¹²⁸ 17 U.S.C. § 102(b)(1976).

¹²⁹ See *Oracle Am.*, 872 F. Supp. 2d at 979 (stating that "comparing the 37 Java and Android packages side by side, only three percent of the lines of code are the same. The identical lines are those lines that specify the names, parameters and functionality of the methods and classes, lines called 'declarations' or 'headers'").

¹³⁰ See *Oracle Am., Inc.*, 872 F. Supp. 2d at 979, holding that:

The three percent of source code at issue includes "declarations." Significantly, the rules of Java dictate the precise form of certain necessary lines of code called declarations, whose precise and necessary form explains why Android and Java *must be* identical when it comes to those particular lines of code. That is, since there is only one-way to declare a given method functionality, everyone using that

Google admitted to copying nine lines of code, yet argued that the nine lines of code were headers and commands that were necessary to call on certain functions and to build the remainder of the program around.¹³¹

Google argued that Oracle was not economically deprived due to Google's implementation of the APIs into the Android platform.¹³² Despite Google's argument, the jury could not unanimously agree on a finding of fair use.¹³³

One of the main focuses of the second district court trial centered around the issue of whether Google made fair use of Oracle's APIs.¹³⁴ This time Google was successful in convincing the jury that it satisfied the four factors for an affirmative fair use defense. First, Google argued that its use of the thirty-seven API package was transformative, in that it paired the APIs with new implementing code, which was placed into a different context with additional API packages designed for its mobile platform, and then mixed the core libraries into a larger platform.¹³⁵ Second, Google maintained, that though the federal circuit granted copyright protection to APIs, there was a functional and practice use for the APIs in Java's programming language.¹³⁶ Third, the amount of copying was minimal.¹³⁷ Lastly, Google did not cause any harm or potential market harm to Oracle as Oracle failed in its modern mobile platform attempts.¹³⁸

Oracle has still not developed a mobile phone platform to date using Java.¹³⁹ Google offers the Android platform for free to smartphone manufacturers, thus they incur no economic gain from their software.¹⁴⁰ Google makes their money when consumers use certain functions via advertisements on their smartphone.¹⁴¹ Java is such a widely used computer programming language that many would be unwilling to spend the time or effort to learn a new programming language or set of APIs.¹⁴² Using Java's APIs in the Android platform was driven by industry demand.¹⁴³

function must write that specific line of code in the same way. The same is true for the "calls," the commands that invoke the methods.

Id.

¹³¹ *Id.*

¹³² 17 U.S.C. § 107; *see also Oracle Am.*, 872 F. Supp. 2d at 978 ("the Android platform is provided free of charge to smart-phone manufacturers. Google receives revenue through advertisement whenever a consumer uses particular functions on an Android smart-phone.").

¹³³ *Oracle Am.*, 872 F. Supp. 2d at 975.

¹³⁴ Defendant's Trial Brief at 7, 9, *Oracle Am, Inc., v. Google Inc.*, No. 3:10-cv-03561 WHA (N.D. Cal. April 20, 2016) 2016 WL 2986341.

¹³⁵ *Id.* at 10.

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ *Oracle Am.*, 872 F. Supp. 2d at 978, (Oracle had not developed a smartphone using the Java program at the time Google launched its new creation, and thus any market impact would have been minimal).

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² Opening Expert Report of Dr. Owen Astrachan at ¶137, ¶139, *Oracle Am., v. Google, Inc.*, 3:10-cv-03561-WHA (2011), 2011 Misc. Filings LEXIS 585.

¹⁴³ *Id.*

Google made fair use of Oracle's APIs by using the necessary APIs to call on certain methods commands that written differently would not function correctly.¹⁴⁴ Google's purpose was interoperability between Android and the Java platform.¹⁴⁵

E. The Future of Innovation and Creativity after Oracle v. Google

Granting copyright protection to APIs is no minor decision and it is one that has set the computer-programming world on edge.¹⁴⁶ Many programmers are apprehensive as to the possible negative effects of the precedent set in *Oracle v. Google*.¹⁴⁷ APIs can be found in so many facets of the technology we use everyday.¹⁴⁸ Holding that APIs are entitled to copyright protection may affect the interoperability of computer programs and hinder innovation in the field of computer programming, the use of which many computer programmers rely on daily in their work.¹⁴⁹

An unintended result of the Federal Circuit's decision in *Oracle* might be more litigation in the computer software world.¹⁵⁰ The Federal Circuit's decision may prompt programmers into taking it upon themselves to start suing people and small start-ups that used their APIs to make quick money in lawsuits, as has been done in the music industry.¹⁵¹ APIs are no longer a common language enabling computer programmers to be efficient and work quickly writing code for new projects.¹⁵²

¹⁴⁴ See *Sega Enters.*, 977 F.2d at 1513 (holding that using reverse engineering to develop computer games to work on a compatible gaming system owned by another company was fair use because copying functional elements of the other party's program was okay since the functional elements were not protected under the Copyright Act.); see also NIMMER, at § 12 [14][III](1958).

¹⁴⁵ See *Sega Enters.*, 977 F.2d at 1513 (holding that copying code in order to achieve compatibility was protected by the affirmative defense of fair use).

¹⁴⁶ Steven J. Vaughan-Nichols, *Copyrights, APIs, and Oracle vs Google* (May 8, 2012), <http://www.zdnet.com/article/copyrights-apis-and-oracle-vs-google/> (discussing the uncertainty that the software industry might face as a result of the recent decision in *Oracle v. Google*).

¹⁴⁷ *Id.*

¹⁴⁸ Julie Samuels, *Oracle v. Google and the Dangerous Implications of Treating APIs as Copyrightable* (May 7, 2012), <https://www.eff.org/deeplinks/2012/05/oracle-v-google-and-dangerous-implications-treating-apis-copyrightable>.

¹⁴⁹ Michael Barclay and Corynne McSherry, *Bad News: Supreme Court Refuses to Review Oracle v. Google API Copyright Decision* (June 29, 2015), <https://www.eff.org/deeplinks/2015/06/bad-news-supreme-court-refuses-review-oracle-v-google-api-copyright-decision>.

¹⁵⁰ See Julie Samuels, *Oracle v. Google and the Dangerous Implications of Treating APIs as Copyrightable* (May 7, 2012), available at <https://www.eff.org/deeplinks/2012/05/oracle-v-google-and-dangerous-implications-treating-apis-copyrightable> (Samuels discusses that finding APIs to be copyrightable could prove catastrophic for smaller companies if big companies choose to go after them for infringement after the recent holding in *Oracle v. Google* at the federal appellate level.)

¹⁵¹ Michael A. Carrier, *The 2012 Randolph W. Throver Symposium Innovation for the Modern Era: Law, Policy, and Legal Practice in a Changing World: Article Increasing Innovation Through Copyright Common Sense and Better Government Policy*, 62 EMORY L.J. at 984 (2013) (Carrier discussing how vague copyright laws are used in the music industry by record labels as a business model and that "Lawsuits have a chilling effect, especially when employed against start-ups that lack the resources to counter the labels' 'billions of dollars and hundreds of lawyers.'")

¹⁵² See Brian Proffitt, *What APIs Are And Why They're Important* (Sep.19, 2013) READWRITE [http://readwrite.com/2013/09/19/api-defined\(explaining-how-apis-are-used-in-everyday-technology,-such-as-how-they-govern-how-computer-programmers-can-develop-new-applications-that-can-use-other-bigger-web-applications.-The-example-provided-is-that-a-Facebook-user-can-user-their-Facebook](http://readwrite.com/2013/09/19/api-defined(explaining-how-apis-are-used-in-everyday-technology,-such-as-how-they-govern-how-computer-programmers-can-develop-new-applications-that-can-use-other-bigger-web-applications.-The-example-provided-is-that-a-Facebook-user-can-user-their-Facebook)

Google's win on its fair use defense does provide some solace for computer programmers, but such suits are often expensive to litigate and many small companies cannot afford such suits.¹⁵³

Considering Google kept a key piece of evidence out of fair use trial, the controversy surrounding Oracle and its APIs may be far from over.¹⁵⁴ Oracle is expected to appeal the decision that Google made fair use of its APIs based on the evidence at trial surrounding Chromebooks.¹⁵⁵ Oracle may also file additional suits with other products that incorporate Android and Oracle's copyrighted matter such as "cars, TV setup boxes, and appliances."¹⁵⁶ A finding of fair use in these matters may be determined by a product-by-product basis.¹⁵⁷

IV. PROPOSAL

Copyright laws have a difficult task in trying to keep up with technology.¹⁵⁸ The Federal Circuit has made its ruling on the copyrightability of APIs, but that may not be the last time that issue is addressed if Oracle continues to file suits against Google on its use of APIs on various platforms including the now disclosed Chromebook laptops.¹⁵⁹

APIs should be entitled to copyright protected as decided by the Federal Circuit.¹⁶⁰ APIs are comprised of original and creative components and their functionality does not preclude them from being written in a variety of different ways to achieve the same outcome.¹⁶¹ However, both analyses by the district court and Federal Circuit reached opposite conclusions by a limited application of the abstract-filtration-comparison test. A more uniform method of applied the test should be adopted if the copyrightability of APIs is challenged in the future at the Supreme Court level.

An abstract-filtration test was adopted in *Computer Assocs. Int'l v. Altai*, which the district court applied somewhat and should be adopted if the question of

identification to log into other applications, such as Twitter or a similar type of social media site in order to use their features and this would not be possible without the use of APIs.)

¹⁵³ Raza Panjwani, *Google v. Oracle Fair Use Victory: How Did We Get Here?* (May 27, 2016), available at <https://www.publicknowledge.org/news-blog/blogs/google-v-oracle-fair-use-victory-how-did-we-get-here>.

¹⁵⁴ Mike Masnick, *Hold On...We May Actually Be In For A Third Oracle/Google API Copyright Trial*, (August 19, 2016), TechDirt, 2016 WLNR 25384909.

¹⁵⁵ Ross Todd and Scott Flaherty, *Google v. Oracle: The Work*, (July 1, 2016) The American Lawyer, pg. 28, Vol. 38, No.7.

¹⁵⁶ Ross Todd, *Alsup Muses on New Trials In Oracle v. Google*, (August 22, 2016) The Recorder, pg. 1 Vol. 140 No. 34.

¹⁵⁷ *Id.*

¹⁵⁸ *Computer Assocs.*, 982 F.2d at 696.

¹⁵⁹ Jeff John Roberts, *Judge Upholds Google's Win Over Oracle in \$9 Billion Trial Over APIs* (June 8, 2016), <http://fortune.com/2016/06/08/google-oracle-alsup/>. See Ross Todd, *Alsup Muses on New Trials In Oracle v. Google*, (August 22, 2016) The Recorder, pg. 1 Vol. 140 No. 34.

¹⁶⁰ *Oracle Am.*, 750 F.3d at 1381.

¹⁶¹ *Id.* at 1368.

copyrightability of APIs come up again.¹⁶² The future of APIs is still uncertain, as Oracle has stated it will file an appeal to Google's win on its fair use defense based on previously undisclosed evidence and may file future suits since Google's use of the APIs may now affect Oracle's market with the launch of Chromebook laptops.¹⁶³ The possibility of ending up at the doorstep Supreme Court is still viable.

Oracle claims that there are over nine million Java developers worldwide and that over three billion devices use Java technology.¹⁶⁴ Looking at these monumental numbers for Java developers, one can see the logic behind Google's decision to use Oracle's APIs to call on specific functions in Java in an effort to give developers for Android flexibility in use.¹⁶⁵

Google's use of Oracle's APIs was transformative under the fair use defense, in which Google used the APIs to create Android software for a mobile phone platform that was compatible with the Java programming language.¹⁶⁶ The APIs Google used were necessary functions to keep the compatibility and interoperability function alive for users between the Android software and the Java programming language.¹⁶⁷

In the event that *Oracle's* Federal Circuit decision granting copyright protection to APIs is challenged in the future, then a more uniform application of the abstract-filtration test coupled with the fair use factors must be employed to analyze if the defense applies.¹⁶⁸

Alternatively, computer programmers can also look to patent law to protect APIs if copyright protection is overturned in the future.¹⁶⁹ A patent can offer a computer programmer the exclusive right it seeks for its APIs after passing the scrutiny of the patent office.¹⁷⁰ Patent law grants an exclusive right over the patentee, however there

¹⁶² See *Computer Assocs. Int'l*, 982 F.2d at 706-710 (setting forth the abstract-filtration test in a detailed four-step analysis used to determine if the non-literal elements of two or more computer programs share substantial similarities to determine copyrightability).

¹⁶³ Ross Todd, *Alsop Muses on New Trials In Oracle v. Google*, (August 22, 2016) The Recorder, pg. 1 Vol. 140 No. 34.

¹⁶⁴ Oracle Announces Java 8, <http://oracle.com.edgesuite.net/timeline/java/> (last visited Jan. 25, 2016). Press release from Oracle providing numbers for how many people use Java technology, including how many devices run on Java and upcoming releases and products. *Id.*

¹⁶⁵ Answer to Amended Complaint for Defendant at 18 ¶ 16, *Oracle Am., Inc., v. Google Inc.*, 3:10-cv-03561-WHA (2010).

¹⁶⁶ *Id.* at 978.

¹⁶⁷ See *Oracle Am.*, 872 F. Supp. 2d at 978. The court stated, "as to the 37 packages at issue, Google believed Java application programmers would want to find the same 37 sets of functionalities in the new Android system callable by the same names as used in Java. Code already written in the Java language would, to this extent, run on Android and thus achieve a degree of interoperability." *Id.*

¹⁶⁸ *Sony Computer Entertainment, Inc. v. Connectix Corp.*, 203 F.3d 596, 608 (9th Cir. 2000) (holding that the fair use factors must be weighed together when examining matter of copyright.)

¹⁶⁹ Pamela Samuelson, *Frontiers of Intellectual Property: Why Copyright Law Excludes Systems and Processes from the Scope of Its Protection*, 85 TEX. L. REV. 1921, 1973 (2007) (discussing that courts need to exercise more care when extending copyright protection to ensure that functional writings do not receive "patent-like protection for technical innovations that might qualify for, but have not met, patent standards").

¹⁷⁰ *Baker*, 101 U.S. at 102 (holding "the claim to an invention or discovery of an art or manufacture must be subjected to the examination of the Patent Office before an exclusive right therein can be obtained; and it can only be secured by a patent from the government").

is an expiration date on the patent, making it temporary fix.¹⁷¹ Software developers are turning to patents in an effort to protect data structures and internal design elements, which can help companies such as Oracle in the future should copyrights on APIs be overturned.¹⁷²

V. CONCLUSION

The Federal Circuit's decision to grant copyright protection to APIs shook up the computer programming industry.¹⁷³ Google's district court win on the matter of fair use is a win for the computer programming industry as it will continue to promote innovation and interoperability by allowing the continued use of APIs under a fair use defense.¹⁷⁴ Google incorporated the thirty-seven API package into its Android program in an effort to maintain interoperability that mirrors the industry standard.¹⁷⁵ In using the same functions to call on commands in Java, it allows computer programmers to write programs that are compatible with other Java based programs, which furthers interoperability and innovation.¹⁷⁶

Google's fair use win has softened the blow for computer programmers that APIs are copyrightable,¹⁷⁷ however if the issue of API copyrightability is challenged again, an abstract-filtration-comparison test should be adopted for a uniform analysis. The Supreme Court has stayed silent on the copyrightability of APIs. However, if litigation in this area continues, the Court should address the question of API copyrightability.

¹⁷¹ 5.16 DONALD S. CHISUM, CHISUM ON PATENTS § [16.02] (2015) (quoting Judge Learned Hand in *Van Kannell Revolving Door Co. v. Revolving Door & Fixture Co.*, 293 F. 261, 262 (S.D.N.Y. 1920)).

Now a patent confers an exclusive right upon the patentee, limited in those terms. He may prevent anyone from making, selling or using a structure embodying the invention, but the monopoly goes no further than that. It restrains everyone from the conduct so described, and it does not restrain him from anything else. If, therefore, any one says to a possible customer of a patentee, 'I will make the article myself; don't buy of the patentee,' while he may be doing the patentee a wrong, and while equity will forbid his carrying out his promise, the promise itself is not part of the conduct which the patent forbids; it is not a 'subtraction' from the monopoly. If it injures the plaintiff, though never performed, perhaps it is a wrong, like a slander upon his title; but certainly it is not an infringement of the patent.

Id.

¹⁷² Erik C. Kane, *Frontiers of Intellectual Property: Why Copyright Law Excludes Systems and Processes from the Scope of Its Protection*, 85 TEX. L. REV. 1921 (2007).

¹⁷³ Mitch Stoltz, *EFF Stands With Innovative Developers In The Wake Of Oracle v. Google* (June 30, 2015), <https://www.eff.org/deeplinks/2015/06/eff-stands-innovative-developers-wake-oracle-v-google>.

¹⁷⁴ Heather Greenfield, *Oracle v. Google Verdict Win For Software Developers, Reaffirms Importance of Fair Use* (May 26, 2016), <http://www.ccianet.org/2016/05/google-v-oracle-verdict-win-for-software-developers-reaffirms-importance-of-fair-use/>.

¹⁷⁵ Julie Samuels, *Oracle v. Google and the Dangerous Implications of Treating APIs as Copyrightable* (May 7, 2012), <https://www.eff.org/deeplinks/2012/05/oracle-v-google-and-dangerous-implications-treating-apis-copyrightable>.

¹⁷⁶ *Id.*

¹⁷⁷ Joe Mullin, *Google Beats Oracle-Android Makes "Fair Use" Of Java APIs*, (May 26, 2016), <http://arstechnica.com/tech-policy/2016/05/google-wins-trial-against-oracle-as-jury-finds-android-is-fair-use/>.

This would provide computer programmers with an absolute answer to their question and allow them to focus on creating more innovative products for the fast paced world of technology.