

Nos. 16-1808(L), 16-1857 XAP

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**IN THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT**

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SAS INSTITUTE INC.,  
*Plaintiff-Appellant/Cross-Appellee,*

v.

WORLD PROGRAMMING LIMITED,  
*Defendant-Appellee/Cross-Appellant.*

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On Appeal from the United States District Court for the Eastern District of  
North Carolina at Raleigh

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**BRIEF *AMICI CURIAE* OF THE COMPUTER &  
COMMUNICATIONS INDUSTRY ASSOCIATION,  
THE INTERNET ASSOCIATION, AND ENGINE  
IN SUPPORT OF APPELLEE-CROSS-APPELLANT  
URGING AFFIRMANCE**

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February 22, 2017

## **CORPORATE DISCLOSURE STATEMENT**

Pursuant to Rules 26.1 and 29 of the Federal Rules of Appellate Procedure, the undersigned counsel for *amici* the Computer & Communications Industry Association, the Internet Association, and Engine states that none of *amici* have any parent corporation, and no publicly held corporation owns stock in any of *amici*.

/s/ Jonathan Band  
*Counsel for Amici Curiae*

February 22, 2017

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## STATEMENT OF IDENTITY, INTEREST, & AUTHORITY TO FILE<sup>1</sup>

The Computer & Communications Industry Association (“CCIA”) represents over twenty companies of all sizes providing high technology products and services, including computer hardware and software, electronic commerce, telecommunications, and Internet products and services – companies that collectively generate more than \$465 billion in annual revenues.<sup>2</sup> CCIA members have a stake in the rules of software copyright being properly designed: effective intellectual property protection encourages software development, but the improper extension of copyright law to functional elements will discourage innovation and inhibit competition in the industry.

The Internet Association represents 40 of the world’s leading Internet companies.<sup>3</sup> Its mission is to foster innovation, promote economic growth,

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<sup>1</sup> No counsel for any party authored this brief in whole or part, and no person other than *amici curiae* or its counsel made a monetary contribution to the preparation or submission of this brief. Appellant and Appellee have consented to the filing of this brief.

<sup>2</sup> A list of CCIA members is available at <https://www.ccianet.org/members>.

<sup>3</sup> The Internet Association’s members include Airbnb, Amazon, Coinbase, DoorDash, Dropbox, eBay, Etsy, Expedia, Facebook, FanDuel, Google, Groupon, Handy, IAC, Intuit, LinkedIn, Lyft, Monster Worldwide, Netflix, Pandora, PayPal, Pinterest, Practice Fusion, Rackspace, reddit, Salesforce.com, Snap, Spotify, SurveyMonkey, Ten-X, TransferWise, TripAdvisor, Turo, Twitter, Uber Technologies, Inc., UpWork, Yahoo, Yelp, Zenefits, and Zynga.

and empower people through the free and open Internet. As the voice of the world's leading Internet companies, the IA's job is to ensure that all stakeholders understand the benefits the Internet brings to our economy as well as to society in general. In order for the Internet to realize these benefits, it is important that the existing balance in U.S. copyright law be preserved.

*Amicus Engine Advocacy* ("Engine") is a non-profit technology policy, research, and advocacy organization that bridges the gap between policymakers and startups, working with government and a community of high-technology, growth-oriented startups across the nation to support the development of technology entrepreneurship. Engine conducts research, organizes events, and spearheads campaigns to educate elected officials, the entrepreneur community, and the general public on issues vital to fostering technological innovation.

In its appeal, SAS Institute ("SAS") asks this Court to reverse the district court's holding that software interfaces of the SAS System are beyond the scope of copyright protection. In effect, SAS asks this Court to disregard longstanding principles concerning the scope of copyright protection for computer programs in favor of discredited *dicta* in a thirty-year-old Third Circuit decision, *Apple Computer v. Franklin Computer*, 714

F.2d 1240 (3d Cir. 1983) (“*Franklin*”), incorrectly resurrected by the Federal Circuit in *Oracle America, Inc., v. Google, Inc.*, 750 F.3d 1339 (Fed. Cir. 2014) (“*Oracle*”). Adopting this minority position that copyright protects the elements of computer programs necessary to achieve compatibility—instead of the majority position that copyright does not protect such elements—poses serious anticompetitive consequences for *amici*’s members and the technology industry as a whole.

### **INTRODUCTION AND SUMMARY OF ARGUMENT**

It is beyond question that computer programs are protected by copyright. However, because of the highly functional nature of computer programs, and their need to interact with other software and hardware, courts must apply the most basic principle of copyright law, the idea/expression dichotomy reflected in 17 U.S.C. § 102(b), with particular care in software copyright cases to preserve legitimate competition.

A computer program like a word processor is dependent on hardware and other software, such as an operating system. A word processor can run only on an operating system with which it is “compatible” or

“interoperable.”<sup>4</sup> To be interoperable, two things must conform to the same rules. This system of rules constitutes an “interface.”<sup>5</sup>

The input and output formats of the SAS System are a software interface, insofar as they dictate whether customers’ SAS-dependent code can interoperate with SAS’s software, and what results are presented when this occurs. In cases such as this, “late-arriving hardware or software producers must, to compete, make their products compatible with the products sold by entrenched industry leaders, an effort that will characteristically require them to copy the industry leaders’ interface specifications – the key that opens the lock to their operating systems.” 2 GOLDSTEIN ON COPYRIGHT § 8.5.1 (2d ed. 2005). A company that exercised proprietary control over its products’ interfaces could dictate which products made by other firms – if any – could interoperate with its software. This would extend statutory rights far beyond what is necessary to protect the original expressive elements to which copyright has traditionally attached. It

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<sup>4</sup> In this brief, the term “compatibility” is used interchangeably with “interoperability.”

<sup>5</sup> At times, legal experts and engineers refer to these rules as “interface specifications” to distinguish them from interface implementations, the underlying code that implements the interface specification. This case does not involve interface implementations; SAS does not allege that WPL copied any software code.

would also override limitations on copyright crafted to protect the public good.

Such broad control would have serious implications for consumer welfare. In the absence of competition during the effective lifespan of the dominant product, the first developer would have little incentive to develop more innovative and less costly products. These negative consequences would be compounded by the fact that the information technology revolution and the emergence of the Internet have produced an overwhelming need for interconnection between different elements of computer systems.

Prohibiting competitors from accessing *de facto* standard interfaces would lock users into a particular operating system or network software environment, and would inhibit the transfer of data between users with different computing environments. *See Lotus Dev. Corp. v. Borland Int'l*, 49 F.3d 807, 821 (1st Cir. 1995) (Boudin, J., concurring), *aff'd by an equally divided court*, 516 U.S. 233 (1996).

Should SAS succeed in locking users into the SAS environment by preventing a competitor, World Programming Limited (“WPL”), from implementing the SAS System’s interfaces in original code, it could charge higher prices for new releases or subscriptions because of the enormous cost to users of re-writing their code for a non-SAS environment. And if this

lock-in strategy succeeds, other software developers may adopt similar strategies, to the detriment of competition and innovation in the information technology industry.<sup>6</sup> This dispute therefore does not turn solely on the relative equities between plaintiff and defendant. It also implicates the equities between SAS and its customers, who have invested considerably in writing their own programs in the SAS Language. This case raises the question of whether SAS's copyright allows it to appropriate gains not only from its own investments, but the investments of its users as well. *Amici* believe that current copyright law does not allow SAS to appropriate the value of its customers' code, nor should it.

This brief explains how modern copyright law has converged on a rule to prevent this outcome, a rule supporting software compatibility. The past quarter-century of copyright law, both in the United States and across the world, has reflected a broad, international consensus that software interfaces needed for compatibility are ineligible for copyright protection.<sup>7</sup>

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<sup>6</sup> Investment and innovation in the burgeoning cloud computing industry are particularly sensitive to policy changes in copyright. Josh Lerner, *The Impact of Copyright Policy Changes on Venture Capital Investment in Cloud Computing Companies* (Analysis Group 2011), available at [http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Lerner\\_Fall2011\\_Copyright\\_Policy\\_VC\\_Investments.pdf](http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Lerner_Fall2011_Copyright_Policy_VC_Investments.pdf).

<sup>7</sup> This history is discussed in detail in three books co-authored by counsel of record on this brief. JONATHAN BAND & MASANOBU KATO, *INTERFACES ON TRIAL: INTELLECTUAL PROPERTY AND INTEROPERABILITY IN THE GLOBAL*

This pro-compatibility interpretation of copyright law consists of two related principles. The first principle is that copyright protection does not extend to interfaces needed for compatibility. The second principle is that the copying incidental to the reverse engineering necessary to identify these interfaces does not infringe copyright – since prohibiting reverse engineering would grant *de facto* protection to unprotectable program elements. These two principles are so foundational to software development that they have been endorsed not only by U.S. courts, but also by Congress and foreign jurisdictions.<sup>8</sup>

Unfortunately, the Federal Circuit in *Oracle* in 2014 departed from this established consensus by mistakenly embracing the widely criticized *dicta* in the Third Circuit’s 1983 *Franklin* decision. For reasons explained below, this Court should follow the majority approach, rather than the *Franklin-Oracle* minority position, and affirm the district court’s finding

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SOFTWARE INDUSTRY (1995), *available at* <http://tinyurl.com/InterfacesonTrial> (“INTERFACES 1.0”); BAND & KATO, INTERFACES ON TRIAL 2.0 (2011), *available at* <http://mitpress.mit.edu/books/interfaces-trial-20> (“INTERFACES 2.0”); and BAND, INTERFACES ON TRIAL 3.0: ORACLE AMERICA V. GOOGLE AND BEYOND (2016) (“INTERFACES 3.0”). *See also* Peter Menell, *Rise of the API Copyright Dead?: An Updated Epitaph for Copyright Protection of Network and Functional Features of Computer Software* (UC Berkeley Pub. Law Research Paper No. 2893192, 2017), *available at* [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2893192](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2893192).

<sup>8</sup> This brief does not address the issues relating to SAS’s contractual restrictions on reverse engineering.

that the SAS System’s input and output formats cannot receive copyright protection, insofar as they comprise a non-protectable interface, by which users’ code interacts with SAS software.<sup>9</sup>

## ARGUMENT

### I. COPYRIGHT MUST NOT INTERFERE WITH COMPATIBILITY.

#### A. Modern U.S. Copyright Decisions Encourage Software Compatibility.

In the information technology industry, overly broad intellectual property protection directly restricts competition and innovation. This was the status quo in the 1970s. A buyer who purchased a computer system was essentially locked-in to that system: the system was incompatible with other manufacturers’ products, and conversion costs were high. Although “locking in” was profitable for dominant vendors, consumers suffered from high prices, indifferent service, limited choice, and slow innovation.

JONATHAN BAND & MASANOBU KATO, INTERFACES ON TRIAL 2.0 at 1 (2011).

This lock-in strategy was assisted by *dicta* in the Third Circuit’s decision in *Franklin* that compatibility is “a commercial and competitive

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<sup>9</sup> Lacking access to the full record below, *amici* take as a given the district court’s proposition that all software elements at issue constitute interfaces required to achieve interoperability between SAS and WPL code.

objective which does not enter into the somewhat metaphysical issue of whether particular ideas and expression have merged.” 714 F.2d at 1253.<sup>10</sup> However, starting twenty-five years ago, courts outside the Third Circuit consistently rejected the *dicta* in *Franklin*, and instead found that interfaces needed for compatibility fall on the idea (or unprotected) side of copyright’s idea/expression dichotomy. These more recent rulings have enabled the transition from the locked-in computer environments of the 1970s to today’s interoperable Internet.<sup>11</sup>

This era has seen U.S. courts repeatedly applying copyright law in a manner that supports compatibility, preventing software vendors from subjecting customers to lock-in. Courts have adopted two related principles to this end. First, they have determined that copyright does not protect interfaces needed for compatibility. Second, they have refused to treat as

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<sup>10</sup> This Court in *M. Kramer Mfg. Co. v. Andrews*, 783 F.2d 421 (4th Cir. 1986), relied on *Franklin*’s non-controversial holding that a computer program was copyrightable. *Kramer* affirms that Section 102(b) codifies the idea/expression dichotomy and *Mazer v. Stein*, 347 U.S. 201, 217 (1954). It did not cite *Franklin*’s *dicta* concerning compatibility, which had no relevance to the resolution of *Kramer*. *Kramer* involved the verbatim copying of the code and graphics of a video poker game.

<sup>11</sup> One of the milestones in this transition was Phoenix Technologies’ lawful reverse engineering of the Basic Input-Output System (BIOS) of the IBM PC. This allowed the development of IBM-compatible PCs by IBM’s rivals. A report issued by the Copyright Office in December 2016 discussed the non-infringing nature of Phoenix’s activities in detail. See Section I.B.2., *infra*.

copyright infringement any reproductions performed in the course of the reverse engineering necessary to identify these interfaces.

The first principle – the non-protectability of interfaces – was directly addressed by the district court when it considered WPL’s copying. This principle derives from the most basic tenet of copyright law: that copyright protects the expression of ideas, but not the ideas themselves. This idea/expression dichotomy is reflected in Section 102(b) of the Copyright Act, which provides that “in no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery....” Further, courts have held that if the idea and expression merge, the expression is not protectable. As noted above, the Third Circuit in *Franklin* initially took software copyright law in the wrong direction when it stated that compatibility is “a commercial and competitive objective which does not enter into the somewhat metaphysical issue of whether particular ideas and expression have merged.” 714 F.2d at 1253. Under this reasoning, copyright could protect interface specifications. Then, in *Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222 (3d Cir. 1986), the Third Circuit compounded its error by suggesting that copyright protected all aspects of a computer program other than its basic purpose. Driving this

misunderstanding was the court's belief that such broad copyright protection was necessary to provide firms with the incentive to invest in the development of software.

The critical turning point in the development of a pro-compatibility approach occurred in 1992 when the Second Circuit in *Computer Assocs. Int'l v. Altai, Inc.*, 982 F.2d 693 (2d Cir. 1992), followed the Supreme Court's 1991 decision in *Feist* to reject the Third Circuit's *Franklin* and *Whelan* decisions.<sup>12</sup> Informed by the Supreme Court's holdings in *Feist* that the scope of copyright protection in utilitarian works is "thin," *Feist*, 499 U.S. at 350, and that substantial effort cannot confer copyright protection on unprotectable elements, *id.* at 349, the Second Circuit found that "*Feist* implicitly undercuts the *Whelan* [incentive based] rationale," *Altai*, 982 F.2d at 711, and ruled that under Section 102(b), copyright did not extend to program elements necessary for compatibility. By the end of the millennium, "most courts of appeal that ha[d] subsequently addressed the question of scope of copyright protection for computer programs ha[d], like

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<sup>12</sup> This Court has cited *Altai* no less than five times for other propositions. *Comprehensive Technologies v. Software Artisans*, 3 F.3d 730, 734 (4th Cir. 1993); *Rosciszewski v. Arete Associates, Inc.*, 1 F.3d 225, 229 (4th Cir. 1993); *Trandes Corp. v. Guy F. Atkinson Co.*, 996 F.2d 655, 658 (4th Cir. 1993); *Tire Engineering v. Shandong Linglong Rubber Co.*, 682 F.3d 292, 309 (4th Cir. 2012); *Avtec Systems, Inc. v. Peiffer*, 21 F.3d 568, 571 n.5 (4th Cir. 1994).

*Computer Associates*, effectively rejected the *Whelan* approach.” 1  
GOLDSTEIN ON COPYRIGHT § 2.15.1 (2d ed. 2005) (citing *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992); *Mitel, Inc. v. Iqtel, Inc.*, 124 F.3d 1366 (10th Cir. 1997); and *Atari Games Corp. v. Nintendo of America*, 975 F.2d 832 (Fed. Cir. 1992)).

For example, the First Circuit in *Borland* held that the Lotus command structure was an unprotectable method of operation, thereby allowing Borland to copy it to enable programs written by users with Lotus commands to run on the Borland platform. *Borland*, 49 F.3d at 816-17. See also *Lexmark Int’l v. Static Control Components, Inc.*, 387 F.3d 522, 534 (6th Cir. 2004); Peter Menell, *Rise of the API Copyright Dead?* at 38.<sup>13</sup>

The second principle – the permissibility under copyright of reverse engineering – is premised on the first principle.<sup>14</sup> Because a program’s interfaces (which copyright does not protect) are not always readily

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<sup>13</sup> Depending on the facts of the case before them, courts have offered varying articulations of the idea/expression dichotomy to exclude elements necessary for compatibility from the scope of copyright protection, referring to them as methods of operation (*Borland*), parts of a system (district court in *Oracle*), or elements unprotected under the merger (*Lexmark*) or scènes à faire (*Mitel*) doctrines.

<sup>14</sup> The district court found WPL’s reverse engineering of the SAS software breached the terms of the license under which WPL obtained the software. *Amici* take no position on whether these contractual obligations are enforceable. Our point here is that reverse engineering for the purpose of achieving interoperability does not infringe copyright law.

apparent, developers seeking compatibility often must research the interfaces of the original program. This research, known as reverse engineering, is a basic tool of software product development. Without it, compatibility can be difficult or impossible to achieve.<sup>15</sup>

Copyright law, however, could impede software reverse engineering, because reverse engineering almost always requires making a reproduction or derivative work. Courts in four circuits have held that reproduction that occurs while reverse engineering in order to understand interfaces is permitted fair use. *See, e.g., Atari Games v. Nintendo of America*, 975 F.2d 832 (Fed. Cir. 1992); *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992).<sup>16</sup> The widely accepted principle that reverse engineering to identify interfaces is not infringement only makes sense in a copyright system where

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<sup>15</sup> The Supreme Court has long recognized that there is nothing inherently wrong with studying a competitor's product to understand how it works and to figure out how to make a better product. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476 (1974) (reverse engineering is a "fair and honest means" of divining operation of competitor's product); *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 160 (1989) ("Reverse engineering ... often leads to significant advances in technology."). *Accord* Defend Trade Secrets Act, 18 U.S.C. § 1839(b)(6) (2016) (expressly providing that misappropriation of trade secrets "does not include reverse engineering").

<sup>16</sup> *See also DSC Comms. Corp. v. DGI Techs.*, 898 F. Supp. 1183 (N.D. Tex. 1995), *aff'd*, 81 F.3d 597 (5th Cir. 1996); *Bateman v. Mnemonics, Inc.*, 79 F.3d 1532 (11th Cir. 1996); *DSC Comms. Corp. v. Pulse Comms. Inc.*, 976 F. Supp. 359 (E.D. Va. 1997), *aff'd in part, rev'd in part, and vacated in part*, 170 F.3d 1354 (Fed. Cir. 1999); *Sony Computer Entm't v. Connectix Corp.*, 203 F.3d 596 (9th Cir. 2000).

utilizing those same interfaces to interoperate is similarly non-infringing conduct.

In *Sega*, for example, the Ninth Circuit excused the copying incidental to Accolade's reverse engineering of Sega's products because the purpose of the reverse engineering was to uncover the unprotectable interfaces needed to achieve compatibility. The *Sega* court found that Accolade reverse engineered "Sega's software solely to discover the functional requirements for compatibility with the Genesis console – aspects of Sega's programs that are not protected by copyright." *Sega*, 977 F.2d at 1522 (citing 17 U.S.C. § 102(b)). The Ninth Circuit explained that if reverse engineering were not permitted,

the owner of the copyright gains a de facto monopoly over the functional aspects of his work – aspects that were expressly denied copyright protection by Congress. 17 U.S.C. §102(b). In order to enjoy a lawful monopoly over the idea or functional principle underlying a work, the creator must satisfy the more stringent standards imposed by the patent laws.

*Id.* at 1526. Indeed, *Sega*'s repeated citation to Section 102(b) leaves no doubt that the Ninth Circuit believed that elements necessary for compatibility were unprotectable under Section 102(b).

By explicitly withholding protection from a "system [or] method of operation... regardless of the form in which it is... embodied", Section 102(b) prevents software copyright from being used to inhibit competition.

This significance of this principle has only grown in the intervening years, as software is increasingly deployed everywhere. Even where choices among particular methods of operation may exist, interfaces required for compatibility are ineligible for copyright protection.

Thus, insofar as users' self-coded SAS programs deliver instructions to and receive responses from SAS's software through interfaces, those interfaces are beyond the scope of SAS's copyright protection. SAS contends that such software elements nevertheless comprise a "compilation," SAS Br. at 55, but a non-protectable system or method of operation cannot be transformed into protectable expression merely by rebranding it as a compilation. Insofar as *any SAS program element* must necessarily be copied to achieve interoperability, those elements cannot qualify for protection.<sup>17</sup>

Contrary to SAS's suggestion, holding interfaces to be non-protectable does not eviscerate copyright protection for computer programs. Copyright continues to prohibit the slavish copying of the sort at issue in

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<sup>17</sup> SAS and its *amici* fault the district court for not following *Altai's* abstraction-filtration-comparison methodology. MathWorks Br. at 17-18; BSA | The Software Alliance Br. at 23-25. Abstraction was unnecessary in this case, given the specificity of the elements SAS alleged were infringed. The court performed filtration when it determined that the input and output formats were unprotected by Section 102(b), leaving nothing left to compare.

*Kramer* that would diminish the incentive to invest in software development. At the same time, withholding copyright protection from those interfaces by which third-party programs connect to the SAS System serves the important objective of preventing anticompetitive overreach.

**B. Congress and the Executive Branch Have Followed the Judicial Consensus About Compatibility.**

**1. Congressional Support for Compatibility.**

Congress reflected the consensus of U.S. courts outside the Third Circuit when it adopted the interoperability exception in the Digital Millennium Copyright Act (DMCA), in 17 U.S.C. § 1201(f). Section 1201 of the DMCA restricts the development, distribution, and use of technologies that circumvent other technologies that protect an author's copyrights. The act of reverse engineering could require the circumvention of a technological protection measure, thus running afoul of the DMCA's prohibition on the manufacture and distribution of circumvention technologies.

To prevent this result, Congress included in the DMCA an exception explicitly directed at software reverse engineering and interoperability, Section 1201(f), which allows developers to circumvent technological protection measures in the course of achieving software interoperability.

The Senate Judiciary Committee report on the DMCA explained that Section 1201(f) was “intended to allow legitimate software developers to continue engaging in certain activities for the purpose of achieving interoperability to the extent permitted by law prior to the enactment of this chapter.” S. Rep. No. 105-190 (1998), at 29. Citing *Sega*, the Committee stated that “[t]he objective is to ensure that the effect of current case law interpreting the Copyright Act is not changed by enactment of this legislation”, concluding that “[t]he purpose of this section is to foster competition and innovation in the computer and software industry.” *Id.*

## **2. Copyright Office Support for Compatibility.**

The U.S. Copyright Office in December 2016 issued a report on the role of copyright in the development and use of software-enabled consumer products. Register of Copyrights, *Software-Enabled Consumer Products* (Dec. 2016), <https://www.copyright.gov/policy/software/software-full-report.pdf>.<sup>18</sup> In discussing whether copyright law furthers or hinders competition and interoperability in software, the Copyright Office stated that it “recognizes the importance of preserving the ability to develop products and services that can interoperate with the goal of preserving competition in

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<sup>18</sup> The Copyright Office viewed software-enabled consumer products as consumer-grade devices in which software is embedded, such as kitchen appliances, cars, and wireless phones.

the marketplace.” *Id.* at 52. It concluded that existing copyright law preserves the twin principles of interoperability and competition. *Id.*

In support of this conclusion, the Office observed that Section 102(b) ensures that ideas or methods of operation embodied or described in computer code cannot be protected by copyright. Thus, “the Act does not prevent a competitor from studying code to determine the underlying methods it teaches, and from implementing those methods using different code than the original, to create an interoperable or competitive software-enabled consumer product.” *Id.* at 53. The report elaborated that “‘clean room’ implementations using exactly this process have long been used by the computer hardware and software industries to ensure the development of competitive products.” *Id.* It provided the example of how Phoenix Technologies developed an IBM-compatible “Basic Input/Output System” (BIOS) in a manner similar to the case here – a development that ultimately allowed the creation of IBM-compatible PCs.

The report concluded its discussion of the Phoenix BIOS by remarking that “as this example demonstrates, section 102(b) has served a critical function in preserving competition.” *Id.* Through this example—which is strikingly similar to this case—the Copyright Office acknowledged

that the specifications of BIOS's inputs and outputs were not protectable under Section 102(b).<sup>19</sup>

### **3. Free Trade Agreements Mandate Protections for Compatibility.**

Pro-compatibility principles also influenced the contours of U.S. trade agreements negotiated by the Executive Branch. Since 2002, U.S. free trade agreements ("FTAs") have included provisions modeled on the interoperability exception to Section 1201 of the DMCA. *See, e.g.*, United States-Korea Free Trade Agreement, art. 18.4.7(d)(i), June 30, 2007, 46 I.L.M. 642 (parties may permit "[n]oninfringing reverse engineering activities with regard to a lawfully obtained copy of a computer program... for the sole purpose of achieving interoperability of an independently created computer program with other programs."). Interoperability exceptions appear in FTAs with Australia, Bahrain, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Morocco,

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<sup>19</sup> The report also noted that courts repeatedly have used the fair use doctrine to permit intermediate copying during the course of reverse engineering necessary to the creation of compatible software products. *Id.* at 55 (citing *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992); *Atari Games v. Nintendo of America*, 975 F.2d 832 (Fed. Cir. 1992), and *Sony Computer Entm't v. Connectix Corp.*, 203 F.3d 596 (9th Cir. 2000)). These views are widely shared by the programmers and engineers of the world's largest technical professional organization. *See* Position Statement of the Institute of Electrical and Electronics Engineers Organization (IEEE) in Support of Reverse Engineering (June 2016), <https://ieeepusa.org/policy/positions/ReverseEng0616.pdf>.

Nicaragua, Oman, Panama, Peru, and Singapore.<sup>20</sup> As in the United States, many of these countries have adopted reverse engineering exceptions in their domestic law.

### **C. Copyright Laws Around the World Protect Compatibility.**

In addition to the reverse engineering exceptions adopted pursuant to U.S. FTAs, legislation favoring compatibility has been adopted in over 40 countries, including many major U.S. trading partners.

#### **1. European Union Law Mirrors the U.S. Pro-Compatibility Approach.**

In 1991, the European Union adopted a Software Directive, which reflects a policy judgment that copyright should not interfere with interoperability.<sup>21</sup> In particular, Article 6 of the Software Directive permits

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<sup>20</sup> See U.S.-Singapore Free Trade Agreement art. 16.4.7(e)(i), May 6, 2003, 42 I.L.M. 1026; U.S.-Chile Free Trade Agreement art. 17.7.5(d)(ii), June 6, 2003, 42 I.L.M. 1026; U.S.-Australia Free Trade Agreement art. 17.4.7(e)(i), May 18, 2004, 43 I.L.M. 1248; U.S.-Dominican Republic-Central America Free Trade Agreement art. 15.57(d)(ii), May 28, 2004, 43 I.L.M. 514; U.S.-Morocco Free Trade Agreement, art. 15.5.8(d)(i), June 15, 2004, 44 I.L.M. 544; U.S.-Bahrain Free Trade Agreement art. 14.4.7(e)(i), Sept. 14, 2004, 44 I.L.M. 544; U.S.-Peru Trade Promotion Agreement art. 16.7.4(e)(i), Apr. 12, 2006; U.S.-Colombia Trade Promotion Agreement art. 16.7.4(e)(i), Nov. 22, 2006; U.S.-Panama Trade Promotion Agreement, art. 15.5.7(d)(i), June 28, 2007; U.S.-Oman Free Trade Agreement, art. 15.4.7(d)(i), Jan. 1, 2009.

<sup>21</sup> Council Directive 91/250/EEC of 14 May 1991 on the Legal Protection of Computer Programs, 1991 O.J. (L 122). The Software Directive has been implemented by all member states of the EU, as well as Norway, Russia, Switzerland, and Turkey. INTERFACES 2.0, *supra* note 7, at 6. The

reverse engineering “indispensable to obtain the information necessary to achieve ... interoperability.”

As the record reflects, Europe’s highest court, the Court of Justice of the European Union (“CJEU”) considered this issue in the parallel action brought by SAS against WPL in the United Kingdom. SAS alleged in the UK that WPL had infringed its copyrights by replicating (i) the SAS programming language, (ii) the data and programming interfaces used in the SAS system, and (iii) the functionality offered by the SAS System. The UK High Court referred the question of the protectability of these elements to the CJEU. In May 2012, the CJEU ruled in *SAS Institute, Inc. v. World Programming Ltd.*, [2012] 3 CMLR 4, ¶ 71, that these elements were not protectable under the Software Directive.

The CJEU held that the Software Directive “must be interpreted as meaning that neither the functionality of a computer program nor the programming language and the format of data files used in a computer program in order to exploit its functions constitute a form of expression of that program and, as such, are not protected by copyright...” *Id.* ¶ 40. The CJEU observed that “the main advantage of protecting computer programs by copyright” as opposed, presumably, by patents, “is that such protection

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legislative process leading to the adoption of the Directive is discussed in detail in INTERFACES 1.0, *supra* n.7, at 227-41.

covers only the individual expression of the work and thus leaves other authors the desired latitude to create similar or even identical programs,” *id.* ¶ 41, provided that they refrain from copying protected expression. On the basis of the CJEU’s interpretation of the Directive, the UK court ruled that these elements were unprotectable.

In the district court below, WPL argued that the UK court’s ruling on this issue should be given preclusive effect. The district court rejected this argument, finding that “the U.K. court reached many of its conclusions based on the dictates of European Directives ... and defendant has failed to demonstrate that this law is not significantly different from American law.” *SAS Inst. Inc. v. World Programming Ltd.*, 64 F. Supp. 3d 755, 775 (E.D.N.C. 2014).

Although the UK court and the CJEU based their decisions on the Software Directive, the provision of the Directive they applied was an articulation of the same idea/expression dichotomy reflected in Section 102(b). Even if the EU rulings have no preclusive effect, these determinations should be given weight in this Court’s consideration of the identical issue.

## 2. Copyright Policies Around the World Align with U.S. and European Pro-Compatibility Law.

Policymakers in the Pacific Rim have also arrived at a view consistent with that of the U.S. and Europe. As the Australian Parliament noted upon aligning itself with the United States and Europe, with the advent of the Internet, “there is an obvious need for computers and the programs which drive them to communicate, connect, or ‘interoperate’ with each other.” *See* INTERFACES 2.0, *supra* note 7, at 152.<sup>22</sup> In addition, India,<sup>23</sup> Canada,<sup>24</sup> Kenya,<sup>25</sup> Israel,<sup>26</sup> Malaysia,<sup>27</sup> New Zealand,<sup>28</sup> the Philippines,<sup>29</sup> Hong Kong,<sup>30</sup> Singapore,<sup>31</sup> and Taiwan<sup>32</sup> all have also amended their copyright laws to encourage software compatibility, often citing the U.S. approach.

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<sup>22</sup> Quoting from Speech of Hon. Daryl Williams QC, on Copyright Amendment (Computer Program) Bill 1999, Second Reading (Aug. 11, 1999).

<sup>23</sup> Copyright Act, No. 14 of 1957, India Code (1999), § 52(1)(ab).

<sup>24</sup> Canada Copyright Modernization Act (Bill C-11), S.C. 2012, c. 20, s. 30.61, s. 41.12(1).

<sup>25</sup> Kenya Copyright Act, (2009) Cap. 130 § 26(5).

<sup>26</sup> Israel Copyright Act, 5767-2007, 2007 LSI 2199, § 24(c)(3).

<sup>27</sup> Copyright (Amendment) Act 2012, 36A(2)(a) (Malaysia).

<sup>28</sup> New Zealand Copyright (New Technologies) Amendment Act 2008, § 43 (amending Copyright Act 1994, § 80A(2)) (2008).

<sup>29</sup> Intellectual Property Code of the Philippines, § 185.1.

<sup>30</sup> *See* INTERFACES 2.0, *supra* note 7, at 168-75.

<sup>31</sup> Singapore’s amendment aimed to “bring [it] in line with the United States, the United Kingdom, other European Union countries, Hong Kong, and Australia, which do not bar the use of copyright materials for commercial research.” INTERFACES ON TRIAL 2.0, *supra* n.7, at 158-67

In sum, U.S. courts, the Executive Branch, Congress, and over 40 countries have recognized that permitting copyright law to impede compatibility would harm legitimate competition in the computer industry and impede the growth of the Internet economy.

## II. SAS RELIES ON *ORACLE*, WHICH DEPARTS FROM THE GLOBAL CONSENSUS FAVORING COMPATIBILITY.

The overwhelming consensus in the United States and around the world is that copyright does not protect the elements of a computer program necessary for interoperability. Unfortunately, in 2014, the Federal Circuit in *Oracle* resurrected the long discredited *dicta* in *Franklin* that claimed that compatibility was a commercial and competitive objective not relevant to the scope of copyright protection. While SAS relies on *Oracle*, this decision remains a minority view.<sup>33</sup> It also is distinguishable on its facts, as the

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(quoting Attorney-General of Law, Second Reading of Copyright (Amendment) Bill of 1998 (Sing.) (Feb. 19, 1998)).

<sup>32</sup> Copyright Law of the Republic of China, art. 65, Intellectual Property Office (2007) (Taiwan).

<sup>33</sup> The First, Second, Fifth, Sixth, Ninth, Tenth, and Eleventh Circuits have all found that compatibility does enter into the analysis of whether a program element receives copyright protection. *Lotus*, 49 F.3d 807 (1st Cir. 1995); *Altai*, 982 F.2d 693 (2d Cir. 1992); *Engineering Dynamics, Inc. v. Structural Software, Inc.*, 26 F.3d 1335 (5th Cir. 1994); *Lexmark*, 387 F.3d 522 (6th Cir. 2004); *Sega*, 977 F.2d 1510 (9th Cir. 1992); *Connectix*, 203 F.3d 596 (9th Cir. 2000); *Mitel*, 124 F.3d 1366 (10th Cir. 1997); *Gates Rubber Co. v. Bando Chem. Indus., Ltd.*, 9 F.3d 823 (10th Cir. 1993); *Bateman*, 79 F.3d 1532 (11th Cir. 1996). Indeed, an earlier Federal Circuit decision, *Atari Games Corp. v. Nintendo of America, Inc.*, 975 F.2d 832

district court held. Furthermore, *Oracle* is a deeply flawed decision, which has been widely criticized. See Menell, *Rise of the API Copyright Dead?* at 127-49; Pamela Samuelson, *Functionality and Expression in Computer Programs: Refining the Tests for Software Copyright Infringement*, Berkeley Tech. L.J. (forthcoming), available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2909152](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2909152); INTERFACES 3.0 at 31-37. Below we discuss two of its most salient flaws.

**A. The *Oracle* Court Misunderstood the Law It Was Required to Apply.**

In *Oracle*, the Federal Circuit was required to apply Ninth Circuit precedents because on non-patent matters, the Federal Circuit must apply the law of the circuit from which the case arose, and *Oracle* arose in the Ninth Circuit. The district court in *Oracle* correctly found that the Ninth Circuit had ruled in *Sega* and *Connectix* that copyright protection did not extend to program elements necessary for interoperability. The Federal Circuit disagreed with the district court's interpretation of these precedents; because *Sega* and *Connectix* were fair use cases, the Federal Circuit concluded that interoperability was relevant only to the question of the applicability of the fair use defense.

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(Fed. Cir 1992), suggests that program elements dictated by compatibility requirements do not receive copyright protection under Section 102(b).

In fact, as discussed above, the case law in the Ninth Circuit clearly articulates that program elements necessary for interoperability are *not* protectable under copyright. In *Sega*, the Ninth Circuit found that Accolade reverse engineered “Sega’s software solely to discover the functional requirements for compatibility with the Genesis console – aspects of Sega’s programs that are not protected by copyright. 17 U.S.C. § 102(b).” *Sega*, 977 F.2d at 1522. To be sure, the *Sega* court issued this ruling in the context of determining whether Accolade’s reverse engineering was a fair use. But the Ninth Circuit’s conclusion that Accolade’s disassembly was a fair use was predicated on its holding that the interface information Accolade sought—“the functional requirements for Genesis compatibility”—was not protectable per Section 102(b).

Similarly, in *Connectix*, Connectix reverse engineered the Basic Input-Output System (“BIOS”) of the Sony PlayStation console to uncover the elements necessary to develop a product that emulated the operation of the BIOS. The Ninth Circuit found that these were “unprotected functional elements” under Section 102(b). *Connectix*, 203 F.3d at 602-03.

**B. The Protectability of Interface Specifications Is Not Only a Question of Merger.**

The Federal Circuit treated the question of protectability of interface specifications only as a question of merger. It simply asked if the developer

of a program had options for how to design the program's interface at the time she designed the interface. The court reasoned that if the developer was not constrained by an existing program, then no merger between idea and expression occurred.<sup>34</sup> This approach, however, ignores that there is more to the idea/expression dichotomy than merger. If the developer is creating a programming environment with a platform on which applications will run, the developer needs to create the rules by which the applications will interoperate with the platform. In other words, the developer must create a system or method for the interoperation of the programs within the environment. The availability of choices does not transform systems, methods of operation, or other Section 102(b) subject matter from unprotectable into protectable.<sup>35</sup>

This was the situation the First Circuit considered in *Borland*. Lotus developed a spreadsheet program with a command hierarchy that allowed users to write their own programs (called macros) that could run on the

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<sup>34</sup> Professor Pamela Samuelson describes this view that merger must be assessed based on the constraints on the plaintiff's, rather than defendant's, creative choices as a "myth." Pamela Samuelson, *Reconceptualizing Copyright's Merger Doctrine*, 63 J. Copyright Soc'y U.S.A. 417, 442-44 (2016).

<sup>35</sup> Contrary to the suggestion of *amicus* MathWorks, MathWorks Br. at 19 n.7, this is the lesson of *Bikram's College of India L.P. v. Evolution Yoga, LLC*, 803 F.3d 1032 (9th Cir. 2015); even though a system can be designed in many ways, it is still unprotected by copyright so long as it is a "system" within the meaning of Section 102(b).

Lotus software. These user programs could be extremely complex, with thousands of commands. Borland developed a competing spreadsheet program that included the Lotus command hierarchy so that Lotus users could run their macros on the Borland software. Lotus sued for infringement, and the district court ruled in its favor, finding that Lotus was unconstrained by other programs at the time it developed its command hierarchy. The First Circuit reversed, finding that the command hierarchy was a method of operation unprotectable under Section 102(b).

The First Circuit rejected the district court's argument that copyright protected the Lotus command structure because Borland could develop its own command structure using different terms and a different arrangement. "If specific words are essential to operating something," the First Circuit stated, "then they are part of a 'method of operation' and, as such, are uncopyrightable." 49 F.3d at 816. The court noted that under Lotus's theory, the user would have to re-write her program if she wanted to run it on another platform. The court found that result to be "absurd." *Id.* at 817.

Relying on the Supreme Court's statement in *Feist* that copyright "encourages others to build freely upon the ideas and information conveyed by a work," 499 U.S. at 350, the First Circuit noted that "in most contexts, there is no need to 'build' upon other people's expression, for the ideas

conveyed by that expression can be conveyed by someone else without copying the first author's expression.” 49 F.3d at 818. However, in the context of methods of operation, “‘building’ requires the use of the precise method of operation already employed; otherwise, ‘building’ would require dismantling, too. Original developers are not the only people entitled to build on the methods of operation they create; anyone can.” *Id.*

## CONCLUSION

Since the early 1990s, computer programmers in the United States have understood that copyright does not protect interface specifications. Based on this understanding, programmers have freely copied these program elements in pursuit of interoperability, resulting in enormous creativity, innovation, and competition in the digital environment. At the same time, excluding interface specifications from the scope of copyright protection has not withheld copyright protection from software platforms. Title 17 still provides ample protection to many program elements without going through the effort of a patent prosecution, and offers robust remedies for copyright infringement in appropriate cases.<sup>36</sup>

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<sup>36</sup> See, e.g., Karen Gullo & Cornelius Rahn, *SAP to Pay Oracle \$306 Million for Copyright Breach*, Bloomberg.com, Aug. 3, 2012, <http://www.bloomberg.com/news/2012-08-02/oracle-says-sap-to-pay-306-million-in-copyright-deal.html>.

The Federal Circuit's decision casts doubt on the pro-compatibility understanding of copyright law. This Court should not compound this doubt by following the Federal Circuit's anti-compatibility approach. Instead, this Court should affirm the district court's ruling that the input and output formats are outside the scope of copyright protection.

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## CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limits of Fed. R. App. P. 32(a)(7)(B) and Fed. R. App. P. 29(a)(5) because it contains 6,492 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(f).

2. This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because it has been prepared in a proportionally spaced typeface using Microsoft Word in 14 point Times New Roman.

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## CERTIFICATE OF SERVICE

I hereby certify that on this 22nd day of February, 2017, a true and correct copy of the foregoing Brief of *Amici Curiae* the Computer & Communications Industry Association, the Internet Association, and Engine was timely filed in accordance with Fed. R. App. P. 25(a)(2)(D), and served on all parties or their counsel of record through the CM/ECF system.

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