No. 18-956

In The
Supreme Court of the United States

GOOGLE LLC,

Petitioner,

v.

ORACLE AMERICA, INC.,

Respondent.

On Writ Of Certiorari To The United States Court Of Appeals For The Federal Circuit

BRIEF OF AMICI CURIAE CENTER FOR DEMOCRACY AND TECHNOLOGY, INSTITUTE FOR INTELLECTUAL PROPERTY & SOCIAL JUSTICE, NATIONAL CONSUMERS LEAGUE, AND NATIONAL FEDERATION OF THE BLIND SUPPORTING PETITIONER

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INTEREST OF THE AMICI CURIAE[1]

The Center for Democracy & Technology ("CDT") is a nonprofit public interest organization working to ensure that democracy and individual rights are at the center of the digital revolution, and that technology serves as an empowering force for people worldwide.

CDT is committed to ensuring that the benefits of technology flow to consumers. Companies should not be allowed to stifle competition or restrict consumer enjoyment of technology through claims to ownership of software interfaces. Consumers benefit from devices that can be operated by universal controls, from being able to modify and customize devices they have purchased, and from learning universal commands that transcend platforms.

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The Institute for Intellectual Property and Social Justice ("IIPSJ") was established to promote social justice in the field of intellectual property law and practice, both domestically and globally. Through core principles of access, inclusion, and empowerment, intellectual property social justice advances the social

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[1] Counsel for the parties have consented in writing to the filing of this brief. No counsel for a party in this matter authored the brief in whole or in part, and no party other than amici, their members, or their counsel made a monetary contribution intended to fund the preparation or submission of the brief. Counsel for amici curiae was previously engaged to advise Google in connection with this matter earlier in its history, and represents Google in other matters, but Google has had no involvement with the preparation of this brief.

policy objectives that underlie intellectual property protection: the broadest stimulation of creative and innovative endeavor and the widest dissemination of creative works and innovative accomplishments for the greater societal good. IIPSJ proposes and supports new paradigms for the creation, management, and exploitation of knowledge resources, and works within a wide spectrum of IP stakeholders, including artists, inventors, and rights holders, legal scholars, practitioners, and policy makers, and IP entrepreneurs, purveyors, and end-users, to achieve these goals.

IIPSJ has an interest in a well-functioning copyright system that fosters expressive intellectual endeavor toward the greater societal good and balances the interests of all stakeholders in the IP ecosystem toward this end. IIPSJ supports the arguments advanced herein as promoting that balance in the development and use of copyrighted software, particularly with respect to the preservation of opportunities for intellectual property achievement on behalf of "second comer" innovators who lack access to the social resources typically essential to the development, protection, and commercialization of first generation innovation.

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The National Consumers League ("NCL") is the nation's oldest consumer organization, representing consumers and workers on marketplace and workplace issues since its founding in 1899 by two of the nation's pioneering social reformers, Jane Addams and

Josephine Lowell. Its mission is to protect and promote social and economic justice for consumers and workers in the United States and abroad. To that end NCL provides government, businesses, and other organizations with the consumer's perspective on a wide range of important concerns including developments in technology.

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The National Federation of the Blind ("NFB"), the oldest and largest national organization of blind persons, is a nonprofit corporation headquartered in Baltimore, Maryland. It has affiliates in all 50 states, Washington, D.C., and Puerto Rico. NFB and its affiliates are recognized by the public, Congress, executive agencies of state and federal governments, and the courts as a collective and representative voice on behalf of blind Americans and their families. The ultimate purpose of NFB is the complete integration of the blind into society on a basis of equality. This objective includes the removal of legal, economic, and social discrimination. As part of its mission and to achieve these goals, NFB has worked actively to ensure that the blind have an equal opportunity to access the Internet and other emerging technology.

SUMMARY OF THE ARGUMENT

A software interface is the point of connection between a computer program and something else—another program or a human being. In order to be

understood by computers, the commands received across an interface must take a precise form, and the author of a piece of software dictates what that form will be.

But that initial choice imposes restrictions on those who come after. Anyone using a computer system, either directly or through software of their own, must follow the rules of the interface.

Consumers benefit from the freedom to use and reuse software interfaces, and they would pay the cost if that freedom were taken away. Most Americans do not write code or build electronics, but we cannot escape these things. Modern life all but requires buying, learning, and using (or struggling to use) an ever-growing catalog of interconnected devices, apps, and programs. Interfaces are the means by which we manage this chaos. If copyright law were expanded to protect interfaces, fragmentation, higher prices, and frustration would result. Fewer programs and devices would be able to talk to each other. Many efforts to make technology accessible to the blind would be thwarted. Standard interface design would become a rarity, making each new program more burdensome to learn and making each program its own separate silo. Ultimately, we would have less control over the things that we buy, because copyright would take on a new role in restricting how we can use our property.

Moreover, an extension of copyright to cover interfaces would harm competition. It would give the originators of important interfaces the power to prevent

consumers from using their products with third-party software and electronics, to restrict the use of third-party replacement parts, and to interfere with competitors seeking to innovate and bring better offerings to market. It would also turn the time and effort consumers have invested in getting familiar with those interfaces into a barrier that impedes users from decamping for a competitor's alternative system.

The anticompetitive control that would result from expanding copyright protection to software interfaces does not stem from an author's right to control his or her creative expression. Instead, it would represent the misuse of copyright to obtain a monopoly over that which could not have been patented—what this Court has called "a surprise and a fraud upon the public." *Baker v. Selden*, 101 U.S. 99, 102 (1879). This outcome was contrary to the public interest in *Baker*, one hundred and forty years ago, and it remains so to this day.

ARGUMENT

A. Granting copyright to interfaces would harm consumers by giving incumbents a veto over the creation of programs and devices we now take for granted.

As long as software interfaces have existed, they have been treated as free for all to use. For this reason, it is difficult to imagine the world Oracle asks this Court to create. The stakes for the parties in this

case—whether one Fortune 100 company should receive a payment from another—obscure the impact that an expansion of copyright to software interfaces would have on everyday life. Our homes and offices are full of software and electronics that interact with each other through software interfaces, and those interactions across products make our lives easier. Many commonplace products and services would be disrupted if those interfaces became subject to copyright.

1. Copyrighted interfaces would restrict the creation of devices that work with products from many manufacturers.

Perhaps the most obvious casualty of a ruling for Oracle in this case would be "universal" devices that can communicate with many models or brands of products. Such devices need to be able to send (and in some cases receive) commands in the idiom of each product they are compatible with. If software interfaces are subject to copyright, then the more products a universal device supports, the more copyrights it will infringe.

Consider the universal television remote. A home entertainment system today can easily involve half a dozen devices all wired together: a television, a cable box, a DVD or Blu-Ray player, a video-streaming box like an Apple TV, a receiver, and a speaker system. Each component may come from a separate manufacturer, and each has its own remote control. These remotes communicate with their respective devices

through flashes of infrared light, the patterns of which form a hierarchy of commands: channel controls (up and down), volume controls (up and down), numbers (zero through nine), and so on. A universal remote is one that copies the command structure of many different devices and can deploy each system's individual commands verbatim. If those interfaces are copyrightable, then a universal remote infringes the interface specifications of each device it is compatible with. A previous copyright challenge to similar remotes met with failure in the lower courts. *See Chamberlain Grp., Inc. v. Skylink Techs., Inc.*, 381 F.3d 1178, 1182 (Fed. Cir. 2004) (rejecting suit by garage-door manufacturer against maker of universal garage-door remote). Adoption of Oracle's rule would resurrect such claims and effectively mandate the use of a separate remote control for each device in one's home.

Technology that adapts devices for use by blind people likewise depends on the freedom to copy commands used by one system into another system. For example, many devices we encounter in public places have touchscreens—coffee machines, payment terminals, subway ticket machines, in-flight entertainment systems, and so on. Unless the manufacturer has adapted them for use by blind people, they can be difficult or impossible for those people to use.

But by copying the command hierarchies used by those machines, researchers at the Human-Computer Interaction Institute at Carnegie Mellon University were able to develop software that runs on a smartphone and allows blind people to interact with

touch-screen devices using an audio interface.[2] The software uses the smartphone's camera to observe the touchscreen and provide spoken guidance on how to navigate the command structure—for example, where to press to order a decaf cappuccino from an automated coffee machine. Critically, this software operates by storing copies of all of the command structures for all of the touch-screen machines it works with. If groups of commands were copyrightable, the development of important accessibility technology would be hindered.

This problem cannot be solved by a market for licenses. Although some manufacturers of universal programs or devices may be able to license individual interfaces, the transaction costs involved in attempting to license every product on the market would serve as a major barrier to entry.[3]

Even if money were no object, there is no guarantee that licenses would be available. Many companies may simply refuse to come to the bargaining table with a universal-device manufacturer if they deem control

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[2] Anhong Guo et al., *StateLens: A Reverse Engineering Solution for Making Existing Dynamic Touchscreens Accessible*, 2019 Proc. ACM Symposium on User Interface Software & Tech. 371 (2019), *at* https://arxiv.org/abs/1908.07144.

[3] In the universal-TV-remote context, for example, one ten-dollar universal remote contains a full hierarchy of commands for more than 300 different brands of television. *See* Compatibility List for GE Universal Remote, https://perma.cc/KVC6-FR22. And in the accessibility context, the software is designed to learn by watching sighted volunteers use different interfaces, providing benefits over a system with a rigid, centralized set of licensed interfaces. Guo, *supra*, at 376.

over the device ecosystem to be in their economic interest. *See* Clark D. Asay, *Software Copyright's Anticommons*, 66 Emory L.J. 265, 290, 296–97 (2017). Such companies would be able to deploy a copyright in interfaces to control the market for compatible products, even if it means fewer and worse options for consumers.

Moreover, if a compatible product is successful, licensing fees will only go up over time. If universal products do come to market in a world of copyrightable interfaces, it will be at a much greater cost—and those costs will inevitably be passed on to the consumer.

2. Copyrighted interfaces would restrict the creation of third-party software or devices that enhance or customize products consumers lawfully purchase.

A rule that software interfaces can be copyrighted would limit not only what products are created and produced, but also how consumers can use products after purchasing them. In general, developers of successful electronics and software try to implement features sought after by large portions of their user base. But some groups of users inevitably find that their needs are not being met by existing products, at least not in a timely fashion. This gap is filled by third parties who write code that interacts with the original product and customizes its functions. If command structures were copyrightable, it would be copyright infringement to create software that communicates with a lawfully

purchased program or device on the device owner's behalf because such communication requires copying commands verbatim.

The specialized needs of consumers can be acute. For example, many people with diabetes use continuous glucose monitors to track their blood-glucose levels in real time and respond quickly to dangerous spikes or drops. But caregivers also need to be able to see those glucose levels, because a rapid change can cause a person with diabetes to pass out and need immediate assistance. This is especially important for the parents of diabetic children, but many continuous glucose monitors are not designed to transmit data to parents or other remote caregivers. As an FDA official observed, parents were "clearly crying out for ways to access their children's devices in a way that [wasn't] available." Kate Linebaugh, *Citizen Hackers Tinker With Medical Devices*, Wall St. J. (Sept. 26, 2014), https://www.wsj.com/articles/citizen-hackers-concoct-upgrades-for-medical-devices-1411762843.

The situation changed in 2014 when a group of parents decided to take matters into their own hands. They created the Nightscout Foundation, which produces open-source software that interfaces with continuous glucose monitors and allows their output to be viewed remotely. *Id.*; *see* Nightscout, *Welcome to Nightscout*, http://www.nightscout.info/ (last visited Jan. 7, 2020).

Nightscout's software works by sending commands to continuous glucose monitors according to the rules

of their interfaces and receiving data in return. The software is legal because the law treats interfaces as wholly functional and therefore uncopyrightable, rather than as creative expression subject to copyright. This allows parents who lawfully purchase monitors to modify their property to help them protect their children.

By contrast, if Nightscout had needed a license to even get started, the project may never have gotten off the ground. Licensing negotiations with risk-averse, profit-seeking corporations can create just as much of a barrier for nonprofits and enthusiasts as they do for new market entrants—more, even, because nonprofits and enthusiasts have nothing to offer interface owners in return. And without consumers to lead the way, manufacturers will lag even further behind in meeting users' needs.

Nightscout's rallying cry is the hashtag #WeAreNotWaiting: the need for some functionality is so urgent that it spurs consumers to take matters into their own hands and build the features that technology companies do not. If use of the interfaces that connect those consumers to their devices were restricted by copyright, consumers would be once again at the mercy of device makers. The very progress of science and useful arts that copyright exists to promote would be held back.

3. Copyrighted interfaces would harm the market for inexpensive third-party replacement parts.

Every seller of a product with replaceable parts would prefer to be the only source of those parts, since a single source can charge higher prices. Consumers, on the other hand, are best served when they have the option to buy replacement parts from third-party competitors at a lower price. *See* Severin Borenstein et al., *Antitrust Policy in Aftermarkets*, 63 Antitrust L.J. 455, 471 (1995) ("Manufacturers may exclude aftermarket providers with lower costs, different service qualities, or different product variety to protect their profits, all of which create consumer harm."). Granting copyright in interfaces would open up a new way to lock out competition for replaceable parts: place a microchip on the part and require the microchip to communicate with the main device through a copyrighted system of commands.

Perhaps the plainest example of the mischief of this sort that would result from a ruling in favor of Oracle comes from the printer business. This Court is already familiar with printer manufacturer Lexmark International, Inc., as its long-running effort to make consumers pay extra for the right to refill their toner cartridges has brought it twice before this Court. *See Lexmark Int'l, Inc. v. Static Control Components, Inc.*, 572 U.S. 118 (2014); *Impression Prods., Inc. v. Lexmark Int'l, Inc.*, 137 S. Ct. 1523 (2017). In *Impression Products*, the Court brought an end to Lexmark's attempt to use patent law to prevent the sale of refurbished

printer cartridges. But Lexmark also tried to use copyright law to accomplish the same purpose.

Lexmark installed microchips in its toner cartridges with software that speaks in the idiom of Lexmark-brand printers. When a competitor began equipping its own toner cartridges with software that could successfully speak in that idiom, Lexmark sued for copyright infringement. The Sixth Circuit held that Lexmark's copyright claim was unlikely to succeed, because the copying at issue was necessary for interoperability between printer and toner cartridge. *Lexmark Int'l, Inc. v. Static Control Components, Inc.*, 387 F.3d 522, 541 (6th Cir. 2004).

If this Court authorizes copyright protection for interfaces, it will provide a roadmap for Lexmark to resume its campaign to own the market for replacement toner cartridges. Other industries will have every incentive to follow in Lexmark's tracks. Batteries, chargers, even non-electronic parts like car tires—all of these could be monopolized by manufacturers of the devices that use them. Granting copyright protection to a printer's software interface would not serve the purposes of copyright. Instead, it would simply hand an additional tool to those who seek to misuse the intellectual-property laws to impede competition in markets that have nothing to do with expression found in the "Writings" of "Authors." U.S. Const. art. I, § 8.

B. Granting copyright to interfaces would harm consumers by raising the costs of learning new software.

Software interfaces control the interaction between people and computers just as they control the interaction between computer systems. As a result, this case is not just about the availability of interoperable software and electronics. It is also about whether consumers should be forced to learn a new interface every time they switch to a new software application.

1. Consistent software interfaces make it easier for consumers to learn new software.

Mastering a software interface, especially a sophisticated one, can be a serious investment of time, dedication, and skill. This process only becomes more difficult as time goes on—and the number of programs to learn only seems to go up. Nor is the choice to learn new software always a voluntary one. Many jobs, even non-technical ones, require frequent or constant use of computers. Workers must keep their technology skills current in order to stay employed. But the burden of doing so would be greatly increased if copyright law required each program to have a novel command structure.

The cost to consumers of learning new software is currently much lower than it might be because successful interfaces become industry standards. For example, Microsoft Excel has a library of methods called

"formulas" that let users manipulate the data in its spreadsheets. To sum the values of a group of cells, one can use the formula =sum(), with the group of cells identified within the parentheses. To identify the largest value of the group, the formula is =max(). There are hundreds more, some widely used and others highly specialized, organized hierarchically.[4] Excel also employs a set of rules for how to identify the cells on which the formula will operate. Just like a method call in a Java program, if a formula is written in a different idiom, it will not work.

Learning the command structure of Excel requires a substantial commitment of time and resources. But doing so is not an investment in Excel alone. Because commands are not copyrightable, many of Excel's competitors, like Google Sheets and Apple Numbers, use the same formula conventions, making it easier for consumers to switch among spreadsheet programs.[5] In fact, many of the commands in Excel did not originate with Microsoft at all. Instead, they were

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[4] *See* Microsoft Corp, *Excel Functions (alphabetical)*, https://support.office.com/en-us/article/excel-functions-alphabetical-b3944572-255d-4efb-bb96-c6d90033e188 (last visited Jan. 7, 2020). For example, each command is organized into a category (e.g., "Math and trigonometry"). And some commands are named hierarchically, like the NORM.DIST, NORM.S.DIST, NORM.INV, and NORM.S.INV functions, each of which is a function providing a different type of normal ("NORM") cumulative distribution for use in statistics.

[5] *See* Google, *Google Sheets function list*, https://support.google.com/docs/table/25273?hl=en (last visited Jan. 7, 2020); Apple, *Functions*, https://www.apple.com/mac/numbers/compatibility/functions.html (last visited Jan. 7, 2020).

used previously by a spreadsheet program called Lotus 1-2-3. *See* Lotus Dev. Corp., *@Functions and Macros Guide* (1991). (Lotus 1-2-3 is the very program whose command structure was the subject of *Lotus Development Corp. v. Borland International, Inc.*, 49 F.3d 807, 811 (1st Cir. 1995), *aff'd by an equally divided court*, 513 U.S. 233 (1996)).

As with Java and Android, the implementing code for all of these programs is proprietary and unique. The shared commands, however, permit users who have learned one spreadsheet program to transition easily to another as work or life demands.

Not all widely used systems of software commands are as complex as Excel. Perhaps the most ubiquitous are the popular keyboard commands that are used in a wide variety of programs: Control-C to copy; Control-V to paste; Control-Z to undo; Control-P to print; Control-S to save; Control-I for italics; Control-U for underline; Control-B for bold. (Mac computers use the same commands, but with the Command key held in place of the Control key.) These commands (and others) are implemented throughout Microsoft products like Windows and Office, Google software like Docs, Gmail, and Chrome; MacOS and Apple's productivity software; and countless applications made by smaller developers.[6] On trying a new piece of software, it is only

[6] Indeed, like the Excel formulas, many of these shortcuts originated with a system no longer in use. The cut-copy-and-paste idiom, as well as the Control-I, Control-B, and Control-U commands for text formatting, originated with the Xerox Alto computer developed at Xerox PARC in the 1970s. *See* Larry Tesler

natural to assume that most of these commands will function normally. They have become part of our understanding of how computers work. As with the Excel formulas, the implementation of each of these commands is unique to each program. Only the commands are shared.

These commands are, of course, somewhat simpler than the commands Oracle seeks to control in this case. But they are no different in *kind*: they are commands used by humans, sometimes in a sequence, to get a computer to do what the human desires.

2. Copyrighted interfaces would make it harder for consumers to switch products and enable developers to raise prices.

Oracle no more owns the right to control who may use the command java.lang.Math.max() than Microsoft owns the right to control who may use the command =sum() or Apple owns the command Control-C to copy.

If this Court rules that interfaces are copyrightable, the habits and instincts we have acquired through learning and using dozens of programs will cease to serve us, because developers will risk copyright liability if they reuse or adapt common interfaces. The result

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et al., *Gypsy: The Ginn Typescript System*, http://www.bitsavers.org/pdf/xerox/alto/memos_1975/Gypsy_The_Ginn_Typescript_System_Apr75.pdf, at 5; Larry Tesler, *A Personal History of Modeless Text Editing and Cut/Copy-Paste*, Interactions, July & Aug. 2012, at 70.

will be that copyright law will interfere with software development, incentivizing needlessly baroque and complex interface design to minimize the risk of substantial similarity to an existing group of commands.

The most direct consequence, however, will be that consumers will find it hard to switch away from the first programs that they learn. The more complicated the program, the greater the costs of learning a competitor's entirely new interface from scratch. And by making it harder to switch products, copyright in interfaces would give software developers new power over their users. When switching is harder, software companies have more freedom to raise prices and ignore their customers' needs. *See Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 476 (1992) ("If the cost of switching is high, consumers who already have purchased the equipment, and are thus 'locked in,' will tolerate some level of service-price increases before changing equipment brands."); Chris Jay Hoofnagle et al., *The Tethered Economy*, 87 Geo. Wash. L. Rev. 783, 840 (2019) ("Lock-in enables forms of opportunism, or chances to easily extract more value from consumers."). Insulating companies from their customers' demands for new and different functionality is particularly problematic because, as discussed above, a copyright in interfaces would also impede consumers hoping to use third-party software to fill gaps left by the original developer.

Consumers expect and have come to rely on the uncopyrightable nature of interfaces in navigating the computer age. If copyright law could be used to lay

claim to the functional command systems that consumers have painstakingly learned, it would be "a surprise and a fraud upon the public" of the kind this Court has not permitted and should not now permit. *Baker*, 101 U.S. at 102.

CONCLUSION

The judgment of the Court of Appeals should be reversed, and this Court should confirm that software interfaces are not copyrightable.

Respectfully submitted,

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