

No Trespassing: A Lawmaker’s Guide to Protecting Property Rights in the Age of Augmented and Mixed Reality

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I. INTRODUCTION

Mixed reality and augmented reality (AR) are the way of the future. By 2020, the mixed and augmented reality industry is expected to be valued at \$162 billion.¹ With the rise of wearable devices with AR capabilities² and the

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¹ *The Virtual and Augmented Reality Market Will Reach \$162 Billion by 2020*, BUS. INSIDER (Aug. 22, 2016), <http://www.businessinsider.com/virtual-and-augmented-reality-markets-will-reach-162-billion-by-2020-2016-8> [<https://perma.cc/HMC5-Z9Q9>] (“The adoption of AR and VR headsets will be driven primarily by the introduction of less expensive models to the market . . . creating new use cases in entertainment, workplaces, and education.”) [hereinafter *Virtual*, BUS. INSIDER].

² Paul Lamkin, *The Best Augmented Reality Glasses 2018: Snap, Vuzix, ODG, Sony & More*, WAREABLE (July 3, 2018), <https://www.wareable.com/ar/the-best-smartglasses-google-glass-and-the-rest> [<https://perma.cc/4BRT-PAUU>].

inclusion of AR features in new software such as iOS 12,³ mixed reality and augmented reality are sure to become more mainstream in American life. Patrons can enter into real-world venues and put on a pair of glasses that supplement their experiences by providing digital data and virtual displays of information.⁴ Applications such as Pokémon Go⁵ have brought AR to the mainstream and spurred the development of thousands of new applications.⁶ Additionally, most new smartphones and wearable devices have the ability to superimpose intellectual property, such as trademarked logos and identifiers, over real-world property on the device's screen.⁷

The advanced technology behind AR places it in a unique position to have unforeseen effects on three distinct areas of the law: traditional property law, trademark law, and copyright law. As such, various questions are being raised about the viability of the current laws within each field.⁸ First, are developers

³ Stefan Etienne, *Apple Announces iOS 12 with New AR Features, Photos Improvements, and More*, THE VERGE (June 4, 2018), <https://www.theverge.com/2018/6/4/17414386/ios-12-announced-features-release-date-apple-wwdc-2018> [<https://perma.cc/SJ5A-R4BD>].

⁴ See Joshua A.T. Fairfield, *Mixed Reality: How the Laws of Virtual Worlds Govern Everyday Life*, 27 BERKELEY TECH. L.J. 55, 56–57 (2012) (discussing the use of smartphones to overlay digital content onto real spaces that effectively connects the content to a real space, creating augmented reality—for example, a museum patron who points his or her smartphone at a sculpture, and the artist appears on the screen ready to be interviewed); see also Jennifer Billock, *Five Augmented Reality Experiences that Bring Museum Exhibits to Life*, SMITHSONIAN MAG. (June 29, 2017), <https://www.smithsonianmag.com/travel/expanding-exhibits-augmented-reality-180963810/> [<https://perma.cc/GJG9-T6JA>] (describing Smithsonian's oldest museum hall, The Bone Hall, which now allows guests to use an app to overlay skin and movements onto the bones on display, bringing exhibits to life).

⁵ The details of how Pokémon Go works will be discussed further in this Note. Pokémon Go has achieved enormous commercial success. As of December 5, 2017, the application had been downloaded over 100 million times and generated total revenue of \$268 million. Artyom Dogtiev, *Pokémon Go Revenue and Usage Statistics*, BUS. APPS (Dec. 5, 2017), <http://www.businessofapps.com/data/pokemon-go-statistics/> [<https://perma.cc/5NFX-4PHA>].

⁶ Jefferson Graham, *Get Ready for Thousands of Augmented Reality Apple Apps*, USA TODAY (Sept. 6, 2017), <https://www.usatoday.com/story/tech/talkingtech/2017/09/06/get-ready-thousands-augmented-reality-apple-apps/630957001/> [<https://perma.cc/R7EB-TMB6>] (“Apple has thousands of apps—some say as many as 10,000—ready to unleash in just a few weeks.”).

⁷ See Etienne, *supra* note 3; *ARKit – What's New in ARKit 1.5*, APPLE. INC, <https://developer.apple.com/arkit/> [<https://perma.cc/9UTR-8NGK>] (allowing for developers to incorporate augmented reality features into new or existing applications).

⁸ See Jamison Gilmore, *Augmented Reality Incitement: How the Creator of Pokémon Go, and Those Who Follow, Are Open to Tortious Liability*, 47 SW. L. REV. 231, 231–34 (2017) (discussing the potential liability issues stemming from augmented reality applications, such as Pokémon Go); Shannon Yavorsky & Kimberly Culp, *Are You Prepared for the Legal Issues of Augmented Reality?*, LEXOLOGY (July 16, 2017), <https://www.lexology.com/library/detail.aspx?g=48f0efb9-a22b-46c5-ad53-a0077e69e67a> [<https://perma.cc/D8ZF-RNKK>] (discussing the ability of augmented reality to blur the lines

responsible for real-world property damages that occur when players use their AR applications, or are developers insulated from liability through First Amendment or other protections? Second, are AR applications that use visual trademarks to trigger the display of other, competing trademarks protected under the fair use doctrine⁹ or parody protections,¹⁰ or are they not protectable under the current Lanham Act at all? Finally, does copyright law adequately protect hybrid works created by AR where new intellectual property is overlaid on top of existing copyrighted works?

Intended to serve as a lawmaker's guide for protection of property rights, this Note will identify the most significant issue for each of these three areas of the law and suggest a framework for a modest legislative proposal in each Part designed to prevent the laws from becoming outdated within the next ten years.¹¹ In Part II, this Note provides background information about mixed and augmented reality technologies, detailing the technology itself and issues that are certain to arise as AR advances further and further beyond what the current legal framework originally contemplated. In Part III, this Note examines real-world property laws and advocates for Congressional action to create a catchall real and intellectual property law (Virtual Invasion of Physical Land) that includes an opt-in and opt-out provision for landowners. After proposing a

between reality and computer-generated information); *Legal Issues with Augmented Reality*, PILLSBURY LAW, <https://www.socialgameslaw.com/files/2014/11/Legal-Issues-with-Augmented-Reality.pdf> [<https://perma.cc/PL72-X6GK>] (discussing the effects of augmented reality on copyright and trademark law); Eugene Volokh, *Law, Virtual Reality, and Augmented Reality*, WASH. POST (Mar. 17, 2017), https://www.washingtonpost.com/news/volokh-conspiracy/wp/2017/03/17/law-virtual-reality-and-augmented-reality/?utm_term=.25ee5b6c0a4 [<https://perma.cc/VNM8-A4N9>] (discussing the legal issues that AR presents to courts, companies, and users).

⁹Defendants in a trademark infringement dilution claim can assert two types of affirmative defenses, one of which is fair use. See Part V.C *infra*. Fair use occurs when a descriptive mark is used in good faith and no consumer confusion results. See Part V.C *infra*. Numerous cases have examined the fair use defense. See Part V.C *infra*. Nominative fair use is another available defense that can be raised when a defendant uses a registered mark or term if it is necessary for purposes of identifying another producer's product. *Overview of Trademark Law*, HARVARD ONLINE, <https://cyber.harvard.edu/metaschool/fisher/domain/tm.htm> [<https://perma.cc/H7BZ-9ULF>] [hereinafter *Trademark Overview*]; see also Lanham Act, 15 U.S.C. § 1051 (2012) (application for registration of a trademark).

¹⁰The parody defense may be raised when a usage of a particular mark is not tied to commercial use per se, but it is used in an artistic or editorial way. See *Trademark Overview*, *supra* note 9.

¹¹This Note will examine three areas of the law in three separate Parts and provide three legislative proposals. These proposals all share the common goal of updating the relevant laws in order to deal with the age of augmented and mixed reality. The proposals in this Note are meant to serve as a general framework that identifies the biggest issue for each area of the law and the steps needed to resolve the issue. The legislative proposals in this Note could, in theory, be passed by Congress as one comprehensive package, such as an "Augmented and Mixed Reality Property Protections for the 21st Century" bill. Alternatively, the proposals could be passed as separate pieces of legislation. For clarity, the proposed text is split amongst three different Parts within this Note.

solution for real property disputes, this Note transitions to the protection of intellectual property. In Part IV, this Note examines trademark law and advocates for revision of the Lanham Act to prevent AR applications from using visual trademarks to mislead or misdirect consumers. Finally, Part V examines copyright law and advocates for adopting an amendment to the Copyright Act to incorporate AR technologies and define the limits of derivative works and fair use. Part VI of this Note offers a brief conclusion.

II. THE RAPID RISE OF AN AUGMENTED AND MIXED REALITY WORLD

Augmented reality, sometimes referred to as “mixed reality,”¹² involves the mixing of “virtual” and “actual” reality using specially designed software.¹³ AR has been around in some form since 1968.¹⁴ Harvard computer scientist Ivan Sutherland created the first AR device, a head-mounted display system that superimposed virtual information on the physical environment.¹⁵ Early AR devices were used primarily for aviation and military purposes,¹⁶ however, for the ordinary consumer AR is a relatively new phenomenon.¹⁷ The first commercially available AR application appeared in 2008, allowing for users to view a car in a magazine ad as a 3D model on their computer.¹⁸ Today, AR applications are becoming more and more commonplace.¹⁹ For example, Snapchat recently released a desktop app, Lens Studio, that allows any user to create AR graphics for usage in the Snapchat mobile app.²⁰ Additionally, Apple and Google recently released ARKit2 and ARCore, respectively, allowing

¹²“Mixed reality” and “augmented reality” are used interchangeably in this Note.

¹³Fairfield, *supra* note 4, at 63.

¹⁴Ana Javornik, *The Mainstreaming of Augmented Reality: A Brief History*, HARVARD BUS. REVIEW (Oct. 4, 2016), <https://hbr.org/2016/10/the-mainstreaming-of-augmented-reality-a-brief-history> [<https://perma.cc/7U8G-EWNE>].

¹⁵*Id.*; Ivar Kjellmo, *3D Design for Augmented Reality*, in VIRTUAL, AUGMENTED AND MIXED REALITY: DESIGNING AND DEVELOPING AUGMENTED AND VIRTUAL ENVIRONMENTS 159, 160 (Randall Shumaker et al. eds., 2013).

¹⁶Javornik, *supra* note 14.

¹⁷See *Virtual*, BUS. INSIDER, *supra* note 1.

¹⁸Javornik, *supra* note 14 (discussing the first commercial augmented reality application created by BMW that allowed for users to view a digital car overlaid on top of a physical magazine when they pointed their phone at the magazine, which allowed users to have a 3D model of the car they could rotate on their phones).

¹⁹Graham, *supra* note 6.

²⁰The Snapchat Lens Studio allows for any user to create AR content that can be digitally overlaid within the Snapchat application. When the user holds down the screen on a particular object, the application will then place the AR element on top of that object on the device’s screen. This gives the effect that the digital object is actually part of the real-world landscape. See *Introducing Lens Studio*, SNAP INC. (Dec. 14, 2017), <https://www.snap.com/en-US/news/post/introducing-lens-studio/> [<https://perma.cc/5XST-BB62>].

developers to add AR experiences to their applications,²¹ while iOS 12 brings AR features to Apple devices worldwide.²²

In fundamental terms, AR takes the real-world environment and “augments” or adds to it with extra layers of digital information.²³ Typically, AR applications use one of three methods for the superimposition of images on top of the physical world.²⁴ Simultaneous Localization and Mapping (SLAM) allows for devices to map the real world around them using sensors and various algorithms.²⁵ The combination allows the device to render virtual images on a handheld device’s screen over real-world objects.²⁶ Recognition-based AR uses a camera to identify visual markers or objects, which triggers the application to display a particular image.²⁷ The visual object displayed on the screen moves as the user rotates the camera.²⁸ Lastly, location-based AR relies on GPS, compass, velocity, and accelerometer data about a user’s location or movements to display a particular object on the screen on top of the real-world landscape when a particular location is reached.²⁹ Location-based AR is used by the popular application Pokémon Go.³⁰

On November 16th, 2016, the Senate Committee on Commerce, Science, and Transportation held a hearing titled “Exploring Augmented Reality.”³¹ At the hearing, those in the mixed-reality space spoke about the implications of this

²¹ Both of these desktop applications allow the developer to include AR elements in any application for Android or IOS. *Apple Unveils ARKit 2*, APPLE (June 4, 2018), <https://www.apple.com/newsroom/2018/06/apple-unveils-arkit-2/> [<https://perma.cc/9QED-694D>]; *AR Core Overview*, GOOGLE (Aug. 12, 2018), <https://developers.google.com/ar/disc-over/> [<https://perma.cc/2AUH-D7YW>].

²² Etienne, *supra* note 3 (“Augmented reality, ARKit 2, sharing, and Shortcuts are some of the breakout features of iOS 12.”).

²³ *Augmented Reality*, MACMILLAN DICTIONARY, <https://www.macmillandictionary.com/us/buzzword/entries/augmented-reality.html> [<https://perma.cc/QR7V-9HDP>].

²⁴ *The Ultimate Guide to Augmented Reality (AR) Technology*, REALITY TECH., <http://www.realitytechnologies.com/augmented-reality> [<https://perma.cc/Q9W3-UY3B>] [hereinafter *Ultimate Guide*].

²⁵ See Mojtaba Tabatabaie, *How SLAM Technology is Redrawing Augmented Reality’s Battle Lines*, VENTUREBEAT (July 31, 2017), <https://venturebeat.com/2017/07/31/how-slam-technology-is-redrawing-augmented-realitys-battle-lines/> [<https://perma.cc/QSB2-YRXG>].

²⁶ *Ultimate Guide*, *supra* note 24.

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

³⁰ See Claire Warner, *How Does “Pokémon Go” Work? Here’s Everything We Know About the Tech Behind the Augmented Reality Fad*, BUSTLE (July 13, 2016), <https://www.bustle.com/articles/172317-how-does-pokemon-go-work-heres-everything-we-know-about-the-tech-behind-the-augmented-reality> [<https://perma.cc/DJ4N-UYQG>] (describing the location-based technology behind Pokémon Go).

³¹ *Exploring Augmented Reality, Before the S. Comm. on Com., Sci., & Transp.*, 114th Cong. 2–43 (2016) (statement of Brian Blau, Research Vice President, Gartner and John Hanke, CEO, Niantic).

rapidly advancing field.³² Brian Blau, Research Vice President at Gartner, said that he believed hundreds of millions of AR devices would be in the hands of consumers within the next five years.³³ Additionally, others, such as John Hanke, CEO of Niantic,³⁴ spoke about the need for regulations that do not stifle innovation in the AR space.³⁵

While the technology has become increasingly popular over the past five years and shows no signs of slowing, this rapid rise also converges with a space that has relatively little regulation and did not exist when the current body of law was drafted.³⁶ Thus, the current body of regulation is generally judge-made law,³⁷ which is volatile and not sustainable in the current rapid technology boom. Legislators have recognized this fact as well.³⁸ In May 2017, House members formed a “reality caucus” to consider issues related to virtual, augmented, and mixed realities.³⁹

Evidenced by the rapid increase and advancement of commercially available AR applications since 2008, these technologies are only on the cusp of their full potential.⁴⁰ However, almost all existing property, trademark, and copyright laws were enacted before augmented and mixed reality technologies were thought to be feasible for everyday consumer usage. Keeping this in mind, the remaining Parts of this Note take an in-depth look into the legal issues that are likely to arise as these technologies become more advanced and commonplace.

III. AUGMENTED REALITY AND REAL PROPERTY RIGHTS

AR applications are raising property disputes due to the uncharted legal area where the bounds of real and intellectual property meet. While there have been over thirteen million ARKit-created application downloads since the release of iOS11 in 2017,⁴¹ this Part will frequently refer to Pokémon Go as the primary example, as it has gained the most prominence, and consequentially, the most

³² *Id.*

³³ *Id.* (“We forecast that in 5 to 10 years there will be hundreds of millions of HMD devices in the hands of users; split between see-through transparent display devices and those that provide full immersion, such as VR. There are many technology vendors competing for this opportunity, Microsoft, Google, ODG, Epson, DAQRI and many others.”).

³⁴ Niantic created the application Pokémon Go. *Id.*

³⁵ *Id.*

³⁶ Yavorsky & Culp, *supra* note 8.

³⁷ Farifield, *supra* note 4, at 59.

³⁸ Yavorsky & Culp, *supra* note 8.

³⁹ *Id.*

⁴⁰ Sarah Perez, *ARKit-Only Apps Top 13 Million Installs, Nearly Half from Games*, TECHCRUNCH (Mar. 2018), <https://techcrunch.com/2018/03/28/arkit-only-apps-top-13-million-installs-nearly-half-are-games/> [https://perma.cc/HNZ4-AHJZ].

⁴¹ *Id.*

legal attention.⁴² Pokémon Go and other related AR applications use location-based services that require players to travel to different predetermined real-world locations in order to collect virtual items that contribute to gameplay.⁴³ For example, in Pokémon Go, the “trainers” or players travel to different real-world locations, the “Pokéstops,” in order to collect virtual Pokémon.⁴⁴ Niantic, the developer of the game, sets the geographic coordinates of the “Pokéstops” near or on real-world property.⁴⁵

While many business owners have enjoyed economic benefits from the applications,⁴⁶ the game’s requirement that players travel to real-world locations has also raised legal issues. For example, gamers have been found trespassing on private property,⁴⁷ have been accused of damaging public and private property,⁴⁸ have engaged in assault and battery of other players,⁴⁹ and have cost cities large sums of money in order to protect public parks and provide extra law enforcement personnel.⁵⁰

A. Attempts to Regulate Augmented Reality Applications

In response to the real-world damage caused by the AR application’s players, some cities have attempted to implement local ordinances to deal with

⁴² Scott Stein, *Pokémon Go Changed the Way People Look at Their Phones Forever*, CNET (July 7, 2017), <https://www.cnet.com/news/for-better-or-worse-pokemon-go-is-ars-signature-killer-app/> [https://perma.cc/2TPT-D8CB]; Nick Wingfield & Mike Isaac, *Pokémon Go Brings Augmented Reality to a Mass Audience*, N.Y. TIMES (July 11, 2016), https://www.nytimes.com/2016/07/12/technology/pokemon-go-brings-augmented-reality-to-a-mass-audience.html?_r=0 [on file with *Ohio State Law Journal*]; Debra Cassens Weiss, *Pokémon Go Spurs Lawyers to Stop and Consider Legal Issues*, A.B.A. J. (July 13, 2016), <http://www.abajournal.com/news/article/pokemongospurslawyerstostopandconsider/> [https://perma.cc/GA2X-2DHC].

⁴³ See Warner, *supra* note 30 (discussing the technology behind Pokémon Go).

⁴⁴ *Id.* (“Pokémon Go uses your phone’s camera to place an image of a Pokémon within your surroundings, and the GPS, accelerometer, and compass give the game an idea of which direction your phone is pointing toward.”).

⁴⁵ *Id.*

⁴⁶ See Wingfield & Isaac, *supra* note 42 (detailing several businesses offering promotions for customers using the Pokémon Go app).

⁴⁷ *Pokémon Go Players Are Trespassing, Risking Arrest or Worse*, DENV. POST (July 12, 2016), <https://www.denverpost.com/2016/07/13/pokemon-go-players-risking-arrest-trespassing/> [https://perma.cc/BGZ6-WMTF].

⁴⁸ Lauren Kravets, *Man Says Pokémon Go Players Damaged His Property*, KXAN (July 14, 2016), <http://kxan.com/2016/07/14/neighbor-pokemon-go-hunters-damaged-property/> [https://perma.cc/HS59-FKH3].

⁴⁹ Sara Humphrey, *Police: Players Fight over Pokémon Go in Downtown Sherman*, KXII (July 27, 2016), <http://www.kxii.com/content/news/Pokemon-Go-causes-fist-fight-in-Sherman-388485672.html> [https://perma.cc/K82M-98X3].

⁵⁰ Cox Media Group National Content Desk, *Pokémon Go Player Tased, Arrested After Refusing to Leave Park*, WHIOTV (July 23, 2016), <http://www.whio.com/news/national/pokemon-player-tased-arrested-after-refusing-leave-park/6ZrjZxXaxtfyG3aaMvyjJ/> [https://perma.cc/8WQR-QSRN].

the negative effects.⁵¹ For example in *Candy Lab v. Milwaukee Cty.*, the developer of an AR application called “Texas Rope ‘Em” challenged a Milwaukee County ordinance which required the developers of any AR application to obtain a permit before operating in Milwaukee.⁵² The ordinance⁵³ was in response to the negative effects of the Pokémon Go application, such as: inadequate bathrooms for park-goers, unauthorized vendors in the park, parking violations, and significantly increased traffic congestion.⁵⁴ One member of the Board that passed the ordinance claimed that the County was forced to foot the bill for “tens of thousands” of dollars to keep up with the additional park traffic because of the app.⁵⁵

However, even with the increased costs to the county, the court in *Candy Lab* found that the First Amendment considerations outweighed the need for the ordinance.⁵⁶ The *Candy Lab* court determined that AR applications are entitled to the same First Amendment protections as regular video games.⁵⁷ The location-based nature of these applications, the court concluded, does not change the fact that the content itself cannot be regulated.⁵⁸ Engaging in a First Amendment analysis, the court further stated that the ordinance requiring permits was an invalid restriction on speech because it treated AR applications as a separate category, distinguishing the games by their mode or channel of speech rather than their content.⁵⁹

In addition to the public park at issue in *Candy Lab*, private homeowners in numerous states filed a class action lawsuit against Niantic, accusing the

⁵¹ Kyle Melnick, *Milwaukee Is Being Sued over Mandatory Augmented Reality Permits*, VR SCOUT (May 5, 2017), <https://vrscout.com/news/milwaukee-sued-mandatory-augmented-reality-permits/> [<https://perma.cc/9F5D-4CJP>].

⁵² *Candy Lab Inc. v. Milwaukee Cty.*, 266 F. Supp. 3d 1139, 1141 (E.D. Wis. 2017).

⁵³ The ordinance read in pertinent part as follows:

Virtual and location-based augmented reality games are not permitted in Milwaukee County Parks except in those areas designated with a permit for such use by the Director of the Department of Parks, Recreation, and Culture [(the “DPRC”)]. Permits shall be required before any company may introduce a location-based augmented reality game into the Parks, effective January 1, 2017.

Id. at 1143.

⁵⁴ *Id.* at 1142–43.

⁵⁵ *Id.* at 1143.

⁵⁶ *Id.* at 1151–52.

⁵⁷ *Id.* at 1146–47 (“The Supreme Court has instructed that video games, like other forms of expression, are entitled to First Amendment protection. *Brown v. Entm’t Merchs. Ass’n*, 564 U.S. 786, 790, 131 S.Ct. 2729, 180 L.Ed.2d 708 (2011). . . . Accordingly, the Court concludes that Texas Rope ‘Em qualifies for First Amendment protection and that the County’s motion to dismiss on that ground must be denied.”)

⁵⁸ *Candy Lab Inc. v. Milwaukee Cty.*, 266 F. Supp. 3d 1139, 1149 (E.D. Wis. July 20, 2017).

⁵⁹ *Id.*

company of encouraging trespassing and nuisance.⁶⁰ In a complaint filed in the Northern District of California, the plaintiff alleged that the defendant (Niantic) had designated Pokéstops and Pokémon Gyms on or directly adjacent to private property without the consent of the property owners.⁶¹ The homeowners further alleged that the players had been congregating in front of their property.⁶² As such, the homeowners brought claims of unjust enrichment and nuisance.⁶³ Recently, it was announced that the two parties had reached a settlement.⁶⁴ Part of the settlement agreement required Niantic to set up a web portal that would allow homeowners to complain about virtual Pokéstops and Gyms being too close to their property.⁶⁵ While this solution certainly helps homeowners affected by Pokémon Go, it is little help when these issues arise in relation to similar location based applications.

The underlying question in these cases is whose rights dominate when someone's intellectual property is overlaid on top of real-world property.⁶⁶ Can a real-world owner or municipality force a developer, such as Niantic, to remove its intellectual property from a geographic location under the existing common law trespass or nuisance laws? Can developers, such as Niantic, be held liable for "virtual trespassing"⁶⁷ under current common law? Examining these issues under current property and tort law principles demonstrates the need for an

⁶⁰ Joseph Ax, *Pokémon No-Go: New Jersey Resident Sues over Trespassing Players*, REUTERS (Aug. 3, 2016), <https://www.reuters.com/article/us-nintendo-pokemon-lawsuit/pokemon-no-go-new-jersey-resident-sues-over-trespassing-players-idUSKCN10E29Z> [<https://perma.cc/252Y-JPKJ>]; *Pokémon Go Makers Face Trespassing Lawsuit*, BBC NEWS (Aug. 3, 2016), <http://www.bbc.com/news/business-36961201> [<https://perma.cc/LC69-3SPX>]; Paul Tassin, *Pokémon Go Maker Seeks Dismissal of Trespass, Nuisance Class Action*, TOP CLASS ACTIONS (Feb. 1, 2017), <https://topclassactions.com/lawsuit-settlements/lawsuit-news/460893-pokemon-go-maker-seek-dismissal-trespass-nuisance-class-action/> [<https://perma.cc/GW8L-RMCZ>].

⁶¹ Complaint at ¶ 5, *Marder v. Niantic*, 4:16-cv-04300-KAW (N.D. CA 2016).

⁶² *Id.* at ¶ 6.

⁶³ *Id.* at 13–14.

⁶⁴ Kyle Orland, *Niantic Poised to Settle Pokémon Go Trespassing Complaints*, ARS TECHNICA (Feb. 18, 2019), <https://arstechnica.com/gaming/2019/02/niantic-poised-to-settle-pokemon-go-trespassing-complaints/> [<https://perma.cc/2H2V-EYJQ>].

⁶⁵ *Id.*

⁶⁶ While the *Candy Labs* court was concerned with a public park, the underlying nuisance question remains for private landowners as well. For example, if Niantic places a virtual Pokémon outside of someone's home, the players often congregate in front of the homeowner's property on the street, which is still technically public land. Additionally, the underlying dispute in all of these cases will be whether placing intellectual property within the bounds of another's GPS coordinates can be subject to liability.

⁶⁷ Michael Joe Murphy, *Pokémon Go Hotspots: 'Virtual Trespassing' in Real-World Lawsuit*, ORLANDO SENTINEL (Apr. 12, 2017), <http://www.orlandosentinel.com/opinion/os-ed-pokemon-go-are-you-a-trespasser-lawsuit-interview-20170412-story.html> [<https://perma.cc/MYJ8-F5FR>] (discussing the idea of "virtual trespass" as a law that would cover virtual intrusions of land in addition to physical ones).

updated catchall provision that will handle trespass, nuisance, and other claims caused by virtual property being overlaid on real-world property.⁶⁸

B. *Inadequacy of Current Property Laws*

An individual can be held liable for trespass on private property if that individual intentionally enters land in possession of another, *causes a third person to do so*, remains on the land, or fails to remove from the land a thing which he or she is under a duty to remove.⁶⁹ Examining the comments and illustrations to the Restatement, however, there is no mention of anything but “physical objects.”⁷⁰ Additionally, the Supreme Court has hinted that for trespass to stand, a “physical-world invasion is required.”⁷¹ Real-world property owners could argue that AR application developers cause entry of a third person onto the land.⁷² The actor is liable for trespass if he or she has commanded or requested a third person to enter land in the possession of another; the actor is responsible for the third person’s entry if it is a trespass.⁷³ However, developers, such as Niantic, include provisions in their standard form agreement, exculpating them from liability for these particular instances.⁷⁴ In this instance,

⁶⁸ The above examples demonstrate how different AR is from what has been previously contemplated by property laws. Developers of an AR application have the ability to place their intellectual property on thousands of owned properties at one time in different states across the country. See Fairfield, *supra* note 4, at 56–57.

⁶⁹ RESTATEMENT (SECOND) OF TORTS § 158 (AM. LAW INST. 1965) (“One is subject to liability to another for trespass, irrespective of whether he thereby causes harm to any legally protected interest of the other, if he intentionally (a) enters land in the possession of the other, or causes a thing or a third person to do so, or (b) remains on the land, or (c) fails to remove from the land a thing which he is under a duty to remove.”).

⁷⁰ *Id.*

⁷¹ *United States v. Alabi*, 943 F. Supp. 2d 1201, 1264 (D. N.M. 2013) (“The Supreme Court has not explicitly defined “physically intruding” as requiring an entity to invade a space in the physical—as opposed to virtual—world, but *United States v. Jones* and *Florida v. Jardines* hint that such a physical-world invasion is required.”).

⁷² A plaintiff could reasonably argue that the virtual placement of game pieces, such as Pokémon, on the plaintiff’s property is causing the players to enter the property because retrieval of those game pieces is required to advance in the game.

⁷³ RESTATEMENT (SECOND) OF TORTS § 158 cmt. j (AM. LAW INST. 1965) (“If, by any act of his, the actor intentionally causes a third person to enter land, he is as fully liable as though he himself enters. Thus, if the actor has commanded or requested a third person to enter land in the possession of another, the actor is responsible for the third person’s entry if it be a trespass. This is an application of the general principle that one who intentionally causes another to do an act is under the same liability as though he himself does the act in question.”).

⁷⁴ The Niantic terms of service read, in pertinent part:

You agree that in conjunction with your use of the Services, you will maintain safe and appropriate contact with other players and other people in the real world. You will not harass threaten or otherwise violate the legal rights of others. You will not trespass, or in any manner attempt to gain or gain access to any property or location where you do

the players would presumably remain responsible for the trespass, even if they were being led to private property by the game itself.

An alternative to trespassing under common law, as alleged by private homeowners in their complaint,⁷⁵ could be nuisance. This appears to be the best route for claims that involve public lands. Under the Second Restatement of Torts, a private nuisance is defined as “a nontrespassory invasion of another’s interest in the private use and enjoyment of land[,]”⁷⁶ and a public nuisance is an unreasonable interference with a right common to the general public.⁷⁷ Plaintiffs could argue that application developers, such as Niantic, are creating either public or private nuisances by causing third parties to congregate near or around their private property and thus diminishing their use or enjoyment of the land. However, again, Niantic could likely defeat a nuisance claim by passing liability on to the player in the terms of agreement. Being forced to pursue claims against each individual player leaves real-world property owners with little recourse for violation of their property rights.

Finally, as some have suggested,⁷⁸ negligence may be another route to hold developers, such as Niantic, liable under the current body of common law due to their licensing provisions presumably exculpating them from intentional torts. Plaintiffs could presumably allege that Niantic’s design of the application, which forces the players to travel to their pre-determined locations,⁷⁹ causes unreasonable risk of damage of property. Plaintiffs could argue that Niantic should have been aware of the potential ramifications of dispatching thousands

not have a right or permission to be, and will not otherwise engage in any activity that may result in injury, death, property damage, nuisance, or liability of any kind. If you have a dispute with any third party relating to your use of Services, you release Niantic (and our officers, directors, agents, subsidiaries, joint ventures, and employees) from all claims, demands, and damages (actual and consequential) of every kind and nature, known and unknown, suspected and unsuspected, disclosed and undisclosed, arising out of or in any way connected with such disputes.

Niantic Terms of Service, Niantic, <https://www.nianticlabs.com/terms/en/> [<https://perma.cc/ETG4-BTQ9>].

⁷⁵ See *supra* notes 61–63 and accompanying text.

⁷⁶ RESTATEMENT (SECOND) OF TORTS § 821D (AM. LAW INST. 1965).

⁷⁷ RESTATEMENT (SECOND) OF TORTS § 821B (AM. LAW INST. 1965) (“(1) A public nuisance is an unreasonable interference with a right common to the general public. (2) Circumstances that may sustain a holding that an interference with a public right is unreasonable include the following: (a) Whether the conduct involves a significant interference with the public health, the public safety, the public peace, the public comfort or the public convenience, or (b) whether the conduct is proscribed by a statute, ordinance or administrative regulation, or (c) whether the conduct is of a continuing nature or has produced a permanent or long-lasting effect, and, as the actor knows or has reason to know, has a significant effect upon the public right.”).

⁷⁸ See Murphy, *supra* note 67; DGMS Law, *Niantic May Face Pokémon Go Lawsuits for Nuisance and Injuries*, DYER, GAROFALO, MANN & SCHULTZ (Aug. 10, 2016), <https://www.ohiotiger.com/pokemon-go-lawsuits-nuisance-injuries/> [<https://perma.cc/R8TQ-BNCJ>].

⁷⁹ See Warner, *supra* note 30.

of individuals to different real-world property locations.⁸⁰ Developers like Niantic could be found to have unreasonably created a risk of damage to property when it dispatched unknown players to private property.⁸¹ Analogizing to real-world examples, it would be similar to if an individual threw large amounts of valuable coins on a private farm and that farm owner then sued the individual who retrieved the money and subsequently ruined her crops.

C. Proposed Framework for a Hybrid Property Statute

Examining these three potential routes under the existing common law framework and operating under the presumption that other courts will choose to treat AR applications similar to the *Candy Lab* court,⁸² there will need to be other alternative routes for dealing with real-world effects of AR applications. The question is how to regulate the applications in order to protect real-world property rights while simultaneously encouraging intellectual property development. Should developers like Niantic foot the bill for the real-world property damage caused by their intellectual property or should their intellectual property remain protected under the First Amendment as free speech, holding the individual players liable for the property damages?

The current common law legal framework proves inadequate to answer these questions, primarily because of the inconsistencies in the application of judge-made common law and the new hybrid property rights that are emerging with the creation of these applications, which are not contemplated by contemporary tort laws.⁸³ Tensions between intellectual property and real-world property owners will need a resolution within the next four to five years as AR applications become more popular.⁸⁴ Indeed, lawsuits have already been filed.⁸⁵ Continuing on the current common law regulation course would only produce an inconsistent body of law in an area rapidly expanding.

Treating AR applications as pure free speech fails to consider the fact that the placement of intellectual property on top of real-world geographic locations is creating a conflict of competing property rights between owners where the intellectual property owners hold all of the bargaining chips. Courts err in treating AR applications similar to regular video games because AR produces an array of issues not seen in traditional video games.⁸⁶ As a result, real-world

⁸⁰ See *supra* notes 60–62 and accompanying text.

⁸¹ See RESTATEMENT (SECOND) OF TORTS § 282 (AM. LAW INST. 1965).

⁸² See *supra* notes 51–59 and accompanying text.

⁸³ There are very few cases that have dealt with these issues, as this is an emerging area of the law. As such, it is unclear how judges will apply contemporary property laws when they intersect with intellectual property laws.

⁸⁴ See *supra* notes 30–33 and accompanying text.

⁸⁵ See *supra* notes 60–63 and accompanying text.

⁸⁶ For example, unlike traditional video games, AR overlays the digital content onto geographic coordinates owned by those who do not choose to participate in the game. *Know the Augmented Reality Technology: How Does AR Work?*, NEW GEN APPS (Nov. 23, 2017),

property owners are experiencing uncontrollable damage to their land with no recourse,⁸⁷ a stark contrast to the protections afforded under traditional property laws.⁸⁸ However, making AR applications secondary to real-world property rights as attempted in *Candy Lab* will only lead to a halting of innovation,⁸⁹ imposition on free speech rights,⁹⁰ and a potential collapse of the AR application development. Thus, there must be a solution that operates within the existing framework of property laws, allowing for owners of property to have recourse against developers who are responsible for trespass onto their land.

Congress should consider issues such as virtual trespassing and real and intellectual property hybrid ownership.⁹¹ Any law must also be flexible and allow the real-world property owner to opt in to inclusion. The first step in this process would be to update laws with consideration given to the potential of non-physical invasions. As seen above, AR applications frequently result in the placement of intellectual property within the physical bounds of owned real property.⁹² In order to deal with this, Congress could pass legislation defining a new statutory law that others have described as “Virtual Trespass.”⁹³

<https://www.newgenapps.com/blog/augmented-reality-technology-how-ar-works> [<https://perma.cc/UP7S-V8XM>]. In contrast, the traditional “video games” that were considered by the Supreme Court and subsequently afforded First Amendment protections involved no question of invasion of privacy or property rights. *See Brown v. Entm’t Merchs. Ass’n*, 564 U.S. 786, 794 (2011). The games were considered only from the freedom of expression and content lens. *See id.* (holding that the California statute that created a wholly new category of content-based regulation directed at children was barred by First Amendment protections).

⁸⁷ *See supra* notes 45–49 and accompanying text.

⁸⁸ *See, e.g.*, RESTATEMENT (SECOND) OF TORTS § 158, 821D (AM. LAW INST. 1965) (providing clear statutory recourse for physical invasions onto an individual’s land).

⁸⁹ *See Exploring Augmented Reality, supra* note 31 (discussing the implications of restrictive laws that may limit the ability of those in the AR field to innovate).

⁹⁰ *See Candy Lab Inc. v. Milwaukee Cty.*, 266 F. Supp. 3d 1139, 1149–53 (E.D. Wis. 2017) (discussing free speech protections).

⁹¹ While others have proposed the creation of a do-not-locate registry, this solution fails to provide a realistic remedy to the landowners by itself. *See William T. McClure, When the Virtual and Real Worlds Collide: Beginning to Address the Clash Between Real Property Rights and Augmented Reality Location-Based Technologies Through a Federal Do-Not-Locate Registry*, 103 IOWA L. REV. 331, 358–64 (2017). *But see* Helaine Olen, *Congratulations! You Lost.*, SLATE (May 24, 2016), http://www.slate.com/articles/business/the_bills/2016/05/robocalls_have_triumphed_over_the_do_not_call_list_whose_fault_is_it.html [<https://perma.cc/CR5N-FPHX>] (discussing the failures of the do-not-call registry). For example, the do-not-call registry created by the FTC has been rendered largely ineffective. As such, any proposed solution must carefully balance the property rights of real-world and intellectual property owners. *See McClure, supra*, at 358–64. A do-not-locate registry would be more effective with a clear statutory remedy behind it. *See Olen, supra*.

⁹² *See supra* notes 40–45 and accompanying text. Additionally, AR applications can place intellectual property within the physical bounds of private real property in thousands of locations across all fifty states at one time. *See generally* Warner, *supra* note 30.

⁹³ *See* Murphy, *supra* note 67; Yonah Reback, *Virtual Trespass: Not in My Backyard*, WASH. J. LAW, TECH., & ARTS BLOG (May 12, 2017), <https://wjta.com/2017/05/12/virtual->

Recognizing a new statutory provision would be relatively easy utilizing the existing framework under the Restatement of Torts.⁹⁴ The trespass and nuisance framework could be utilized to create a statutory provision that codifies entries beyond those that are purely physical.⁹⁵ For example, the proposed law could read:

*Virtual Invasion of Physical Land: One is subject to liability under this statute, irrespective of whether he or she thereby causes harm to any legally protected interest of the other, if he or she intentionally and without consent (a) enters land in the possession of the other, or causes a thing or a third person to do so due to the placement of virtual intellectual property within 25 feet of the geographic coordinates (“GPS coordinates”) of the real physical land and (b) fails to remove his virtual intellectual property from within 25 feet of the real world geographic coordinates of the land after notice from the owner of the land.*⁹⁶

The hypothetical statute includes an opt-in or opt-out provision for real-world owners.⁹⁷ Benefactors of Pokémon Go applications could continue to allow applications to use their real-world locations to their benefits. For example, McDonald’s could provide consent to Niantic allowing the placement

trespass-not-in-my-backyard/ [https://perma.cc/TLF6-M5PZ]; *Virtual Trespassing: How ‘Pokémon Go’ Shakes up the Law*, WALL ST. J. (Apr. 5, 2017), <http://www.wsj.com/podcasts/virtual-trespassing-how-pokemon-go-shakes-up-the-law/992F55C4-18FC-45A2-B38A-D97AEA438E56.html> [https://perma.cc/2ZBK-687P].

⁹⁴ See generally RESTATEMENT (SECOND) OF TORTS (AM. LAW INST. 1965).

⁹⁵ While states could in theory deal with this issue on their own, the ability for one AR developer to intrude on thousands of landowners’ property at one time makes a federal level solution more desirable.

⁹⁶ The proposed text here is intended to serve as a framework for any legislative proposals. While a fully drafted statute would need much more detail, the underlying issues that would need to be fixed are addressed here: allowing property owners to retain control of their real property while also allowing AR developers to utilize the real-world landscape. The statute here differs from other proposed solutions in that it provides a statutory remedy for landowners in addition to providing an opt-in and opt-out provision.

⁹⁷ The opt-in and opt-out provision would likely need to be implemented and maintained by an administrative agency, such as the FCC or FTC, via a national database. Such implementation steps are beyond the purview of this Note. Others have contemplated how such a database would work. See McClure, *supra* note 91, at 358–64. Presumably, the database could be set up online and be relatively easy to maintain. The opt-in and opt-out ability would be analogous to the web portal solution used in the Niantic settlement. See *supra* notes 64–65. However, the opt-in and opt-out ability would apply to more than just one AR-based application, as requiring landowners to use a separate web portal for each AR application would not be an effective solution. This would give notice to all AR developers of when they are not allowed to place their intellectual property within certain geographic coordinates. However, the creation of a do-not-locate registry on its own would be ineffective without a defined statutory remedy for landowners. The FTC do-not-call registry receives millions of complaints every year with limited benefits for consumers. See Olen, *supra* note 91.

of virtual Pokéstops within their restaurants. In return, Niantic would place digital Pokémon on the real-world property to bring in customers for economic benefit. However, homeowners who have experienced nothing but detrimental effects from AR applications could opt out of use of their geographic coordinates, placing an effective “no trespassing” sign on the geographic coordinates of their property. This would give developers like Niantic notice that they should not place intellectual property near the land of property owners who opt out of the use of their geographic coordinates. It would also provide a clear statutory framework for holding developers like Niantic accountable for placement of intellectual property within the bounds of real property.

Thus, this solution would allow individuals to pursue claims against the developers of an application rather than each individual user.⁹⁸ The proposed text simply places intellectual and real property on an even playing field. Intellectual property owners could no longer take advantage of private landowners’ property rights without their consent to do so. As historically seen in property laws, the opt-in and opt-out provisions function the same way as physical entry typically has.⁹⁹ Landholders have traditionally maintained an absolute right to control who comes in and out of their property, and the virtual trespassing law aligns these basic principles with modern day technological advances.¹⁰⁰

For example, a real property owner would never be forced to allow a person onto their property to collect a physical game piece placed there by the creator of the game. However, if the maker of the game had first obtained their consent to do so, traditional property laws would allow this use of the land.¹⁰¹ Therefore, creation of a new form of invasion onto land, “virtual invasion,” would provide a catchall solution for when real and intellectual property rights conflict. Further, the proposed law would not harm innovation within the AR space because commercial property owners could still allow the placement of the intellectual property onto their land in exchange for the increased foot traffic that applications, such as Pokémon Go, could bring.¹⁰² Finally, the proposed

⁹⁸ With an established database providing notice to developers, property owners could more easily pursue claims against these developers who still placed intellectual property on the property owners’ real-world property. This would be a much more realistic route for relief as opposed to being forced to pursue each player for claims of trespass or nuisance, for example.

⁹⁹ John Alan Cohan, *Private and Public Necessity and the Violation of Property Rights*, 83 N.D. L. REV. 651, 658 (2007) (discussing status as a guest); RESTATEMENT (SECOND) OF TORTS § 158 (AM. LAW INST. 1965) (trespass section).

¹⁰⁰ RESTATEMENT (SECOND) OF TORTS § 158 cmt. c, e (AM. LAW INST. 1965).

¹⁰¹ RESTATEMENT (SECOND) OF TORTS § 158 cmt. e (AM. LAW INST. 1965) (“Conduct which would otherwise constitute a trespass is not a trespass if it is privileged. Such a privilege may be derived from the consent of the possessor . . .”).

¹⁰² Sheeraz Raza, *How Pokémon Go Influenced the Stock Market & Economy*, VALUEWALK (Sept. 19, 2016), <http://www.valuewalk.com/2016/09/pokemon-go-influenced-stock-market-economy-infographic/> [<https://perma.cc/7QFK-FJGF>] (discussing the economic benefit to McDonald’s from advertising Pokémon Go).

statutory text would avoid First Amendment issues seen in *Candy Lab* altogether by regulating the geographic coordinates of where all intellectual property can be placed, rather than dealing with any restrictions on the content itself.

IV. AUGMENTED REALITY AND TRADEMARK INFRINGEMENT

In addition to physical world effects and property disputes, AR applications also present potential issues for areas of intellectual property, such as trademark law. To illustrate AR's potential, imagine a scenario where a brand's trademark triggers the display of other related products in an AR application.¹⁰³ For example, a consumer enters a store wearing a pair of Google Glass¹⁰⁴ and gazes upon the aisles, finding something that she wants to purchase. Instead of pulling out her smartphone and searching for reviews of the specific product, the trademarked logo on product X triggers her glasses to display five related brands on the screen, one with better online reviews, with an immediate option to purchase. Instead of purchasing product X in store, the consumer purchases product Y directly from Amazon and walks out of the store empty-handed.¹⁰⁵ In this scenario, (1) the retailer has lost a sale and (2) product X lost out to product Y. Was the use of product X's trademark to trigger the display of other related brands trademark infringement under the Lanham Act?

In a similar scenario, imagine an AR application that displays a constant stream of information on an individual's Google Glass or car windshield¹⁰⁶ as they drive down the street. When the software recognizes a Panera Bread trademark, the application displays related restaurants within a five-mile radius on the dashboard, one of which is a direct competitor of Panera—Potbelly Sandwiches. Seeing that Potbelly is only two miles down the road, the individual decides to go there instead of Panera. Was the display of other,

¹⁰³ In this example, the AR application would recognize a brand's trademark via the device's camera and then display other related products based on that recognized trademark. There is also the possibility that another brand's trademark could be superimposed on top of the real-world trademark within the device's screen.

¹⁰⁴ See Fairfield, *supra* note 4, at 56–57 and accompanying text. Google Glass is only an example here. There has been recent speculation that Apple may also release a pair of glasses that can overlay information over real world objects through the lens. See Gerald Lynch, *Apple AR Glasses Release Date, News, and Rumors*, TECHRADAR (Aug. 30, 2018), <https://www.techradar.com/news/apple-ar-glasses-release-date-news-and-rumors> [<https://perma.cc/AZ86-ZWGL>].

¹⁰⁵ In this hypothetical, the consumer could have purchased product Y because it had better reviews, or alternatively, she thought (i.e., was confused) that it was a product by the same company and would rather just have it shipped to her house from Amazon instead of buying it in store.

¹⁰⁶ AR displays within car windshields are a huge potential growth market for AR. These types of technologies have been contemplated within the past couple of years. See Darrell Etherington, *WayRay's AR In-Car HUD Convinced Me HUDs Can Be Better*, TECHCRUNCH (2017), <https://techcrunch.com/2018/01/09/wayrays-ar-in-car-hud-convinced-me-huds-can-be-better/> [<https://perma.cc/7CJF-JEFX>].

similar restaurants upon seeing Panera's trademark infringement under the Lanham Act or was it equivalent to using the geographic coordinates of other restaurants to display the consumer's options, similar to Google Maps?

A. Actionable Use and the Rescucom Decision

The question in the above scenarios is whether the Lanham Act is sufficient to protect against an AR application's use of a brand's trademark to display competing trademarks.¹⁰⁷ Under the Lanham Act, trademark infringement can occur in two primary ways: likelihood of confusion and dilution.¹⁰⁸ There are other possible routes of infringement, such as initial interest confusion.¹⁰⁹ However, utilizing the traditional likelihood of confusion test for trademark infringement may prove problematic for the hypothetical scenarios due to the requirement that a mark be used in connection with the sale of goods or services before any infringement can occur, otherwise known as the actionable use requirement.¹¹⁰

Under Sections 32 and 43 of the Lanham Act, infringement occurs when any person *uses in commerce* any registered mark in connection with the sale, offering for sale, distribution, or advertising of any goods or services on or in connection with which is likely to cause confusion.¹¹¹ Each circuit court uses a

¹⁰⁷In these scenarios, AR applications are using the trademarks within the software itself. The software recognizes the trademark via the camera and then displays the related or competing results on the screen. *See generally* Brian Wassom, *Copyright in an Augmented Reality*, WASSOM.COM (Aug. 3, 2012), <http://www.wassom.com/copyright-in-an-augmented-reality.html> [https://perma.cc/4XCS-3MTJ].

¹⁰⁸GRAEME B. DINWOODIE & MARK D. JANIS, *TRADEMARKS AND UNFAIR COMPETITION: LAW AND POLICY* 483, 621 (4th ed. 2014).

¹⁰⁹*See* Gibson Guitar Corp. v. Paul Reed Smith Guitars, LP, 423 F.3d 539, 549 (6th Cir. 2005), *cert. denied*, 547 U.S. 1179 (2006) ("Initial-interest confusion takes place when a manufacturer improperly uses a trademark to create initial customer interest in a product, even if the customer realizes, prior to purchase, that the product was not actually manufactured by the trademark-holder.").

¹¹⁰DINWOODIE & JANIS, *supra* note 108, at 493.

¹¹¹*See* 15 U.S.C. § 1114 (2012); 15 U.S.C. § 1125(a) (2012). Lanham Act Section 32 states that:

- (1) Any person who shall, without the consent of the registrant--
 - (a) use in commerce any reproduction, counterfeit, copy, or colorable imitation of a registered mark in connection with the sale, offering for sale, distribution, or advertising of any goods or services on or in connection with which such use is likely to cause confusion, or to cause mistake, or to deceive; or (b) reproduce, counterfeit, copy, or colorably imitate a registered mark and apply such reproduction, counterfeit, copy, or colorable imitation to labels, signs, prints, packages, wrappers, receptacles or advertisements intended to be used in commerce upon or in connection with the sale, offering for sale, distribution, or advertising of goods or services on or in connection with which such use is likely to cause confusion, or to cause mistake, or to deceive, shall be liable in a civil action by the registrant for the remedies hereinafter provided.

separate “likelihood of confusion” test that examines different factors, such as similarity of the marks,¹¹² sophistication of consumers,¹¹³ strength of the mark,¹¹⁴ and channels of commerce.¹¹⁵ Before the factor analysis is applied, however, the court must find that the defendant has met the “actionable use” requirement, at least in some circuits.¹¹⁶

Each of the hypothetical scenarios involves AR applications that utilize trademarked logos to provide the user with related products or places that they want to visit. Essentially, the hypotheticals both illustrate the use of a brand trademark image as a “keyword” in order to trigger the display of other brands’ trademarks. Usage of trademarks as keywords, albeit in the text form, has proved problematic for the courts before. In *Rescuecom Corp. v. Google*, the Second Circuit found that Google’s program AdWords,¹¹⁷ which allowed for a

15 U.S.C. § 1114 (2012) (emphasis added). Therefore, under the plain text of the Act, presumably, a retailer could possibly be held liable for the use of another company’s trademark, but only if it caused consumer confusion or was used in connection with the sale of goods or services. *Id.*

¹¹²The similarity of the marks factor is used in all the circuit tests and examines the degree of similarity between the two marks from a consumer perspective. *DINWOODIE & JANIS, supra* note 108, at 521–23. Courts often examine the sight, sound, and meaning of the work from the viewpoint of how the marks are seen by the consumer when the products are purchased. *Id.*; *see also* *Virgin Enters., Ltd. v. Nawab*, 335 F.3d 141, 149 (2d Cir. 2003) (discussing the similarity of the marks factor).

¹¹³The sophistication of the consumers takes the level of consumer knowledge into account. For example, highly trained professionals know the market and are less likely to be misled or consumed by the similarity of the marks than someone purchasing a quick and cheap item, such as gum. *See Virgin Enters.*, 335 F.3d at 151.

¹¹⁴The strength of the mark examines both inherent and acquired distinctiveness. For example, the *Virgin* court found that the Virgin mark was stronger because of its inherent distinctiveness (arbitrary and distinctive), and it also had acquired distinctiveness because of its famous name recognition. *Id.* at 147–48. The stronger the mark, the greater the likelihood that the public will assume the second use comes from the same source as the first. *Id.*

¹¹⁵The channels of commerce factor examines how the products are sold. For example, it would be easier to find likelihood of confusion if the two products are both sold at small electronics stores. *Id.* at 150.

¹¹⁶The actionable use requirement examines whether the defendant has used a particular mark in connection with the sale of goods or services. *See DINWOODIE & JANIS, supra* note 108, at 510–14. Actionable use is a prerequisite intended to limit infringement causes of action. *Id.*; *infra* note 127.

¹¹⁷The Adwords program by Google worked by displaying the advertiser’s ad when a term that they had purchased appeared. *Rescuecom Corp. v. Google Inc.*, 562 F.3d 123, 126 (2d Cir. 2009) (“For example, using Google’s Adwords, Company Y, a company engaged in the business of furnace repair, can cause Google to display its advertisement and link whenever a user of Google launches a search based on the search term, ‘furnace repair.’ Company Y can also cause its ad and link to appear whenever a user searches for the term ‘Company X,’ a competitor of Company Y in the furnace repair business. Thus, whenever a searcher interested in purchasing furnace repair services from Company X launches a search of the term X (Company X’s trademark), an ad and link would appear on the searcher’s screen, inviting the searcher to the furnace repair services of X’s competitor, Company Y. And if the searcher clicked on Company Y’s link, Company Y’s website would open on the

company to purchase another company's word-based trademark in order to gain more search appearances on Google, was a "use in commerce" under the Lanham Act.¹¹⁸ The court explained that the situation differed from traditional "product placement" because Google's practices were not benign, in fact, consumer usage of one mark would intentionally direct them towards another mark, often resulting in business for the mark who paid for the placement.¹¹⁹ The court found that traditional product placement could result in infringement as well if it created consumer confusion and resulted in consumers purchasing an off-brand product when they meant to purchase a famous brand's product.¹²⁰

While at first glance the AR hypotheticals appear to fit directly within the holding in *Rescuecom*, there are key differences, which may result in limited or no protection under the current Lanham Act. There are a number of courts and scholars that took issue with the line of reasoning used by the *Rescuecom* court before it was decided.¹²¹ Primarily, the disagreement centered upon whether the triggering of Brand X's trademark by a third-party app or even by Brand Y itself constitutes a "use in connection with the sale of goods or services" as required to advance to the infringement tests.¹²² For example, courts had frequently found, especially prior to the *Rescuecom* holding, that keyword type purchases were not considered "actionable use."¹²³ These courts primarily relied upon the

searcher's screen, and the searcher might be able to order or purchase Company Y's furnace repair services.").

¹¹⁸ *Id.* at 127.

¹¹⁹ *Id.* at 130–31. A hypothetical would be if Burger King bought advertising on Google and Google gave them the option to purchase the trademarked word "McDonald's." The result of this scenario would be that when a user searched for "McDonald's" this would trigger the search engine to display results for Burger King in addition to results for McDonald's. Thus, if that user ended up going to Burger King, then McDonald's trademark would be providing Burger King with business and Google with ad revenue.

¹²⁰ *Id.*

¹²¹ 1-800 Contacts, Inc. v. WhenU.Com, Inc., 414 F.3d 400 (2d Cir. 2005); S&L Vitamins, Inc. v. Australian Gold, Inc., 521 F. Supp. 2d 188, 199–202 (E.D.N.Y. 2007); Site Pro-1, Inc. v. Better Metal, LLC, 506 F. Supp. 2d 123 (E.D.N.Y. 2007); see, e.g., Margreth Barrett, *Domain Names, Trademarks and the First Amendment: Searching for Meaningful Boundaries*, 39 CONN. L. REV. 973, 984–85 (2007); Margreth Barrett, *Finding Trademark Use: The Historical Foundation for Limiting Infringement Liability to Uses "In the Manner of a Mark,"* 43 WAKE FOREST L. REV. 893 (2008) [hereinafter Barrett, *Finding*].

¹²² See *supra* note 120 and accompanying text. Before *Rescuecom*, the courts split on whether keyword purchases or keyword sales constituted actionable use for infringement. See, e.g., DINWOODIE & JANIS, *supra* note 108, at 510–11 (listing various decisions that split on the keyword issue, such as N. Am. Med. Corp. v. Axiom Worldwide, 522 F.3d 1211 (11th Cir. 2008); J.G. Wentworth S.S.C. Ltd. Partnership v. Settlement Funding, 85 U.S.P.Q. 2d 1780 (E.D. Pa. 2007); Google v. Am. Blind & Wallpaper Factory, Inc., 74 U.S.P.Q. 2d 1385 (N.D. Cal. 2005) (agreeing with the *Rescuecom* reasoning). *Contra* Merck & Co., Inc. v. Mediplan Health Consulting, Inc. 425 F. Supp. 2d 402 (S.D.N.Y. 2006), *reconsideration denied*, 431 F. Supp. 2d 425 (S.D.N.Y. 2006)).

¹²³ See, e.g., *S & L Vitamins, Inc.*, 521 F. Supp. 2d at 199–202; *Merck.*, 425 F. Supp. 2d at 415.

reasoning used in a 2005 decision by the Second Circuit, *I-800 Contacts, Inc. v. WhenU.com*.¹²⁴

In addition to the courts, scholars have been divided over whether to side with the reasoning found in *I-800 Contacts* or *Rescuecom*.¹²⁵ Prior to the *Rescuecom* holding, authors Dinwoodie and Janis asserted that the balance of scholarly articles favored “a stringent actionable use requirement akin to that espoused in *I-800 Contacts*.”¹²⁶ Additional scholars have advocated that defining use in a traditional sense under the Lanham Act would require courts to find that companies, such as Google, have not used the mark in commerce.¹²⁷

While the *Rescuecom* reasoning is certainly still a volatile legal doctrine in terms of online advertising and metadata tags,¹²⁸ application of the holding to non-verbal marks, such as those used by AR applications, creates an even more uncertain scenario. For example, the *Rescuecom* court’s analysis centered quite heavily on the fact that unlike in *I-800 Contacts*, Google was using the plaintiff’s trademark to trigger another brand’s trademark.¹²⁹ In the same vein, the court relied upon the fact that Google was generating advertising revenue by recommending and selling the word “Rescuecom” to other companies in order to find that Google itself was using the mark “in commerce.”¹³⁰ Examining the case in this light, it appears the reasoning could be somewhat limited to its facts. AR applications would not necessarily involve directly using a brand’s

¹²⁴ *I-800 Contacts*, 414 F.3d at 407–09, 412 (finding that the defendant did not use, reproduce, or display the plaintiff’s mark at all to trigger the display of other competing marks, and therefore, no actionable use).

¹²⁵ See *supra* notes 120, 121, 124 and accompanying text.

¹²⁶ DINWOODIE & JANIS, *supra* note 108, at 511.

¹²⁷ Barrett, *Finding*, *supra* note 121, at 977 (“The historical ‘trademark use’ prerequisite to infringement liability clearly remains in United States law today, and courts should construe and apply it in light of its original purpose and in light of modern circumstances and public policy concerns. While there may be other factors that courts might beneficially entertain, close, direct association, perceptibility, and ‘separate commercial impression’ are directly linked to the historical background and purpose of the trademark use doctrine and promote a range of public policy interests.”).

¹²⁸ Arielle G. Lenza, *Rescuecom Corp. v. Google Inc.*, 52 N.Y. L. SCH. L. REV. 137 (2007) (providing an analysis of the *Rescuecom* decision).

¹²⁹ *Rescuecom Corp. v. Google Inc.*, 562 F.3d 123, 128 (2d Cir. 2009) (“*I-800* suggested in dictum that is highly relevant to our case that had the defendant used the plaintiff’s trademark as the trigger to pop-up an advertisement, such conduct might, depending on other elements, have been actionable.”).

¹³⁰ *Id.* at 126–27 (“Many of Rescuecom’s competitors advertise on the Internet. Through its Keyword Suggestion Tool, Google has recommended the Rescuecom trademark to Rescuecom’s competitors as a search term to be purchased. Rescuecom’s competitors, some responding to Google’s recommendation, have purchased Rescuecom’s trademark as a keyword in Google’s AdWords program, so that whenever a user launches a search for the term ‘Rescuecom,’ seeking to be connected to Rescuecom’s website, the competitors’ advertisement and link will appear on the searcher’s screen. This practice allegedly allows Rescuecom’s competitors to deceive and divert users searching for Rescuecom’s website.”).

trademark, but rather just recognizing it via preprogrammed or adaptive software.¹³¹

B. A Twenty-First Century Definition of “Actionable Use”

Current law is unclear what the outcome would be if a hypothetical like one proposed at the beginning of the Part was to make its way to one of the circuit courts and therefore, Congress should refresh the Lanham Act in order to consider the rapidly developing technology of AR. Scenarios like those proposed above are not that far off from being a reality;¹³² in fact, the technology for these scenarios is already being utilized in non-monetized situations¹³³ and the technology exists to augment virtual advertisements on top of real-world advertisements or brand identifiers.¹³⁴

Trademark law has not previously dealt with AR technologies. Within the past ten years, technology has grown at a rapid pace, requiring the laws to play catch-up.¹³⁵ In addition to this historical aspect, *Rescuecom* and lack of clarity on the topic of actionable use as related to keyword advertising and metadata tags illustrates the need for a congressional refresh of the Lanham Act. This route would avoid each circuit handling the issue and creating a body of inconsistent laws governing AR and actionable use.¹³⁶ This argument is bolstered when examining the broad differences between each circuit in their analyses and the general inconsistency when the factor analysis is applied.¹³⁷ Thus, Congress should take preemptive action in order to preserve the integrity of the Lanham Act and preserve the value of trademarks in the virtual world.

¹³¹ The key difference here is that Google was actually selling the term “Rescuecom.” However, presumably applications could become so advanced that they recognize various trademarks by conducting real-time Internet searches triggered by their software, and then recommend related results based upon the results of that search. A company could pay an AR developer so that certain Internet searches produced certain results. This scenario does not fit in the text of the Lanham Act, and it does not appear to fit within the reasoning used by the *Rescuecom* court.

¹³² See *supra* notes 2–7 and accompanying text.

¹³³ *Id.*

¹³⁴ *Id.*

¹³⁵ See Daniel Malan, *The Law Can’t Keep Up with New Tech. Here’s How to Close the Gap*, WORLD ECON. FORUM (June 21, 2018), <https://www.weforum.org/agenda/2018/06/law-too-slow-for-new-tech-how-keep-up/> [<https://perma.cc/W384-UHQD>].

¹³⁶ Some circuits, such as the Second Circuit, do not require “trademark use” to be liable for trademark infringement, while others, such as the Sixth and Eighth Circuits, do apply a “trademark use” requirement. PETER S. MENELL ET AL., *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE*: 2018, 984 (2018). The inconsistent application of the use requirement across the circuits bolsters the argument for a Lanham Act revision. *Id.*

¹³⁷ See DINWOODIE & JANIS, *supra* note 108, at 521–23. For example, the factor analysis differs between each circuit, and circuits frequently assign different tests and analyses to deal with different factors. *Id.* (providing a chart that shows the different factors considered by each circuit court).

The result of Congress failing to update the Lanham Act would be costly, cumbersome, and confusing. If a court takes the more traditional *I-800 Contacts* view on use in commerce, advocated by some scholars, then companies may not be able to protect their brand identifiers from usage in the internal processes of third-party applications or other companies' applications. Big box retailers and automotive companies could use each trademark as a trigger for displaying competing trademarks under the guise of fair use.¹³⁸ Alternatively, if the court fails to distinguish from the *Rescuecom* decision, AR application growth may be hurt because of the lack of innovation due to an amplified fear of trademark infringement, which is often costly litigation, especially for new startups.¹³⁹ Thus, the solution must be one that prevents companies from using trademarks for monetary benefit, but still allows for informational or descriptive uses of the mark that are protected by fair use and do not result in misdirection or confusion of consumers.

Congress has previously updated the Lanham Act to periodically refresh what was meant by "use in commerce" under the Act.¹⁴⁰ Additionally, circuit courts have recently asked Congress to update and clarify what in fact is meant by "use in commerce" under § 45 of the Lanham Act.¹⁴¹ Allowing for each

¹³⁸ Under § 33(b)(4) of the Lanham Act, "the use of the name, term, or device charged to be an infringement is a use, otherwise than as a mark . . . of a term or device which is descriptive of and used fairly and in good faith only to describe the goods or services of such party, or their geographic origin . . ." 15 U.S.C. § 1115 (2012). Presumably then, a company like Ford or Kroger could argue that their AR applications were merely describing the types of products and identifying them rather than causing any confusion to the consumer.

¹³⁹ Charles P. Lickson, *Trademark Protection: Is Litigation Worth the Cost?*, IP WATCHDOG (May 23, 2013), <http://www.ipwatchdog.com/2013/05/23/trademark-protection-is-litigation-worth-the-cost/id=40711/> [<https://perma.cc/6QT8-PEZDJ>] (discussing the costs of trademark litigation); see also Tim Molino, *If Your Startup Is Really Disruptive, Expect to Be Sued by a Patent Troll*, ENTREPRENEUR (Aug. 4, 2017), <https://www.entrepreneur.com/article/296625> [<https://perma.cc/9U7W-R66Z>] (illustrating the general principle that disruptive companies will be sued quickly and at high cost in the IP space).

¹⁴⁰ Trademark Law Revision Act of 1988, Pub. L. No. 100-667, 102 Stat. 3935 (effective Nov. 16, 1989) (codified at 15 U.S.C. § 1127 (2006)); see Summary: H.R. 5372 – 100TH Congress (1987-1988), CONGRESS.GOV, <https://www.congress.gov/bill/100th-congress/house-bill/5372> [<https://perma.cc/46GQ-4254>] ("Amends the Lanham Act to permit a person who has a bona fide intention to use a trademark in commerce to apply to register the trademark. (Current law provides only for registration of a trademark already in use in commerce.) Requires that such trademark actually be used in commerce before it becomes a registered trademark."); see also *Aycock Engineering, Inc. v. Airflite, Inc.*, 560 F.3d 1350, 1357 (Fed. Cir. 2009) ("Despite the seeming harmony and simplicity in the application of the use requirement to trademarks and service marks, opportunity exists for confusion in this area of the law . . . in 1988, Congress passed the Trademark Law Revision Act ("TLRA"). The TLRA altered the burden that applicants must meet before satisfying the use element by requiring an applicant to make a 'bona fide use of [the] mark in the ordinary course of trade.'").

¹⁴¹ See *Rescuecom Corp v. Google., Inc.*, 562 F.3d 123, Appendix (2d Cir. 2009) ("We assumed in the body of the opinion, in accordance with the holding of *I-800*, that the requirements of the second sentence of the definition of 'use in commerce' in § 1127 apply

circuit to handle this issue would be a mistake for a number of reasons. Continuing down the common law route for these highly complex issues provides inconsistent guidance to innovators in the AR field and results in expensive litigation for companies across the board. As seen in *I-800 Contacts* and *Rescuecom*, trademark cases are often quite fact specific.¹⁴² Additionally, there are a number of scenarios beyond the hypotheticals here that may arise rapidly once the technology becomes more and more commonplace. Finally, AR application growth may be stunted if the makers of the applications are not clear on what constitutes an actionable use under the Lanham Act.

Thus, Congress should update the Lanham Act to consider new mediums and make it clear that usage of a registered trademark to trigger other trademarks for the purposes of sale of information or misdirection of consumers is a use in commerce and a violation of the Lanham Act. This would be an easy correction using the existing statutory definition and within the spirit of the Act itself.¹⁴³ For example, the amendment could read:

*A person or entity that intentionally uses a registered or unregistered trademark's image, text, being, or likeness externally or internally in software or programmed code to trigger the display of another brand's trademark with intent to misdirect or mislead consumers from the original source of the trademark shall be found to have used the mark in commerce for the purposes of sections 32 and 43 of this Act . . .*¹⁴⁴

This amendment to the Act would protect the brand's trademark in the AR space and operate in the same way as the holding in *Rescuecom* did for online advertisements.¹⁴⁵ Companies would fulfill the actionable use requirement if

to infringing conduct and found that such use in commerce was adequately pleaded. . . . It would be helpful for Congress to study and clear up this ambiguity.”).

¹⁴² See generally *1-800 Contacts, Inc., v. WhenU.Com, Inc.*, 414 F.3d 400 (2d Cir. 2005); *Rescuecom*, 562 F.3d 123.

¹⁴³ See Krystil McDowall, *A Critical Look at “Use” Under the Lanham Act*, 4 N.Y.U. J. INTELL. PROP. & ENT. L. 227, 230 (2015) (“It is a fundamental rule of trademark law that creating or merely adopting a mark, on its own, is insufficient to create trademark rights.”); see also *Aycock Engineering, Inc. v. Airflite, Inc.* 580 F.3d 1350, 1358 (2009) (“The use provision of the Lanham Act in force in 1970 stated that a service mark was in use in commerce ‘when it is used or displayed in the sale or advertising of services, and the services are rendered in commerce, or the services are rendered in more than one State or in this and a foreign country and the person rendering the services is engaged in commerce in connection therewith.’ Pub. 4L. No. 87–772, 76 Stat. 769 (1962).”).

¹⁴⁴ Of course, the proposed text here is not perfect. There are scenarios that may advance beyond the technology contemplated in this Note. However, the proposed text gives a basic principle that utilizing a trademark's image for monetized ad revenue will not be allowed under the Lanham Act and will allow the courts to more easily interpret future AR cases.

¹⁴⁵ Recall that the holding in *Rescuecom* essentially prevented Google from allowing misleading results to be displayed in their search engine because another brand had purchased a protected trademark. *Rescuecom Corp. v. Google Inc.*, 562 F.3d 123, 130–31

they had used another's trademark to intentionally funnel business to other companies. As such, the proposed amendment deals only with the actionable use requirement and would leave the likelihood of confusion test in place for each circuit.¹⁴⁶ Thus, a trademark holder could sue an AR developer if that developer had used their trademark for the purpose of misdirecting or misleading consumers. However, the amendment would not guarantee that the AR developer was liable. The trademark holder would still have to prove that infringement had occurred.

The amendment also would allow AR developers to assert any traditional defense under trademark, such as fair use.¹⁴⁷ The proposed amendment would only prevent companies from having their software recognize specific visual trademarks for the sole purpose of overlaying another company's trademark on top of that real-world trademark or misdirecting consumers. Thus, a company could use a brand's trademark in an AR application to provide information about the company, similar to the way Google Maps functions, as this would not be misdirecting or misleading consumers.¹⁴⁸ In this sense, the proposed text merely brings the Lanham Act into the twenty-first century and prevents companies from causing consumer confusion by overlaying their brand identifiers over another.

V. AUGMENTED REALITY AND COPYRIGHT INFRINGEMENT

For full protection of intellectual property, copyright law must also be brought into the Twenty-First century. In fact, copyright law may be most impacted by the development of new AR technologies. To illustrate the need to refine the current copyright laws, imagine a scenario where a patron wearing Google Glass¹⁴⁹ enters a museum or an art gallery filled with copyrighted works and designs. The patron paid money for entry to the museum and downloaded

(2d Cir. 2009). Similarly, the proposed text here prevents AR developers from selling a company's image trademark to competing companies.

¹⁴⁶ As stated in *Rescuecom*, finding "use" of a mark is only one step of the infringement analysis. *Id.* at 130. ("Needless to say, a defendant must do more than use another's mark in commerce to violate the Lanham Act. The gist of a Lanham Act violation is an unauthorized use, which 'is likely to cause confusion, or to cause mistake, or to deceive as to the affiliation, . . . or as to the origin, sponsorship, or approval of . . . goods [or] services.' citing 15 U.S.C. § 1125(a); *Estee Lauder Inc. v. The Gap, Inc.*, 108 F.3d 1503, 1508–09 (2d Cir. 1997).")

¹⁴⁷ 15 U.S.C. § 1115 (b)(4) (fair use provision); see *Trademark Overview*, *supra* note 9 (discussing the two fair use defenses available under the Lanham Act).

¹⁴⁸ For clarity, under the proposed text, an AR application that only presented digital information about the particular recognized trademark would still be allowed. For example, if the software recognized a Panera Bread trademark it could still present information, such as how to order online or reviews for the particular establishment. What the proposed text seeks to prevent is another company using that trademark to siphon business away from the trademark owner and confuse the person using the application.

¹⁴⁹ See *supra* note 104.

an AR application before entering. Browsing the museum, the patron stumbles upon a painting or model. At that moment, the downloaded application overlays both historical information as well as new images, sounds, and videos on top of the existing painting or model, creating a new digital work on the device's screen. There are two interrelated questions that arise under this scenario, one of copyright infringement and one of copyrightability. First, assuming that the physical work was protected under the Act, does the new work on the device's screen infringe on its copyright? Second, is the new work eligible for independent copyright protection by the AR application developer, or is it a derivative work of the original and thus protected by the original owner's copyright?

A. *Copyright Protection Requirements for AR*

Software has been eligible for copyright protection since 1976.¹⁵⁰ In 1976, Congress amended the Copyright Act (Act) to provide for protection of computer software, analogizing the software to literary works.¹⁵¹ However, since that amendment, there has been a body of inconsistent law resulting in certain elements of software to be protected while others are not. Naturally, the intricacies of the AR applications will raise a number of issues. First, it must be determined whether AR works fulfill the basic requirements of originality and fixation to be eligible for copyright protection under the Act.

In order for a work to be eligible for copyright protection under the Act, the work must be fixed and original.¹⁵² A work is "fixed" in a tangible medium of expression when, "its embodiment . . . is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration."¹⁵³ As others have stated, digital works presented problems with the fixation requirement because of the inherent intangible nature of digital technology.¹⁵⁴ However, courts have generally found

¹⁵⁰ JULIE E. COHEN ET AL., *COPYRIGHT IN A GLOBAL INFORMATION ECONOMY* 206 (5th ed. 2012).

¹⁵¹ *Id.* at 206–07 (discussing how software reflects creative decisions, like literary works, and Congress utilized this analogy in the 1976 Act).

¹⁵² JULIE E. COHEN ET AL., *COPYRIGHT IN A GLOBAL INFORMATION ECONOMY* 10 (Supp. 2012); see also U.S. COPYRIGHT OFFICE, *COPYRIGHT BASICS* (2017), available at <https://www.copyright.gov/circs/circ01.pdf> [<https://perma.cc/44PB-3NDR>] ("Copyright is a form of protection provided by the laws of the United States to the authors of 'original works of authorship' that are fixed in a tangible form of expression.").

¹⁵³ 17 U.S.C. § 101 (2012) (definition section).

¹⁵⁴ See Evan Brown, *Fixed Perspectives: The Evolving Contours of the Fixation Requirement in Copyright Law*, 10 WASH. J.L. TECH. & ARTS 17, 21 (2014) ("But as technology advanced and the panoply of expressive media expanded, a more fluid concept was required to keep pace.").

the fixation requirement to be fulfilled even where the digital display changes from user to user.¹⁵⁵

In the context of AR, it is important to determine whether the works displayed on a device's screen are considered "fixed" if the work is only shown on a screen when a user looks at a particular real world object or image.¹⁵⁶ As stated, the threshold for the fixation requirement is relatively low.¹⁵⁷ Courts examining similar issues have found that virtual elements can be considered fixed even though they are not permanent. In the early computing case of *Williams Electronics, Inc. v. Artic International, Inc.*, the court found that the change in visual experience from player to player still allowed for the underlying elements of the game to be fixed.¹⁵⁸ Because the fixation requirement merely requires a work to exist for longer than a transitory duration, it is highly likely that digital AR works will fulfill the fixation requirement.¹⁵⁹

A work must also be "original" to be copyrightable.¹⁶⁰ The originality requirement stems primarily from a policy perspective of requiring at least some amount of creativity in order to be eligible for copyright protection.¹⁶¹ Courts have been unclear on exactly how much creativity or originality is required in order to qualify for copyright protections,¹⁶² although courts have generally held that direct copies of objects in other mediums are not eligible for copyright

¹⁵⁵ See *Williams Elec., Inc. v. Artic Int'l, Inc.*, 685 F.2d 870, 874 (3d Cir. 1982) (finding that although the video game at issue created new images each time a particular mode was displayed, the fixation requirement was met because the underlying circuit board was sufficiently permanent or stable to permit it to be reproduced, or otherwise communicated for more than a transitory period).

¹⁵⁶ An AR application would only show the superimposed image on a screen if that application was pointed at an image that it recognized. At that point, the application would overlay the digital content over the physical object on the device's screen. When the user moved the screen away from the object, the object would no longer be displayed on the device's screen.

¹⁵⁷ Brown, *supra* note 154, at 24 (discussing how after the *Williams* decision, fixation was generally "no longer a barrier to the development of digital works").

¹⁵⁸ See *id.* (discussing the *Williams* decision).

¹⁵⁹ See *MAI Sys. v. Peak Comput., Inc.*, 991 F.2d 511, 517–18 (9th Cir. 1993) (holding that the loading of software onto a computer's RAM for only a brief period of time fulfilled the fixation requirement). Similarly, an AR application will likely show the underlying work on the device's screen, if only for a brief period of time.

¹⁶⁰ See *supra* note 143 and accompanying text.

¹⁶¹ COHEN ET AL., *supra* note 150, at 61 (2015) ("[F]rom an economic perspective, the mere copyist has supplied nothing to justify the cost of a grant of copyright; from a noneconomic perspective, the copyist has supplied nothing of his or her 'own.'").

¹⁶² The Supreme Court has acknowledged that lower courts often misunderstood the originality requirement. See *Feist Publ'n, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 351–53 (1991) ("Most courts construed the 1909 Act correctly, notwithstanding the less-than-perfect statutory language. They understood from this Court's decisions that there could be no copyright without originality. . . . [B]ut some courts misunderstood the statute . . . [m]aking matters worse; these courts developed a new theory to justify the protection of factual compilations.").

protection.¹⁶³ For example, in *Meshwerks v. Toyota*, the court determined that the replicated computer models of Toyota's cars were not eligible for copyright protection irrespective of the large amount of effort and work required to create those models.¹⁶⁴ As the court stated, "Meshwerk's digital wire-frame computer models depict Toyota's vehicles without any individualized features. . . . [in] short its models reflect none of the decisions that can make depictions of things or facts in the world" ¹⁶⁵ Applying this same reasoning to AR, it is unlikely that a court would find exact digital replications of real-world objects or commonplace symbols to be eligible for copyright protection if digitally replicated via AR applications.

B. *Derivative Works or Original Works?*

However, the scenario outlined at the beginning of this Part differs substantially from the *Meshwerks* case, as it potentially creates a "derivative work"¹⁶⁶ instead of a new, original work. The original holder of a copyright maintains the right to prepare derivative works.¹⁶⁷ Thus, if courts were to find that AR applications were creating derivative works, AR application developers would risk expensive copyright infringement suits unless they were protected by the fair use doctrine.¹⁶⁸ In contrast, if courts were to find that AR applications were creating new, original works, then the AR application owner could potentially start copyrighting anything that crossed the originality threshold when the graphics are overlaid on top of the original work.¹⁶⁹

¹⁶³ *Durham Indus., Inc. v. Tomy Corp.*, 630 F.2d 905, 910 (2d Cir. 1980) ("[T]he mere reproduction of the Disney characters in plastic, even though the adaptation of the preexisting works to this medium undoubtedly involved some degree of manufacturing skill, does not constitute originality as this Court has defined the term.").

¹⁶⁴ *Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc.*, 528 F.3d 1258, 1270 (10th Cir. 2008).

¹⁶⁵ *Id.* at 1265.

¹⁶⁶ U.S. COPYRIGHT OFFICE, COPYRIGHT IN DERIVATIVE WORKS AND COMPILATIONS (2013), available at <https://www.copyright.gov/circs/circ14.pdf> [<https://perma.cc/MG5U-UDV2>]. The United States Copyright Office defines a derivative work as a work based on or derived from one or more already existing works. *Id.* Derivative works must incorporate some or all of the preexisting work and add new original copyrightable authorship to that work. *Id.*

¹⁶⁷ 17 U.S.C. § 106(2) (2012). Under Section 106 of the Act, the copyright owner has the exclusive rights to "prepare derivative works based upon the copyrighted work." *Id.*

¹⁶⁸ Essentially, holding that AR applications are creating derivative works would open developers up to litigation. This is because the right to create derivative works belongs to the copyright holder.

¹⁶⁹ In contrast to the above, holding that AR applications are creating original works would allow developers to take existing copyrighted works and augment them with digital elements to obtain their own copyright protection on new work.

Derivative works are one of the most disputed areas of copyright law.¹⁷⁰ Derivative works are protected by copyright under Section 106(2), and protection of derivative works is a fundamental right in copyright law.¹⁷¹ In addition, Section 103(a) provides that derivative works meeting the statutory standards of Section 102 are independently copyrightable.¹⁷² Whether AR is transformative enough to create a new original work or if AR devices are merely creating derivative works protectable by the original copyright owner is an undecided question.

While courts have not yet spoken directly on the issue of whether AR overlays create new, original works or derivative works, looking at the legal debate surrounding photographs provides insight into the difficulty resolving the issue without any statutory clarity. The Seventh Circuit has stated, “[W]hether photographs of copyrighted work are derivative works is the subject of deep disagreement among courts and commentators alike.”¹⁷³ In *Schrock v. Learning Curve International, Inc.*, the court examined whether photographs taken of toys were derivative works or original works eligible for their own copyright protection.¹⁷⁴ That court first looked at the technical choices made by the photographer to determine that the photographs passed the ordinary test for originality.¹⁷⁵ Second, that court rejected the contention that derivative works are subject to a higher level of originality and agreed that the relevant standard was whether a derivative work contained a “nontrivial” variation from the

¹⁷⁰ See Pamela Samuelson, *The Quest for a Sound Conception of Copyright's Derivative Work Right*, 101 GEO L.J. 1505, 1509–10, 1549–50 (2013) (discussing how even basic mediums, such as photography, which have been around since the introduction of the Copyright Act, have been subject to unclear case law about what makes them derivative works).

¹⁷¹ 17 U.S.C. § 101 (2012) (“A derivative work is a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications, which, as a whole, represent an original work of authorship is a ‘derivative work.’”). See generally Daniel Gervais, *The Derivative Right, or Why Copyright Law Protects Foxes Better than Hedgehogs*, 15 VAND. J. ENT. & TECH. L. 785 (2013).

¹⁷² 17 U.S.C. §§ 102, 103 (2012); COHEN ET AL., *supra* note 150, at 11.

¹⁷³ *Schrock v. Learning Curve Int'l, Inc.*, 586 F.3d 513, 518 (7th Cir. 2009).

¹⁷⁴ *Id.* HIT, the copyright owner in the *Schrock* case, hired a photographer to take product photographs of its toys for promotional use. *Id.* at 516. The photographer took numerous photos over the course of four years as directed by the party's contractual agreement, choosing the lighting, sets, etc. *Id.* The photographer then sought to register the photos for copyright protection. *Id.* The district court found that the lack of permission from HIT was a bar to copyright protection. See *id.* at 517.

¹⁷⁵ *Schrock v. Learning Curve Int'l, Inc.*, 586 F.3d 513, 519 (7th Cir. 2009). The court determined that the choices made by the photographer combined “to create a two-dimensional image that is subtly but nonetheless sufficiently his own.” *Id.*

preexisting work.¹⁷⁶ Accordingly, the court held that because the photographs contained distinguishable changes, they qualified for derivative work copyright protection.¹⁷⁷

Some courts and scholars have attempted to further clarify what exactly qualifies as a derivative work. In *Ty Inc. v. Publications International Ltd.*, the court determined that collector's guide was not a derivative work because "guides don't recast, *transform*, or adapt the things to which they are guides."¹⁷⁸ Courts have also found that a shift in medium without more is generally insufficient to satisfy the requirement of originality for copyright in a derivative work.¹⁷⁹ Additionally, in *Micro Star v. FormGen*, the Ninth Circuit examined whether custom levels created within a video game were derivative works of the original video game.¹⁸⁰ The defendant in the case used these user-created levels to create their own video game.¹⁸¹ The user-created levels utilized "MAP files"¹⁸² that triggered different audiovisual displays. That court examined the derivative work requirement noting that the Ninth Circuit had previously required that in order to qualify as a "derivative work" that work must exist in a "concrete or permanent form" and must *substantially incorporate protected material from the preexisting work*.¹⁸³ The court found that the MAP files at

¹⁷⁶ *Id.* at 520–22. The court distinguished this case from other decisions, which have held that derivative works should perhaps be subject to more stringent originality requirements. *Id.*

¹⁷⁷ *Id.* at 522. The court held that because the photographs were highly accurate but "contain minimally sufficient variation in angle, perspective, lighting, and dimension to be distinguishable from the underlying works . . . the photos qualify for the limited derivative-work copyright." *Id.*

¹⁷⁸ *Ty, Inc. v. Publ'ns Int'l Ltd.*, 292 F.3d 512, 520 (7th Cir. 2002) (emphasis added).

¹⁷⁹ See e.g., *Schrock v. Learning Curve Int'l, Inc.*, 586 F.3d 513, 519 n.3 (7th Cir. 2009) (citing *Durham Indus., Inc. v. Tomy Corp.*, 630 F.2d 905, 910 (2d Cir. 1980); *L. Batlin & Son, Inc. v. Snyder*, 536 F.2d 486, 491 (2d Cir. 1976)).

¹⁸⁰ *Micro Star v. FormGen Inc.*, 154 F.3d 1107, 1109 (9th Cir. 1998). FormGen created and obtained copyright protection for the game "Duke Nukem 3D," which included a custom level-building program in the game. *Id.* Users were encouraged to create their own levels that were then playable by other players. *Id.* Micro Star took 300 user-created levels and sold them on a new disc titled "Nuke It." *Id.* FormGen then sought to enforce its copyright protection and prevent Micro Star from using the user-created levels in their own game. *Id.* The court described the game at issue as having three separate components: the game engine, the source art library, and the MAP files. *Id.* at 1110. The MAP files, at issue in the case, contained the instructions that tell the game engine what to display in order to create the audiovisual display. *Micro Star*, 154 F.3d at 1110. FormGen alleged that the audiovisual displays generated when a user plays the Micro Star game were derivative works because although the MAP files were not identical, the Micro Star version still used the Duke Nukem 3D art library to generate the images. *Id.*

¹⁸¹ *Id.* at 1109.

¹⁸² *Id.* at 1110. The MAP files are what triggered the software to display certain audiovisual elements. *Id.*

¹⁸³ *Id.* (emphasis added).

issue could be derivative works because they triggered the various audiovisual displays and incorporated the underlying software.¹⁸⁴

C. Fair Use in the Augmented Reality Context

While authors of original and fixed works are afforded general copyright protections, including the ability to control derivative works, the fair use doctrine is a limitation on the rights of copyright owners.¹⁸⁵ Section 107 of the Act provides the courts with four factors to consider when determining whether something is fair use: purpose of use, nature of the copyrighted work, amount and substantiality of the portion used in relation to the copyrighted work as a whole, and the effect of the use upon the potential market for or value of the copyrighted work.¹⁸⁶ An important focus of the first factor of the test is whether the use is “transformative.”¹⁸⁷ The Supreme Court has stated that the more transformative the new work, the less significant the other factors will be.¹⁸⁸ Each circuit uses this test as a general framework, although some have attempted to further clarify the fair use analysis resulting in a body of inconsistent case law.

In *Cariou v. Prince*, the Second Circuit found that an artist was entitled to fair use protections when he took photographs and altered them by painting different images over top of the subject’s facial features and using various sizes of the images.¹⁸⁹ The court primarily focused on whether the artist had transformed the original artist’s paintings into something “new and different.”¹⁹⁰ However, other circuits have disagreed with the Second Circuit’s approach.¹⁹¹ As Judge Easterbrook has stated, “[T]he Second Circuit has run with the suggestion that transformative use is enough to bring a modified copy

¹⁸⁴ *Micro Star v. FormGen Inc.*, 154 F.3d 1107, 1111–12 (9th Cir. 1998).

¹⁸⁵ COHEN ET AL., *supra* note 150, at 563.

¹⁸⁶ 17 U.S.C. § 107 (2012) (“Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phono records or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include— (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work.”).

¹⁸⁷ COHEN ET AL., *supra* note 150, at 615.

¹⁸⁸ *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 579 (1994).

¹⁸⁹ *Cariou v. Prince*, 714 F.3d 694, 706–08 (2d Cir. 2013).

¹⁹⁰ *Id.* at 710 (“Prince used key portions of certain of Cariou’s photographs. In doing that, however, we determine that in twenty-five of his artworks, Prince transformed those photographs into something new and different and, as a result, this factor weighs heavily in Prince’s favor.”).

¹⁹¹ *Kienitz v. Sconnie Nation LLC*, 766 F.3d 756, 758 (7th Cir. 2014).

within the scope of § 107.”¹⁹² The Seventh Circuit has stated that holding that any “transformative use” could be a “fair use” would essentially blur the lines of where derivative works start and end, because to transform is to essentially create a derivative work.¹⁹³ Further, the Seventh Circuit has stated that the most important of the four factors is generally the market effect.¹⁹⁴

As demonstrated from these two cases,¹⁹⁵ circuit courts are not uniform in their treatment of the fair use doctrine. Application of the fair use doctrine to AR in light of these decisions creates an uncertain scenario. First, AR applications are, by nature, highly “transformative.” An AR application could instantly overlay an unlimited amount of material on a user’s screen, making the underlying work unrecognizable. Second, AR applications are likely to utilize all of the underlying work when creating a new image, the second factor of the fair use test. Finally, treating the market effect factor as the most important, AR could have a dramatic effect on the market effect or long-range commercial opportunities of the author. Take the scenario at the beginning of this Part. If an artist had licensed her painting to a museum in 1990 before AR was contemplated, and that museum now provides its patrons with an AR application that allows them to digitally transform her painting at an additional cost, her long-range commercial opportunities may be substantially affected by the new AR application. From this brief overview, circuit courts would likely be inconsistent in their application of the current fair use doctrine to AR applications.

D. *A Framework for Amending the Copyright Act*

Courts and scholars have been unclear on whether traditional mediums, such as photographs, are derivative works or new original works. In fact, courts have correctly described the statutory language defining a derivative work as, “hopelessly overbroad.”¹⁹⁶ Additionally, whether digital AR works will be protected by the fair use doctrine is unclear.¹⁹⁷ Application of the various cases dealing with derivative works shows that it is likely that the federal circuits will be inconsistent in resolving even more complex AR cases.

¹⁹² *Id.*; 17 U.S.C. § 107 (2012) (fair use provision).

¹⁹³ See *Kienitz*, 766 F.3d at 758 (“We’re skeptical of *Cariou*’s approach, because asking exclusively whether something is ‘transformative’ not only replaces the list in § 107 but also could override 17 U.S.C. § 106(2), which protects derivative works.”).

¹⁹⁴ *Id.*

¹⁹⁵ This Note does not delve further into the fair use doctrine because the only point needed is that fair use has not enjoyed straightforward application in the lower courts and it is highly unlikely that the courts will be uniform in their application of the current test to AR works.

¹⁹⁶ *Micro Star v. FormGen Inc.*, 154 F.3d 1107, 1110 (9th Cir. 1998) (elaborating that because the language is so overbroad, courts have had to develop doctrines to limit it, such as the requirements that the work exist in concrete or permanent form and must substantially incorporate the protected material from an existing work).

¹⁹⁷ See *supra* notes 186–194 and accompanying text.

Although shifts in medium alone have been found to be insufficient, using the reasoning from *Ty, Inc.*, it is likely that courts will find AR creates derivative works.¹⁹⁸ As the House Report accompanying the 1976 Act states, “the infringing work must incorporate a portion of the copyrighted work in some form. . . .”¹⁹⁹ Any AR application will naturally recast and transform the original image, easily surpassing this standard.²⁰⁰ Additionally, application of the “nontrivial” standard utilized by *Schrock* will likely mean that AR applications will almost always be creating derivative works when new digital items are overlaid on top of real-world copyrighted objects.²⁰¹

Similar to *Micro Star*, AR applications utilize the underlying work in order to create other works.²⁰² For example, if an AR application only displays particular digital content when it recognizes an underlying original work, then like the MAP files in *Micro Star*, that underlying work is still a main component of the new digital work. In basic terms, without the underlying work, there would be no AR creation. Thus, a court applying the *Micro Star* reasoning would likely find that AR applications that utilize existing copyrighted works are creating derivative works.²⁰³

Whether the courts take the view that new AR applications are creating derivative works or new original works, there are a number of undesired results. As Paul Goldstein has stated, “taken together, sections 102(a) and 103, and sections 106(1) and 106(2), give a prospective copyright owner the incentive to make an original, underlying work, the exclusive right to make new, successive works incorporating expressive elements from the underlying work”²⁰⁴

¹⁹⁸ Unlike *Ty, Inc.*, AR works “recast” the original work. See *supra* note 178 and accompanying text.

¹⁹⁹ COHEN ET AL., *supra* note 150, at 333 (citing H.R. REP. NO. 94-1476, at 62 (1976)).

²⁰⁰ This is because AR by its nature utilizes the underlying work or landscape and “augments” it. This will always require displaying a copy of the original work on a device’s screen.

²⁰¹ In *Schrock*, the court quoted the Nimmer treatise to determine that the relevant standard is whether a derivative work contains a “nontrivial” variation from the preexisting work “sufficient to render the work distinguishable from the prior work in a meaningful manner. Applying that test to AR, it is likely that the digital transformations made to the underlying works will often result in substantial and nontrivial changes.” *Schrock v. Learning Curve Int’l, Inc.*, 586 F.3d 513, 520 (7th Cir. 2009) (citing 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 3.01 3-2 (1978)).

²⁰² Like the technology in *Micro Star*, an AR application will use the underlying code and the original protected work to display images on a device’s screen; however, the actual images being displayed on screen will likely change from user to user. See *supra* notes 180–184 and accompanying text.

²⁰³ This is what makes AR technology especially tricky for copyright law. The amount of changes that are being made to an underlying work will never be consistent; they will vary from user to user. Thus, like the court in *Microstar*, a court will likely find that utilizing the underlying work results in a creation of a derivative work. See *supra* notes 180–184 and accompanying text.

²⁰⁴ COHEN ET AL., *supra* note 150, at 320 (citing Paul Goldstein, *Derivative Rights and Derivative Works in Copyright*, 30 J. COPYRIGHT SOC’Y U.S.A. 209, 217 (1983)).

Thus, if a court were to find that AR applications use the expressive elements of a work to create a derivative work, AR applications would constantly be infringing on copyrights unless they are protected by the fair use doctrine.²⁰⁵

Alternatively, if AR applications meet the originality threshold categorizing them as new, original works, which seems unlikely given the previous case law, then original owners would lose one of their basic incentives to create. AR application developers could create relatively simple software that substantially changed a copyrighted painting. Those application developers would then have a new work that they could copyright themselves. Obviously, this scenario seems highly unfair to the original author; however, under current law, this scenario is not unthinkable.²⁰⁶

Therefore, due to the inconsistent body of law dealing with derivative works and the application of the fair use doctrine, Congress must amend the Copyright Act to reflect the modern advent in ability to quickly create new derivative works that strikes the proper balance between original authors and developers. Congress has not been averse to amending copyright laws to consider technological advancements.²⁰⁷ For example, in 1976, Congress updated the Act to deal with the advent of computer software.²⁰⁸ Similarly, Congress must now act to refresh the Act to be effective in the current midst of the technological revolution. An effective update of derivative work and fair use protections would maintain the original author's ability to control their original work, but also allow AR developers to continue innovating in the field. AR can be a powerful learning tool in places, such as museums; however, original authors must retain an incentive to create and must not lose commercial control of their works.

Congress has also updated the Copyright Act to limit the exclusive rights of the copyright holder in the past. For example, section 112 of the Act was included in the 1976 Act to allow the transmission of certain works as long as

²⁰⁵ This is because the copyright owner has the exclusive right to control derivative works. 17 U.S.C. § 106(2) (2012). Reliance on the fair use doctrine by AR developers would be an uncertain defense and likely result in less innovation in the field. As stated, the fair use doctrine is inconsistently applied because of the four-part test. *See supra* Part V.C. Reliance on this test alone in the AR field is inadvisable because there is a clear separation between AR applications that use the underlying work for monetary gain and those that do not.

²⁰⁶ A court could rationally hold that an AR application created a new digital work with enough original elements to be independently copyrightable. This is due to the uncertain nature of precedent in the derivative work sphere. *See supra* notes 167–170 and accompanying text.

²⁰⁷ *See, e.g.*, H.R. REP. NO. 94-1476, at 101 (1976); Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2860 (1998) (codified in sections of 17 U.S.C. (2012 & Supp. IV 1999)); *see also Legislative Developments*, U.S. COPYRIGHT OFFICE, <https://www.copyright.gov/legislation/> [https://perma.cc/YEM6-7T2D] (listing fifteen recent legislative proposals to amend the Copyright Act in the 115th Congress, such as the Music Modernization Act of 2018).

²⁰⁸ *See supra* notes 150–151 and accompanying text (discussing the 1976 Act).

no copies of the work were made.²⁰⁹ Section 112 can operate as a framework for how the legislature should handle AR. AR works are often benign in their usage and seek only to supplement the experience of the underlying original work.²¹⁰ However, there are instances where AR could be a detriment to the copyright holder and cause the loss of monetary gains or the incentive to create new works.²¹¹

Thus, the new derivative work amendment should protect the original authors from AR applications attempting to monetize their works in a way that they did not originally intend. Conversely, AR applications should not be absolutely barred from utilizing any underlying works that may have copyright protections. Any amendment should utilize the fair use factor test to balance the interests of the original author and the subsequent uses of the work but also clearly distinguish between benign and monetary uses.

Therefore, the Augmented Reality Derivative Work Amendment could read:²¹²

Notwithstanding the provisions of section 106, and except in instances of contractual arrangement, it is not an infringement of copyright for an augmented reality (“AR”) application to utilize a work protected under section 102 of the Act if—

*The copy of the work is retained only within the software of the application for the purposes of digital overlay and no further copies are made or disseminated;
and*

²⁰⁹ H.R. REP. NO. 94-1476, at 14, 101–02 (1976); COHEN ET AL., *supra* note 150, at 252 (discussing how § 112(a) allows for an exception in certain cases where a “transmitting organization” can make one copy of a “transmission program” and not be liable for infringement).

²¹⁰ For example, an AR application could use the underlying work for educational purposes only. When the application recognized a famous painting by Picasso, the application could augment a picture of Picasso, as well as historical and informational facts about his life. This is an example of a benign usage of AR.

²¹¹ In contrast, an AR application could recognize that same Picasso painting and allow the user to transform the image on the device’s screen using image editing tools. The user could then save the new creation to the device’s memory—for a fee. This usage of copyrighted works would be problematic because the AR developer is charging money and the user is able to save the altered work for further dissemination.

²¹² Of course, any amendment to the Act would need to cater more to the intricacies and nuances of copyright law and AR. Additionally, what was included under the term “augmented reality application” would need to be defined under Section 101 of the Act. Due to the limited space, the text proposed here is a mere starting point for lawmakers to identify and solve the issues that will arise as AR becomes more mainstream. The amendment has two main goals: (1) ensure that owners do not lose control over their works due to advancements in technology and (2) utilize the traditional fair use analysis to separate AR applications that are using original works for monetary purposes versus purely educational or supplemental means.

The copy of the work is used solely for the purposes of overlaying new information within a determined service area and the use is within that originally contemplated by the copyright owner to be determined by the factors outlined in section 107 of this Act; and

The copy of the work is not used for the monetary or economic gain of the application developer unless otherwise provided by contractual arrangement.

The proposed text seeks to maintain the integrity and underlying goals of the Act while also allowing for reasonable innovation within the AR field. Thus, the example at the beginning of this Part would only be actionable as infringement if the AR application or the museum had started to exploit the underlying work and create new works for monetary gain, which would not have been contemplated by the original copyright owner.²¹³ Alternatively, AR applications that merely added supplemental information to the underlying work would not be found to be infringing on the work.²¹⁴ The proposed text attempts to utilize the existing fair use framework while also acknowledging that the current test by itself is not entirely suitable for AR applications.²¹⁵

The amendment ensures that AR applications that utilize underlying copyrighted works are not liable for infringement as long as developers follow reasonable restrictions. Developers are free to create educational or supplemental applications, as long as the copyrighted work is not continuously copied or disseminated and sold for monetary gain, which is similar to the current way section 107 operates.²¹⁶ If a developer does wish to utilize the underlying work for monetary gain or distribution, then that developer must obtain a license or permission from the copyright owner. In this sense, the proposed text brings the treatment of AR into the twenty-first century while still maintaining the underlying justifications and rationales of copyright protection.²¹⁷

²¹³ An artist who placed their work in a museum would have expected that the public would view the work. However, it is unlikely that the artist would have imagined that a patron could walk into the museum with a paid AR application on their phone and augment new digital elements onto their work. The proposed text seeks to deal with this issue by separating monetary and non-monetary uses.

²¹⁴ For example, if the museum or third-party developer only used the work in order to add supplemental information, such as facts from a site like Wikipedia, this would not be considered infringement, unless the application was using the underlying work for monetary gain without a contractual license with the author.

²¹⁵ The fair use defense is often unclear in application. *See supra* Part V.C. Specifically, for AR, fair use presents a host of unforeseen issues due to the dynamic experience that changes from user to user and also the possibility that AR developers can use the underlying works for monetary gain in some instances and not in others.

²¹⁶ *See supra* note 186 and accompanying text for a discussion of the current fair use test. In this sense, the proposed text aims to maintain the author's ability to make a profit of their works but also seeks to keep the integrity of the fair use test.

²¹⁷ The proposed text seeks to allow the copyright holder to maintain their rights and incentives to create but also allow benign uses of their works as is expected under current

VI. CONCLUSION

The rapid development of new technologies in the midst of the current technological revolution is beginning to put a strain on both real and intellectual property laws. The time has come for comprehensive legislative action to avoid the gray areas that are certain to arise over the next five to ten years when the bounds of real and virtual worlds meet. As addressed in this Note, three areas of the law will be impacted in previously unforeseen ways by the forthcoming surge of AR development: real property law, trademark law, and copyright law. While the impacts will certainly be felt in the courts, Congress can take modest steps to alleviate the problems.

Enacting a new statute that provides real property owners with recourse against a virtual intrusion will place real property owners on an even playing field in an age where intellectual property can be placed in thousands of locations simultaneously. Likewise, updating the Lanham Act's definition of actionable use to consider new technological capabilities of AR and mixed reality will prevent trademark holders from losing the value of their brand identifier while still allowing for AR applications to use trademarks for informational purposes. Finally, amending copyright law protections to clarify what constitutes an infringing use of an underlying work in the AR context will allow creators to retain the traditional incentives under copyright law while also allowing for innovation in the AR space. These measures will comprehensively protect innovation yet still provide incentives for the owners and creators of property. Additionally, these measures are more cost effective than relying on retroactive judge-made law to handle the issues and will provide much needed stability and clarity in the laws.

These approaches will allow the courts to adjudicate in an effective, informed manner and provide clear guidance to innovators in the AR field. Commercial AR is relatively new and rapidly growing as an industry, while current statutory law remains stagnant and silent on the issue. The current technological revolution is growing at a pace never before seen in human history. Thus, legal questions surrounding the new technology must be resolved with modest revisions to existing property laws before they become outdated and ineffective.

copyright laws. See COHEN ET AL., *supra* note 150, at 7 (“[C]opyright law provides a legal entitlement to the copyright owner to exclude others from enjoying certain benefits of the work. . . . Copyright law exists to prove a marketable right for the creators and distributors of copyrighted works, which in turn creates an incentive for production and dissemination of new works.”).