
ESSAY

CAUSATION AND HARM IN A MULTICOMPONENT WORLD

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INTRODUCTION

On September 17, 2015, the Federal Circuit issued another decision in the epic *Apple v. Samsung* smartphone war.¹ This was the fourth court decision in the ongoing saga to deal with injunctions. *Apple IV* explained the level of proof necessary to satisfy the “causal nexus” requirement for obtaining an injunction. This requirement had emerged as a response to patent litigation involving products with thousands of features, the vast majority of which are unrelated to the asserted patent. To prove a causal nexus, patentees seeking an injunction have to do more than just show that the infringing *product* caused the patentee irreparable harm. The harm must be specifically attributable to the infringing *feature*. In *Apple IV*, the Federal Circuit noted that proving causation was “nearly impossible” in these multicomponent cases. The court decided to water down the causal nexus requirement, saying that it was enough for Apple to show that the infringing features were “important” and customers sought these particular features.

This lower standard is an ill-advised mistake that leaves multicomponent product manufacturers more susceptible to patent holdup. My critique takes two parts. First, I argue that a single infringing feature rarely, if ever, “causes” consumers to buy the infringer’s multicomponent products. The minor features at issue in *Apple IV* vividly illustrate this point. Thus, the new causal nexus standard does not accurately reflect how causation and harm operate in

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¹ See *infra* Section I.B.

a multicomponent world. Second, I explain why the court was so willing to accept such little evidence of real injury. It improperly applied notions of traditional property law to patents. Specifically, the court viewed patent infringement as harmful in and of itself, regardless of any concrete consequences. This view may resonate for other forms of property where an owner's rights are paramount and a trespass is considered offensive in and of itself. But the same concepts do not apply to patent law where the Supreme Court has consistently said that private interests must take a back seat to the public good. Based on these principles, the courts should restore the "causal nexus" requirement and not presume causation.

I. INJUNCTIONS IN A MULTICOMPONENT WORLD

For many years, courts automatically awarded prevailing patentees a permanent injunction against further infringement.² That changed in 2006 when the Supreme Court issued its decision in *eBay Inc. v. MercExchange*.³ The *eBay* decision held that courts should apply the traditional four-factor test they use in other areas of the law when determining if an injunction should issue.⁴ Those factors are: (1) whether the plaintiff has suffered an irreparable harm, (2) whether there is an adequate remedy at law, (3) the balance of hardships on the respective parties, and (4) whether granting an injunction would disservice the public interest.⁵

A. *Lost Sales* → *Irreparable Harm* → *Injunction*

After *eBay*, the lower courts had to determine what constituted "irreparable harm," or alternatively, when money damages would be adequate to compensate the harm. These two factors have been considered mirror images of each other and generally stand or fall together.⁶ For the most part, this determination has turned on the relationship between the patentee and the infringer. When a patentee that does not compete with the infringer brings a suit, courts have repeatedly found that there was no irreparable

² *MercExchange, L.L.C. v. eBay, Inc. (eBay II)*, 401 F.3d 1323, 1338 (Fed. Cir. 2005) (noting "the general rule is that a permanent injunction will issue once infringement and validity have been adjudged" for patent infringement).

³ *eBay Inc. v. MercExchange, L.L.C. (eBay III)*, 547 U.S. 388 (2006).

⁴ *Id.* at 391.

⁵ *Id.*

⁶ When there is irreparable harm, money damages are inadequate. Alternatively, if there is no irreparable harm, money damages are adequate. *See, e.g.*, Mark P. Gergen, John M. Golden & Henry E. Smith, *The Supreme Court's Accidental Revolution? The Test for Permanent Injunctions*, 112 COLUM. L. REV. 203, 209 (2012) (suggesting that the two requirements are actually one and the same).

harm.⁷ This category includes suits brought by so called “patent trolls” as well as patentees that make products, but do not directly compete with the infringer.⁸ In contrast, when a case involves direct competitors, courts have usually found irreparable harm and said that money damages were inadequate.⁹ That is because lost sales can cause further downstream harms that are hard to quantify. For example, customers frequently exhibit brand loyalty by continuing to buy products from the same company in the future. Thus, awarding a company the profits it would have made from a lost sale may not adequately compensate it for the harm it suffered. Other network effects may also explain why damages are inadequate. Especially in the high-tech industry, early sales wins can contribute to the success for the entire product line.¹⁰

Christopher Seaman’s recent empirical study of district courts’ permanent injunction rulings confirms that competition is a powerful predictor of when a permanent injunction will issue. Since *eBay* was decided, patent holders who compete with an infringer have been granted a permanent injunction in 84% of the cases while patentees who did not compete only receive injunctions 21% of the time.¹¹

But the courts have begun to recognize that not all competition is equivalent. Sometimes a patented feature is not sufficiently important to

7 See Stacy Streur, *The eBay Effect: Tougher Standards but Courts Return to the Prior Practice of Granting Injunctions for Patent Infringement*, 8 NW. J. TECH. & INTELL. PROP. 67, 71 (2009) (collecting cases in which courts relied on the degree of competition to establish if money damages are adequate).

8 The term “patent troll” seems to have caught hold in the popular press to describe entities that primarily seek to monetize their patents through litigation and/or licensing, but academic commentators use less inflammatory terms such as NPE (nonpracticing entity) or PAE (patent assertion entity). See, e.g., Colleen V. Chien, *From Arms Race to Marketplace: The Complex Patent Ecosystem and Its Implications for the Patent System*, 62 HASTINGS L.J. 297, 326-32 (2010).

9 See Bernard H. Chao, *After eBay, Inc. v. MercExchange: The Changing Landscape for Patent Remedies*, 9 MINN. J.L. SCI. & TECH. 543, 549-50 (2008) (reporting that courts are likely to issue injunctions in the presence of direct competition); see also *Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, 702 F.3d 1351, 1363 (Fed. Cir. 2012) (“Direct competition in the same market is certainly one factor suggesting strongly the potential for irreparable harm . . .”).

10 See CARL SHAPIRO & HAL R. VARIAN, *INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY* 173-75 (1999) (explaining that for some high-tech products, the network effect means that “the value of connecting to a network depends on the number of other people already connected to it”).

11 See Christopher B. Seaman, *Permanent Injunctions in Patent Litigation After eBay: An Empirical Study*, 101 IOWA L. REV. (forthcoming 2015) (manuscript at 49) (on file with the University of Pennsylvania Law Review), <http://ssrn.com/abstract=2632834> [<https://perma.cc/NE6V-GVGW>] (categorizing district court decisions post-*eBay* through the end of 2013 based on whether litigants were competitors and whether a permanent injunction was granted); see also Colleen V. Chien & Mark A. Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1, 10 fig.1 (2012) (finding that district courts granted NPEs injunctions at an overall rate of 26%, and only 7% when the injunction was opposed by the infringer from July 2006 through August 2011).

cause competitive harm. In other words, although a competing *product* might take sales away from a patentee, that loss may not be caused by the inclusion of a particular *infringing feature*. This distinction between an *infringing product* and the product's *infringing feature* is particularly relevant to today's high-tech multicomponent devices. Devices like smartphones can be covered by literally hundreds of thousands of patents.¹² Moreover, there may be non-patented reasons why consumers chose the infringer's products. For these multicomponent goods, the odds of any single patented feature, even an important one, driving buyers from the patentee to the infringer are miniscule. These odds diminish even further as the products gain complexity. The *Apple v. Samsung* smartphone wars highlight this issue and pose an important question: How should a court determine when an infringing feature is causing a patentee "irreparable harm" under *eBay*? The answer to the question will play a pivotal role in deciding when to issue permanent injunctions in future technology cases.

B. *Infringing Feature ≠ Infringing Product*

In April 2011, Apple sued Samsung alleging that Samsung's smartphone and tablets infringed various Apple utility and design patents.¹³ Soon after filing the suit, Apple moved for a preliminary injunction to block Samsung from importing and selling the accused devices.¹⁴ The district court found that Apple and Samsung competed for the same customers, and that it was difficult to calculate the effect of any lost sales because customers tended to be "loyal" and purchase from the same company over the long term.¹⁵ For simpler products that are made up of just a few components, these findings would ordinarily be sufficient to satisfy the first two *eBay* factors. But smartphones have thousands of features and findings about infringing products were insufficient to support a showing of irreparable harm. The district court required Apple to also "establish a *nexus* between Apple's harm of lost customers and loss in market share and Samsung's allegedly infringing conduct."¹⁶ That meant that Apple had to tie its lost sales to the infringing features, not just the infringing products. Because the evidence about why consumers bought Samsung's smartphones instead of Apple's was "somewhat

¹² See Steve Lohr, *Apple-Samsung Case Shows Smartphone as Legal Magnet*, N.Y. TIMES (Aug. 25, 2012), <http://www.nytimes.com/2012/08/26/technology/apple-samsung-case-shows-smartphone-as-lawsuit-magnet.html> [https://perma.cc/Z6J4-APHQ] (noting that "as many as 250,000 patents can be used to claim ownership of some technical or design element in a smartphone").

¹³ *Apple, Inc. v. Samsung Elecs. Co. (Apple II)*, 678 F.3d 1314, 1319 (Fed. Cir. 2012).

¹⁴ *Id.*

¹⁵ *Apple, Inc. v. Samsung Elecs. Co. (Apple I)*, No. 11-CV-01846-LHK, 2011 WL 7036077, at *20 (N.D. Cal. Dec. 2, 2011), *aff'd in part, vacated in part* 678 F.3d 1314 (Fed. Cir. 2012).

¹⁶ *Id.* (emphasis added).

contradictory,” the district court found that Apple had failed to establish irreparable harm and denied Apple’s request for a preliminary injunction.¹⁷

Apple immediately appealed, arguing that it did not need to show a nexus between the infringing feature and its claimed harms.¹⁸ It was sufficient for Apple to show that it was suffering harm from Samsung’s sales of infringing products.¹⁹ In an opinion authored by Judge Bryson, the Federal Circuit disagreed. The court said, “[s]ales lost to an infringing product cannot irreparably harm a patentee if consumers buy that product for reasons other than the patented feature.”²⁰ Although there was precedent for requiring a link between a particular infringing feature and any alleged harm, *Apple II* appears to be the first to use the “causal nexus” language.²¹

The causal nexus issue arose again in a second patent lawsuit between the two tech titans. This lawsuit also related to smartphones and tablets, but the parties had thrown additional patents into their war. After Apple prevailed at trial, it sought a permanent injunction. But instead of asking the court to enjoin Samsung from selling and importing the infringing products, Apple asked for a more limited injunction ordering Samsung to remove the infringing features covered by three Apple patents.²² Again, the district court denied Apple’s request because Apple failed to show “that it will suffer lost sales specifically due to Samsung’s infringement of the three patents at

17 *Id.* at *21, *24. Notably, the district court did find that Apple’s showing with respect to tablets was sufficient. *Id.* at *29 (accepting evidence “that consumers are likely to be induced to purchase the Galaxy Tab 10.1, instead of the Apple iPad, because the overall designs of the products are substantially the same”).

18 *Apple II*, 678 F.3d at 1323.

19 Nonconfidential Opening Brief of Appellant Apple Inc. (Corrected Version), *Apple II*, 678 F.3d 1314 (Fed. Cir. 2011) (No. 2012-1105), 2011 WL 7039089, at *25-30. Apple also advanced arguments about injuries to its reputation. This Essay does not discuss that argument because the Federal Circuit did not rule on it.

20 *Apple II*, 678 F.3d at 1324.

21 *Compare id.* at 1324 (“We hold that the district court was correct to require a showing of some causal nexus between Samsung’s infringement and the alleged harm to Apple as part of the showing of irreparable harm.”), *with Voda v. Cordis Corp.*, 536 F.3d 1311, 1329 (Fed. Cir. 2008) (explaining that “the district court did not clearly err in finding that [the plaintiff] failed to show that [defendant’s] infringement caused *him* irreparable injury”), *and Procter & Gamble Co. v. Ultreo, Inc.*, 574 F. Supp. 2d 339, 350 (S.D.N.Y. 2008) (finding no nexus between the allegedly false advertising and lost sales, and concluding that “[s]uch a loss, absent a nexus or a logical connection to false advertising, is insufficient to demonstrate the irreparable harm required to issue a preliminary injunction”).

22 Those patents are U.S. Patent Nos. 5,946,647 (the data structure), 8,046,721 (slide to unlock), and 8,074,172 (autocorrect for spelling).

issue.”²³ In particular, the court said that Apple had failed to show that the infringing features “drive consumer demand for the infringing products.”²⁴

In a two-to-one decision written by Judge Moore, the Federal Circuit reversed.²⁵ Judge Reyna joined and also wrote a strongly worded concurrence while Judge Prost dissented.²⁶ Notably, the majority opinion did not suggest that the district court’s factual findings were wrong. Instead, Judge Moore said that the causal nexus standard the district court applied was too rigorous.²⁷ Proving that a specific feature drove consumer demand was apparently too difficult. According to the Federal Circuit, “[s]uch a showing may . . . be nearly impossible from an evidentiary standpoint when the accused devices have thousands of features, and thus thousands of other potential causes that must be ruled out.”²⁸ Consequently, the court called for a more “flexible” causal nexus analysis for these kinds of multicomponent cases.²⁹ This lower flexible standard simply requires “some connection between the patented features and the demand for the infringing products.”³⁰ In Apple’s case, the Federal Circuit said that it was sufficient to show that an infringing smartphone feature “impacts customers’ purchasing decisions”³¹ and was “important to customers when they were examining their phone choices.”³² After explaining these requirements, it was easy for Judge Moore to declare that the “features claimed in [Apple’s three] patents were important to product sales and that customers sought these features in the phones they purchased.”³³ Based on substantially the same analysis, the Federal Circuit also disagreed with the district court’s ruling on the second *eBay* factor and held that money damages were inadequate.³⁴ Although the decision technically remanded the permanent injunction issue,³⁵ the district court had

23 *Apple, Inc. v. Samsung Elecs. Co., Ltd (Apple III)*, No. 12-CV-00630-LHK, 2014 WL 7496140, at *16 (N.D. Cal. Aug. 27, 2014), *vacated*, No. 2014-1802, 2015 WL 9014387 (Fed. Cir. Dec. 16, 2015).

24 *Id.* at *23.

25 *Apple Inc. v. Samsung Elecs. Co. (Apple IV)*, No. 2014-1802, 2015 WL 9014387 (Fed. Cir. Dec. 16, 2015), modifying and superseding 801 F.3d 1352 (Fed. Cir. 2015).

26 *Id.*

27 *Id.* at *5 (“[A]ccording to the district court, Apple did not show that the infringing features ‘drive consumer demand for Samsung’s infringing products.’ Here, the district court erred.”).

28 *Id.*

29 *Id.* (noting that the “[the causal nexus requirement] is a flexible analysis, as befits the discretionary nature of the four-factor test for injunctive relief”).

30 *Id.* (internal quotation marks omitted).

31 *Id.*

32 *Id.* at *8.

33 *Id.*

34 *Id.* at *8-9.

35 *Id.* at *11.

previously found that the third³⁶ and fourth³⁷ *eBay* factors favored issuing an injunction. Thus, the Federal Circuit decision essentially required the district court to issue a permanent injunction.

II. TAKING CAUSATION AND HARM SERIOUSLY

This Essay argues that the lower causal nexus standard that *Apple IV* just announced is an ill-advised mistake that renders multicomponent product manufacturers more susceptible to patent holdup.³⁸ The majority opinions suffer from two analytical failings. First, Judge Moore took an overly simplistic view of multicomponent products by equating an “important” infringing feature with causing harm. A single infringing feature rarely, if ever, causes consumers to buy the infringer’s multicomponent products. A patentee should have the opportunity to prove causation, but the standard should not presume facts that are usually false. The court’s flawed ruling was undoubtedly colored by the judges’ second misstep. Judges Moore and Reyna improperly applied notions of traditional property law to patents. Specifically, they viewed patent infringement as harmful in and of itself, regardless of any concrete consequences to the patentee. This view may resonate for other forms of property where an owner’s rights are paramount and a trespass is considered offensive even in the absence of any harm to the property owner.³⁹ But the same concepts do not apply to patent law where the Supreme Court has consistently said that private interests must take a back seat to the public good.

A. 3 << 1000s

To satisfy the causal nexus standard, the district court said that Apple had to show that the infringing features “drive consumer demand for Samsung’s infringing products.”⁴⁰ But the *Apple IV* majority thought this standard was too high for products with thousands of features pointing out that it may be “nearly impossible from an evidentiary standpoint” to make that showing.⁴¹

36 See *Apple III*, No. 12-CV-00630-LHK, 2014 WL 7496140, at *19-22 (N.D. Cal. Aug. 27, 2014), *vacated*, No. 2014-1802, 2015 WL 9014387 (Fed. Cir. Dec. 16, 2015) (agreeing with Apple that “Samsung faces no hardship at all”).

37 See *id.* at *22-23 (agreeing with Apple that “the public interest does favor the enforcement of patent rights to promote the encouragement of investment-based risk”).

38 See *infra* notes 82–84 and accompanying text for a discussion of the patent holdup problem.

39 See RESTATEMENT (SECOND) OF TORTS § 163 (AM. LAW INST. 1965) (“One who intentionally enters land in the possession of another is subject to liability to the possessor for a trespass, although his presence on the land causes no harm to the land, its possessor, or to any thing or person in whose security the possessor has a legally protected interest.”).

40 *Apple III*, No. 12-CV-00630-LHK, 2014 WL 7496140, at *13.

41 *Apple IV*, No. 2014-1802, 2015 WL 9014387, at *5 (Fed. Cir. Dec. 16, 2015).

However, what Judge Moore labels as an “evidentiary” problem is nothing of the sort. In truth, her complaint provides a telling insight into causation and harm in a multicomponent world. Individual features (including infringing ones) almost never drive customers to buy one device instead of another.

Considering the myriad reasons why customers might choose Samsung’s smartphone over Apple’s reveals the fallacy of *Apple IV*’s so-called evidentiary problem. If we believed Samsung was able to take Apple’s sales by using a few patented features and Apple could not obtain sufficient evidence to prove that fact, there would be an evidentiary problem. Sometimes, the law creates presumptions when it believes some situation is typically true but is hard to prove because the supporting evidence is hard to obtain.⁴² However, if we believe that customers chose Samsung’s smartphones instead of Apple’s because of reasons unrelated to the infringing features, that would not be an evidentiary problem. Instead, that would suggest that Samsung’s infringement did not cause Apple’s harm—that there was no causal nexus. A closer examination of the specific facts of *Apple IV* suggests that the latter scenario is more consistent with the evidence. Importantly, the same is likely to be true for the majority of future multicomponent litigations.

First, let’s consider the three Apple patents. Presumably, Apple selected some of its most valuable patents to assert against Samsung. But a review of these patents show that they cover surprisingly minor features. That is probably because products in the technology sector are typically the result of incremental and cumulative innovation as opposed to one or even a few pioneering inventions.⁴³

Take U.S. Patent No. 8,046,721 (the ’721 patent), one of Apple’s so called “slide to unlock” patents. These patents cover a way for users to unlock their smartphones. An earlier version, U.S. Patent No. 7,657,849 (the ’849 patent) required users to slide their finger along a predefined fixed path.⁴⁴ But Apple’s competitors were able to easily design around this patent by avoiding the “fixed path” requirement. So, the new ’721 patent only required sliding

⁴² 2 MCCORMICK ON EVIDENCE § 343, at 500-01 (Kenneth S. Broun ed., 6th ed. 2006) (describing justifications for the creation of presumptions).

⁴³ See FED. TRADE COMM’N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION 55 (March 2011) (explaining that the high level of patenting in the IT area is partially attributable to the incremental nature of innovation); see also Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 881 (1990) (noting that technical advance is cumulative and it builds on and interacts with existing technology).

⁴⁴ The key language of claim 1 of the ’849 patent requires: “moving an unlock image along a predefined displayed path on the touch-sensitive display in accordance with the contact, wherein the unlock image is a graphical, interactive user-interface object with which a user interacts in order to unlock the device.”

between two pre-defined locations.⁴⁵ That patent did not prove much harder to avoid. Competitors (including Samsung) quickly developed unlocking mechanisms that did not use a specific starting or end point.⁴⁶ Clearly, customers are not going to choose between smartphones based on this trivial difference in the way the device unlocks.

Second, U.S. Patent No. 8,074,172 covers a particular method for automatically correcting spelling errors on touchscreen devices. The claims are drawn narrowly to encompass specific ways of presenting and selecting suggested spellings.⁴⁷ Apple's own failure to use this feature in its smartphones demonstrates how easy it is to use different designs to accomplish the same function.⁴⁸

Finally, U.S. Patent No. 5,946,647 claims a system that detects "data structures" within text and generates links to specific actions that are performed for each type of detected structure. For example, when a phone number is detected in a text message, the smartphone creates a link that allows the user to dial that number. This feature is probably the most valuable of the three. But it is hard to imagine that any customers would choose a smartphone because of this feature. Additionally, Samsung could eliminate the feature quickly.⁴⁹

Indeed, a quick (and admittedly unscientific) search for important smartphone features does not find any mention of any feature covered by any of Apple's three patents.⁵⁰ Instead, reviewers advise consumers to consider a

45 The key language of claim 1 of the '721 patent requires: "detecting a contact with the touch-sensitive display at a first predefined location corresponding to an unlock image; continuously moving the unlock image . . . unlocking the hand-held electronic device if the moving the [sic] unlock image on the touch-sensitive display results in movement of the unlock image from the first predefined location to a predefined unlock region on the touch-sensitive display."

46 See, e.g., Nilay Patel, *Slide to Unlock: How Apple's Patents Are Changing Android*, THE VERGE (Mar. 6, 2012, 12:35 PM), <http://www.theverge.com/2012/3/6/2849051/slide-to-unlock-patent-apple-android-google> [<https://perma.cc/87BP-YMFU>] (illustrating via video how different competitors redesigned their smartphone-unlocking mechanism to avoid Apple's patents).

47 For example, Samsung was found to infringe claim 18 of the '172 patent. That claim covers a display where the current character string is replaced with a suggested string when the user activates a delimiter key (i.e., the space bar or punctuations). There are clearly alternate ways to activate the same action.

48 See *Apple III*, No. 12-CV-00630-LHK, 2014 WL 7496140, at *20 (N.D. Cal. Aug. 27, 2014), *vacated*, No. 2014-1802, 2015 WL 9014387 (Fed. Cir. Dec. 16, 2015) (stating that by trial, Samsung had already developed a "non-infringing keyboard" that had been installed on "many Samsung phones").

49 *Id.* (detailing that, at trial, a Google engineer testified that it should not take more than a day to remove the accused pop-up menu).

50 See Kim Komando, *10 Smartphone Must-Have Features*, USA TODAY (Dec. 13, 2013), <http://www.usatoday.com/story/tech/columnist/komando/2013/12/13/smartphone-battery-processing-display-camera/3921399/> [<https://perma.cc/G23M-JVHA>] (listing battery life, processing speed, clarity of display, camera, Near Field Communications, multiple windows, storage space, infrared remote control, fingerprint sensor and wireless charging as the most important smartphone features); Seth Porges, *Buying a Smartphone? These Are the Only Features That Matter*, FORBES (Feb.

host of other features when deciding among different smartphones, including: the availability of apps, battery life, how quickly apps open and run, the type of materials used to build the device, storage space, the ability to open multiple windows, the camera, and the display.⁵¹ Importantly, customers' decisions are not just affected by features. They could choose Samsung's smartphone over Apple's because of price, brand loyalty, reputation, or even distaste for a market-dominant player.⁵²

Thus, *Apple IV*'s new and lower causal nexus standard appears disconnected from the reality of multicomponent devices. It fails to appreciate that even the most innovative technology products are made up of countless small advances, not a few pioneering ones. The result is a causal nexus standard that has almost no connection to causation at all. To make matters worse, it is unclear how low the Federal Circuit would go. There may be hundreds if not thousands of smartphone features that customers consider just as "important" as the enjoined autocorrect feature of the '172 patent. But if thousands of features satisfy the new test, the test cannot be about causation. So where did this standard originate? The next section explains that the lower causal nexus standard masks a deeper concern about the very nature of patents and their corresponding rights.

B. Patents ≠ Traditional Property

So why did the *Apple IV* court fail to appreciate the minimal harm that any single feature would cause? An examination of Judge Moore's and Judge Reyna's opinions suggest that the judges were understandably, but incorrectly, influenced by their belief that patents are simply like other forms of traditional property. Under that view, harm to property exists if infringement occurred, regardless of any real world consequences.

Many property scholars argue that the right to exclude is property's defining quality.⁵³ Both Judges Moore and Reyna fall into this camp and

24, 2014), <http://www.forbes.com/sites/sethporges/2014/02/24/buying-a-smartphone-these-are-the-only-features-that-matter/> (enumerating apps, battery life, smoothness, build, and OS skins as the features that matter).

⁵¹ See *supra* note 50; see also *Apple IV*, No. 2014-1802, 2015 WL 9014387, at *20 (Fed. Cir. Dec. 16, 2015) (Prost, J., dissenting) (discounting the spelling correction feature and characterizing the other features as "minor").

⁵² See Mark A. Lemley, *Distinguishing Lost Profits from Reasonable Royalties*, 51 WM. & MARY L. REV. 655, 663 (2009) (arguing that "defendant's know-how, materials, and marketing efforts almost always contribute some value, and usually the most significant part of the value of an infringing product").

⁵³ See e.g., Richard A. Epstein, *Takings, Exclusivity and Speech: The Legacy of PruneYard v Robins*, 64 U. CHI. L. REV. 21, 22 (1997) ("[I]t is difficult to conceive of any property as private if the right to exclude is rejected."); Thomas W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 730 (1998) (arguing that the right to exclude is an essential part of property). *But see* Joseph

clearly think of patents like traditional forms of property with a corresponding right to exclude. Judge Moore's views are quite apparent as she favorably quoted another Federal Circuit decision saying that "[e]xclusivity is closely related to the fundamental nature of patents as property rights."⁵⁴ Judge Moore expressed the close relationship between injunctions and patents this way: "the public interest nearly always weighs in favor of protecting property rights in the absence of countervailing factors, especially when the patentee practices his inventions."⁵⁵

In his concurrence, Judge Reyna echoed Judge Moore's sentiments by considering patents to be a form of property and linking the right to exclude to that characterization.⁵⁶ From there, he emphatically suggested that "[a]n 'injury' is not limited to tangible violations but rather encompasses 'violation[s] of another's legal right, for which the law provides a remedy; a wrong or injustice.'"⁵⁷ Thus, Judge Reyna believes that a patent injury exists even in the absence of harm (or as he calls it, "tangible violations"⁵⁸).

But this conclusion only makes sense if we think of patents like traditional property. Under traditional notions of property dating back to Blackstone, owners can do with their property what they will regardless of how it impacts others.⁵⁹ For example, no matter how wasteful, the law clearly permits an individual to bury his or her wedding ring. Moreover, § 154 of the Patent Act arguably adopted this concept into patent law by stating that, "[e]very patent shall contain . . . a grant to the patentee . . . of the right to exclude others from making, using, offering for sale, or selling the invention."⁶⁰

This view of patents as traditional property clearly clouded *Apple IV's* view of harm. In essence, the majority suggested when there is competition between the patentee and infringer, there is harm. Moreover, absent unnamed "countervailing factors," that harm should result in an injunction.⁶¹ Of course once you start with the view that an injury exists regardless of any tangible

William Singer, *Rent*, 39 B.C. L. REV. 1, 34-38 (1997) (arguing that the right to exclude in property is not absolute and that property actually embodies systemic norms of mutual care).

⁵⁴ *Apple IV*, No. 2014-1802, 2015 WL 9014387, at *5 (Fed. Cir. Dec. 16, 2015) (quoting *Douglas Dynamics, LLC v. Buyers Prods. Co.*, 717 F.3d 1336, 1345 (Fed. Cir. 2013)).

⁵⁵ *Id.* at *10.

⁵⁶ *Id.* at *13 (Reyna, J., concurring) ("Though we read *eBay* to overrule our presumption of irreparable injury, we cautioned that courts should not necessarily 'ignore the fundamental nature of patents as property rights granting the owner the right to exclude.'" (quoting *Robert Bosch LLC v. Pylon Mfg. Corp.*, 659 F.3d 1142, 1149 (Fed. Cir. 2011)).

⁵⁷ *Id.* (quoting the BLACK'S LAW DICTIONARY (10th ed. 2014) definition of injury).

⁵⁸ *Id.*

⁵⁹ This concept has deep historical roots. See 2 WILLIAM BLACKSTONE, COMMENTARIES *393 (defining property as "that sole and despotic dominion . . . exercise[d] over the external things . . . in total exclusion of the right of any other").

⁶⁰ 35 U.S.C. § 154(a)(1) (2012).

⁶¹ *Apple IV*, No. 2014-1802, 2015 WL 9014387, at *10.

violations, the existence of irreparable harm is far easier to believe. This ill-conceived starting point explains how the majority could find “irreparable harm” with so little evidence linking the infringing features to Apple’s lost sales.

But Judges Moore and Reyna’s understanding of patents as traditional property is wrong. Indeed, there is a modern debate over whether the despotic Blackstonian view makes sense for any types of property.⁶² But even if the traditional view were not being questioned, those notions should not be applied to patent law. Instead of focusing on individual private rights, the overwhelming consensus is that the fundamental purpose underlying patent law is promoting innovation.⁶³ To the extent that inventors receive financial rewards, it is simply a byproduct of encouraging innovation.⁶⁴ This concept is rooted in the Constitution which authorizes laws “to promote the progress of science and useful arts.”⁶⁵ Moreover, the Supreme Court has repeatedly relied on patent law’s goal of maximizing public benefit in shaping its various doctrines. In *Graham v. John Deere Co.*, while deciding the standard for obviousness, the Court said that patent law’s role was “to bring forth new knowledge.”⁶⁶ In *Bilski v. Kappos*, while declaring certain subject matter ineligible for patent protection, Justice Stevens expressed concerns about “stifling progress.”⁶⁷ Finally, in *Quanta Computer, Inc. v. LG Electronics, Inc.*, while ruling on the proper scope of patent exhaustion, the Court discussed the role of patents in “promot[ing] the progress of science and useful arts.”⁶⁸

Yet, particularly in the context of remedies, patent jurisprudence too often overlooks this basic premise.⁶⁹ The courts often discuss how remedies should

62 Compare Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 347-57 (1957) (arguing that, rather than defining property by the right to exclude, “[a] primary function of property rights is that of guiding incentives to achieve a greater internalization of externalities”), and Singer, *supra* note 53 (positing that the right to exclude is not absolute because property embodies social norms), with Epstein, *supra* note 53 (advancing the position that the right to exclude is essential to property), and Merrill, *supra* note 53 (same).

63 See, e.g., WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 294 (2003) (“The standard rationale of patent law is that it is an efficient method of enabling the benefits of research and development to be internalized, thus promoting innovation and technological progress.”).

64 *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502, 511 (1917) (“[T]his court has consistently held that the primary purpose of our patent laws is not the creation of private fortunes for the owners of patents, but is ‘to promote the progress of science and useful arts’” (quoting U.S. CONST. art. I, § 8)).

65 U.S. CONST. art. I, § 8.

66 *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 9 (1966).

67 561 U.S. 593, 649 (2010) (Stevens, J., concurring).

68 *Quanta Comput., Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 626 (2008).

69 See, e.g., Bernard Chao, *The Infringement Continuum*, 35 CARDOZO L. REV. 1359, 1397 (2014) (“By focusing on restoring patentees to the position they had prior to any infringement, patent remedies often ignore the public’s interest in encouraging innovation that builds on existing

be sufficient to restore patentees to the position they had prior to any infringement.⁷⁰ But that goal often ignores the public's interest in encouraging innovation that builds on existing patented technology.⁷¹

Judges Moore and Reyna repeat this mistake and consequently conceptualize the right to an injunction as a default remedy for patent infringement. However, the Supreme Court has specifically rejected this property perspective in its landmark ruling on injunctions. In *eBay*, the Court concluded that the right to an injunction does not automatically result when the patentee prevails.⁷² Courts still must apply the four-factor test. As Shyamkrishna Balganesch pointed out, this effectively unlinked the right to exclude from the right to an injunction.⁷³ Justice Kennedy's concurrence explained it this way: "[the] right to exclude does not dictate the remedy for a violation of that right."⁷⁴

But even for those that see patents as a form of property, *Apple IV's* analysis is too blindly dogmatic. Richard Epstein is a leading thinker in the "patents are property" camp and argues that the pre-*eBay* rule was correct.⁷⁵ There should be a presumption of injunctive relief in patent cases absent exceptional circumstances.⁷⁶ Yet, even he admits that injunctions do not make sense where "a defendant's complex product has thousands of different components of which only one is covered by the plaintiff's patent."⁷⁷ He views these kinds of cases as rare exceptions.⁷⁸

patented technology."); Ted Sichelman, *Purging Patent Law of "Private Law" Remedies*, 92 TEX. L. REV. 517, 536 (2014) ("[The] problem with viewing patent infringement as a tort is that the private law remedies usually associated with tort law—injunctions and compensatory damages—are not always sensible for optimally encouraging innovation.").

⁷⁰ See, e.g., *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 507 (1964) ("[The] question [is] primarily: had the Infringer not infringed, what would Patent Holder-Licensor have made?" (quoting *Livesay Window Co. v. Livesay Indus.*, 251 F.2d 469, 471 (5th Cir. 1958))); *Yale Lock Mfg. Co. v. Sargent*, 117 U.S. 536, 552 (1886) (stating that a patentee's damages are "the difference between his pecuniary condition after the infringement, and what his condition would have been if the infringement had not occurred").

⁷¹ See Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. ECON. PERSP. 29, 30 (1991) ("The challenge is to reward early innovators fully for the technological foundation they provide to later innovators, but to reward later innovators adequately for their improvements and new products as well.").

⁷² *eBay III*, 547 U.S. 388, 394 (2006).

⁷³ Shyamkrishna Balganesch, *Demystifying the Right to Exclude: Of Property, Inviolability, and Automatic Injunctions*, 31 HARV. J. L. & PUB. POL'Y 593, 598 (2008).

⁷⁴ *eBay III*, 547 U.S. at 396 (Kennedy, J., concurring).

⁷⁵ See generally Richard A. Epstein, *The Disintegration of Intellectual Property? A Classical Liberal Response to a Premature Obituary*, 62 STAN. L. REV. 455 (2010).

⁷⁶ *Id.* at 493.

⁷⁷ See *id.* at 490 (relying on weighing the balance of hardships instead of trying to accurately assess irreparable harm).

⁷⁸ See *id.* (suggesting that the Federal Circuit has never granted an injunction under such extreme circumstances).

I disagree with this characterization. My personal experience representing technology companies in Silicon Valley suggests that these lawsuits are far more common than Epstein believes. But do not just take my word for it. The title of a Wall Street Journal article describing the many patent lawsuits between different smartphone companies, *Smartphone Patents: The Never-Ending War: Even Minor Features Figure in Big Battles as Rivalry Heats up*, vividly illustrates that Epstein's "exceptional case" is hardly exceptional.⁷⁹ What's more, the percentage of these kinds of cases will only grow as high-tech devices increase in complexity.⁸⁰ That is why the courts need to get the "causal nexus" requirement right.

III. REDUCING PATENT HOLDUP

To be clear, there are multicomponent cases where it makes sense to issue a permanent injunction. But that result should not be based on *Apple IV's* faulty understanding of irreparable harm. In fact, a showing of irreparable harm should not be *necessary* to obtain a permanent injunction. The four *eBay* factors should be considered together.⁸¹ The result will be cases where irreparable harm does not exist, but an injunction may still make sense. Apple's request illustrates this concept quite nicely. It is a narrowly tailored permanent injunction that poses little risk of holdup. Patent holdup occurs when a patentee uses a permanent injunction (or the threat of one) to force an infringer to take a license at a rate that is higher than the patent's value.⁸² That can occur because the infringer has already invested in the infringing feature and has high switching costs.⁸³ It can also occur when the infringing feature is inextricably intertwined with other features and the patentee's

⁷⁹ See Ashby Jones and Jessica E. Vascellaro, *Smartphone Patents: The Never-Ending War: Even Minor Features Figure in Big Battles as Rivalry Heats up*, WALL ST. J. (Apr. 12, 2012), <http://www.wsj.com/articles/SB10001424052702303624004577339931560320116> [<https://perma.cc/NW75-ATBR>] ("[L]egal disputes have erupted over digital-image storage methods, camera designs, Wi-Fi technologies and well-known software applications like email and calendars, as well as secondary features most consumers barely notice.").

⁸⁰ Justice Kennedy recognizes how the type of patent cases the courts see has changed over time. See *eBay III*, 547 U.S. 388, 396 (2006) (Kennedy, J., concurring) (noting that in recent cases "the economic function of the patent holder present[s] considerations quite unlike earlier cases. An industry has developed in which firms use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees").

⁸¹ This view may be inconsistent with the way *eBay* has framed its four-factor test. See Gergen et al., *supra* note 6 at 210 (suggesting the *eBay* test "arguably" requires meeting all four factors rather than an overall balancing analysis).

⁸² Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2008-10 (2007) (explaining how injunctions against an entire product can result in patent holdup).

⁸³ *Id.* at 1997 (discussing switching costs).

injunction ends up effectively encompassing more than just what the patent's claims cover.⁸⁴

In *Apple IV*, Apple only asked for an injunction ordering Samsung to remove the accused features. It did not seek to stop sales of the smartphones themselves. Because Samsung can remove the infringing features—apparently in just one month—its switching costs appear to be minimal.⁸⁵ Moreover, because the scope of the injunction does not cover the entire product, the injunction does not explicitly provide Apple with the ability to capture value associated with the entire phone. Finally, because these features do not appear to be intertwined with other noninfringing features, the injunction will not implicitly give Apple the ability to capture value of some unrelated noninfringing features. In sum, Apple's injunction will not result in patent holdup. Thus, this might be one of the exceptional technology cases where Richard Epstein is right. Because the permanent injunction is solely about the patented features, the injunction can serve as a pricing mechanism that will allow the parties to arrive at the market value of the infringing features.⁸⁶

The real problem with *Apple IV* is its precedential value. In the future, when there is a request for a permanent injunction, patentees will undoubtedly cite to *Apple IV* to argue that they do not actually have to show the infringing feature caused harm. Rather, patentees just have to prove that customers found the feature important or desirable. This low causation threshold will likely lead to holdup in other kinds of cases.

One category of cases occurs when the requested injunction affects the entire infringing product and not just a discrete infringing feature. For many products, the infringing feature cannot be separated from the device as a whole. For example, if the owner of one of the copious number of patents essential to the WCDMA standard were to bring suit against a smartphone company, an injunction would effectively prevent the sale of the entire smartphone.⁸⁷

⁸⁴ Bernard Chao, *Horizontal Innovation and Interface Patents*, 2015 WIS. L. REV. (forthcoming 2016) (manuscript at 5-10) (on file with University of Pennsylvania Law Review) (explaining how an injunction against the use of an interface patent can lead to patent holdup); Mark A Lemley & Philip J. Weiser, *Should Property or Liability Rules Govern Information?*, 85 TEX. L. REV. 783, 795 (2007) (“[W]hen injunctive relief is not well tailored to the rights being protected, courts are left with the choice of giving no protection or giving too much protection.”).

⁸⁵ *Apple III*, No. 12-CV-00630-LHK, 2014 WL 7496140, at *20 (N.D. Cal. Aug. 27, 2014), vacated, No. 2014-1802, 2015 WL 9014387 (Fed. Cir. Dec. 16, 2015).

⁸⁶ See Epstein, *supra* note 75, at 488. However, my expectation is that no license will result because the features have only a very modest value. See Vanessa Blum, *Apple Secures “So What” Sales Ban Against Samsung*, THE RECORDER (Sept. 17, 2015), <http://www.therecorder.com/id=1202737532044/Apple-Secures-So-What-Sales-Ban-Against-Samsung?slreturn=20151012193931> (noting that Apple received an injunction, but characterizing it as unimportant).

⁸⁷ Cf. David J. Goodman & Robert A. Myers, *3G Cellular Standards and Patents*, 1 IEEE INT'L CONF. ON WIRELESS NETWORKS, COMMS. AND MOBILE COMPUTING 415, 415-19 (2005)

In other situations, injunctions can allow the patentee to take advantage of the infringer's large switching costs. We can reimagine Apple's suit as involving a feature in a microprocessor found in Samsung's smartphones. Perhaps the feature reduces battery drain. The courts should be very reluctant to issue an injunction absent proof of real irreparable harm and lack of an outweighing burden to the infringer. The cost of redesigning a chip or moving to a different one is likely to be significantly higher than the value of the feature itself.

Both of the preceding categories illustrate different types of "patent holdup" that are not present in *Apple IV*. Patent holdup will exist whenever the infringing feature in a multicomponent device is somehow linked to other noninfringing features (e.g., standards) or when there are substantial switching costs (e.g., battery drain). The courts can reduce the frequency and severity of these holdups by restoring the "causal nexus" standard and requiring patentees to show that customers actually choose infringing products based on infringing features. Of course it may still make sense for courts to issue injunctions in the absence of real harm so long as the injunction does not allow the patentee to capture value that is unrelated to the patent (i.e., in cases where there is no holdup).

CONCLUSION

In *Apple IV* the Federal Circuit watered down the causal nexus requirement, thereby making it far easier for patentees seeking injunctions to show irreparable harm. This Essay explains why this lower standard is not consistent with how causation and harm operate in a multicomponent world. Instead, the new standard reflects misguided notions of traditional property that do not apply to patent law. But more importantly, the relaxed standard will render multicomponent product manufacturers more susceptible to patent holdup. Accordingly, the courts should restore the "causal nexus" requirement so that patentees have to show real causation and harm.

Preferred Citation: Bernard Chao, *Causation and Harm in a Multicomponent World*, 164 U. PA. L. REV. ONLINE 61 (2016), <http://www.pennlawreview.com/online/164-U-Pa-L-Rev-Online-61.pdf>.

(analyzing a selection of patent listed as essential, and determining that about 20% were actually essential. This suggests that of the 6,872 and 924 patents and patent applications listed as essential for WCDMA and CDMA2000 respectively in 2004, approximately 1,374 and 184 are actually essential).