

DIVIDED INFRINGEMENT: EXPANDING THE EXTRATERRITORIAL SCOPE OF PATENT LAW

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Generally, in order to infringe a U.S. patent, the entire patented invention must be practiced within the United States. However, as technology evolves it is becoming harder to contain inventions within national borders. Specifically, the advancement of networking and communications technologies allows for the rapid, cost-efficient dissemination of information across countries' borders. As a result, the number of inventions that are being practiced in multiple jurisdictions, or the practicing of divided infringement, is on the rise. Potential infringers that commit divided infringement are practicing patented inventions, escaping liability in all jurisdictions, but still reaping the rewards of the American market. Consequently, potential infringers who commit divided infringement are undercutting the incentive to innovate, the primary purpose of the patent system. To solve the problem of divided infringement, this Note proposes expanding the extraterritorial scope of U.S. patent law by adopting a substantial effects test, limited by comity concerns.

INTRODUCTION

Patent law historically has been territorial in nature.¹ U.S. patents do not protect against the manufacture, use, or sale of inventions outside of the United States.² However, technology is not contained easily within national borders. In particular, networking technology allows one to reap the benefits of a patented invention within the United States but practice all or part of the invention outside of its borders. Thus, because of the territoriality of U.S. patent laws, unauthorized practice of a patented invention across national borders, which I refer to as divided infringement, is not actionable under U.S. patent law.

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¹ See *Brown v. Duchesne*, 60 U.S. (19 How.) 183, 195 (1856) (“The [patent and copyright] power thus granted is domestic in its character, and necessarily confined within the limits of the United States.”).

² *Id.*

The highly publicized BlackBerry case, *NTP, Inc. v. Research in Motion, Ltd.*,³ provides an illustration of divided infringement. NTP claimed to own a U.S. patent that covers Research in Motion's (RIM) BlackBerry system.⁴ The BlackBerry system comprises desktop computers, usually located in the United States, that transmit e-mail to a relay station in Canada.⁵ The relay station then forwards the e-mail, over a wireless system, to BlackBerry handheld units in the United States.⁶ RIM argued that the BlackBerry system does not infringe NTP's patent because the relay station is located outside the United States.⁷

As shown by *NTP*, the territorial nature of patent law creates an opportunity for divided infringement. Even if the inventor owns patents in each relevant country, no country's patent law may cover the infringer's activity. The result is a legal no-man's-land: A patented invention is being infringed, but no country's law provides protection for the patentholder. Potential infringers who take advantage of this legal gap are able to circumvent patent law.

The patent system's primary purpose is to promote innovation by granting inventors exclusive rights to their inventions. Would-be infringers who commit divided infringement reap the rewards of a market that the patentholder should garner exclusively. By diminishing the financial incentive to innovate, divided infringement undermines the purpose of the patent system.

While it has always been possible to evade the patent system in this manner, this type of circumvention did not present a real threat to patentholders until recently. The advancement of networking and communications technology now makes it possible to transmit information across national borders cost-efficiently.⁸ Before the advent of the computer network, evasion of the patent system rarely occurred because sending part of a patented process or method offshore was prohibitively expensive. Now, would-be infringers can practice an invention in multiple jurisdictions, reap the returns of a market, and

³ 418 F.3d 1282 (Fed. Cir. 2005).

⁴ *Id.* at 1290.

⁵ *Id.* at 1289–90.

⁶ *Id.* at 1290.

⁷ *Id.* at 1291.

⁸ See Dan L. Burk, *Patents in Cyberspace: Territoriality and Infringement on Global Computer Networks*, 68 TUL. L. REV. 1, 48 (1993) (explaining that owners of software patents would need to license their technology for less than cost of data transmission to prevent competitors from placing part of patented invention offshore); see also David S. Evans & Bernard J. Reddy, *Government Preferences for Promoting Open-Source Software: A Solution in Search of a Problem*, 9 MICH. TELECOMM. & TECH. L. REV. 313, 321 (2003) (“The number of software patents awarded annually to U.S. inventors has increased from 829 in 1986 to 7398 in 2000.”).

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escape patent infringement liability in each relevant jurisdiction. As one would expect, we have seen a dramatic increase in this type of activity over the last several decades.⁹

This Note highlights how technological advances have led to an increase in divided infringement and argues that while U.S. patent law is moving toward greater extraterritoriality, existing law still allows for circumvention of the patent system. Divided infringement undercuts the incentive to innovate, the primary purpose of the patent system. The extraterritorial reach of patent law should be expanded to prevent divided infringement. Such expansion of patent law, if properly limited, is consistent with principles of comity.¹⁰ In this Note, I advocate expanding the extraterritorial scope of current patent law by adopting a substantial effects test limited by comity concerns.¹¹

Part I reviews the basics of patent law, focusing on where and how international standards and activities play a role in U.S. patent law. I explore the Federal Circuit's recent expansion of the extraterritorial nature of U.S. patent infringement law in Part II and argue that this expansion falls short of what is needed. Part III presents the normative reasons for expanding the transnational scope of U.S. patent law. Finally, Part IV reviews proposed solutions to the problem and presents my solution: a substantial effects test, constrained by comity concerns, to expand the transnational scope of U.S. patent law.

I

PATENT LAW

A. *Introduction to Patent Law*

A patent is a government grant that gives the patentee “the right to exclude others from making, using, offering for sale, or selling” the patented invention.¹² The intellectual property clause of the Constitution articulates the most important rationale for the patent system: “[t]o promote the Progress of Science and useful Arts.”¹³ The government grants exclusive rights in order to create financial incentives for

⁹ The increase in the number of cases involving divided infringement reflects the increased practice of divided infringement. See Christopher Cotropia, *Observations on Recent Patent Decisions: The Year in Review*, 88 J. PAT. & TRADEMARK OFF. SOC'Y 46, 68 (noting increased number of cases dealing with inventions that span national borders).

¹⁰ Comity is “the respect sovereign nations afford each other by limiting the reach of their laws.” *Hartford Fire Ins. Co. v. California*, 509 U.S. 764, 817 (1993) (Scalia, J., dissenting).

¹¹ This Note does not address whether Congress or the courts should enact this change. Regardless of the source of the expansion, the result—dealing with the problems associated with divided infringement—will be the same.

¹² 35 U.S.C. § 154(a)(1) (2000).

¹³ U.S. CONST. art. I, § 8, cl. 8.

the creation, development, and commercialization of valuable inventions. In particular, these rights encourage innovation in areas where a competitor could easily copy or reverse engineer the invention, drive down the price, and thereby prevent the patentee from receiving the full financial reward of her invention.¹⁴

A patentee receives these exclusive rights in exchange for the public disclosure of certain details of an invention that is new,¹⁵ non-obvious,¹⁶ and useful.¹⁷ This requirement reveals a secondary purpose of the patent system: to add knowledge of new technologies and innovations to the public domain.¹⁸ To achieve this goal, a patent applicant must provide a full and clear description of her invention, including the exact terms of its manufacture and use, in the patent specification.¹⁹ Requiring this quid pro quo from the patentee produces several benefits for the public, including reducing duplicative research and helping spur further innovation.

At the end of the patent specification, an inventor must provide one or more claims that distinctly identify what the applicant regards as the invention.²⁰ A claim, unlike the body of the specification, is a description designed to notify the public of precisely what the patent covers and what it does not cover. A claim is analogous to a deed or other instrument that, in the context of real property, sets the “metes and bounds” of an owner’s right to exclude.²¹

Claims are classified into categories based on whether they refer to a physical entity or an activity. A claim directed toward a physical entity can be a product, apparatus, or system claim.²² A claim directed toward an activity can be a process, method, or use claim.²³

¹⁴ See, e.g., WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 294 (2003); STEVEN SHAVELL, *FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW* 138 (2004).

¹⁵ 35 U.S.C. § 102 (2000).

¹⁶ *Id.* § 103.

¹⁷ *Id.* § 101.

¹⁸ See, e.g., LANDES & POSNER, *supra* note 14, at 329; NAT’L RESEARCH COUNCIL OF THE NAT’L ACADS., *A PATENT SYSTEM FOR THE 21ST CENTURY* 41 (Stephen A. Merrill et al. eds., 2004); Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1028–30 (1989).

¹⁹ 35 U.S.C. § 112 (2000).

²⁰ *Id.*

²¹ ROBERT P. MERGES & JOHN F. DUFFY, *PATENT LAW AND POLICY* 25 (3d ed. 2002).

²² See generally ROBERT C. FABER, *LANDIS ON MECHANICS OF PATENT CLAIM* (5th ed. 2003).

²³ See 60 AM. JUR. 2D *Patents* § 71 (2003) (explaining that “[a] process patent is one concerning a mode of treatment of certain materials to produce a certain result,” and includes processes, arts, methods, and uses). The terms “process” and “method” are used interchangeably in this Note, and in patent law. See 35 U.S.C. § 100(b) (2000) (defining

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A system claim may comprise multiple distinct components, whereas a method claim may comprise multiple distinct steps.

Patent infringement occurs when someone other than the rightholder utilizes the subject matter claimed in a patent without the owner's approval.²⁴ While foreign activities play a substantial role in assessing whether an inventor should receive a patent,²⁵ the same is not true for assessing patent infringement. Next, I will discuss the international considerations that the Patent Act takes into account in the sections that define direct infringement.

B. Direct Infringement

Section 271(a) of the Patent Act provides that "whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States," or who imports the patented invention into the United States during the patent term without the patentee's authorization, infringes the patent.²⁶ Courts have interpreted the phrase "within the United States" to limit the extraterritorial²⁷ reach of § 271(a).²⁸ In other words, all infringing activities have to occur within the United States.

Generally, courts apply a presumption against the extraterritorial application of U.S. law.²⁹ Courts presume that Congress did not intend a law to have extraterritorial effect absent a clear signal from Congress to the contrary.³⁰

"process" to mean "process, art or method"); FABER, *supra* note 22, § 4.1, at 4-2 (noting that "method" and "process" are interchangeable).

²⁴ See 35 U.S.C. § 271 (2000) (defining patent infringement).

²⁵ See 35 U.S.C. § 102(b) (2000) (precluding patent if "the invention was patented or described in a printed publication in this or a foreign country"); *see also id.* § 102(c) (proscribing patent protection to inventor who "has abandoned the invention"); *id.* § 102(f) (precluding patent if inventor did not "invent the subject matter sought to be patented"). Neither § 102(c) nor § 102(f) contains a geographical limitation.

²⁶ 35 U.S.C. § 271(a).

²⁷ Extraterritoriality is "the application of one country's laws to events occurring outside that country's borders." Jane C. Ginsburg, *Extraterritoriality and Multiterritoriality in Copyright Infringement*, 37 VA. J. INT'L L. 587, 588 (1997). In this Note, I use "extraterritorial," "extranational," and "transnational" interchangeably.

²⁸ See *infra* notes 35-36 and accompanying text.

²⁹ *Smith v. United States*, 507 U.S. 197, 203 (1993); *EEOC v. Arabian Am. Oil Co.*, 499 U.S. 244, 248 (1991).

³⁰ *Smith*, 507 U.S. at 204; *Arabian Am. Oil Co.*, 499 U.S. at 248; *see also* Elizabeth Chien-Hale, *Asserting U.S. Intellectual Property Rights in China: Expansion of Extraterritorial Jurisdiction?*, 44 J. COPYRIGHT SOC'Y U.S.A. 198, 205 (1997). The bases for the presumption are international law, international comity, choice-of-law concerns, congressional intent, and separation of powers. *See generally* Curtis A. Bradley, *Territorial Property Rights in an Age of Globalism*, 37 VA. J. INT'L L. 505, 513-16 (1997) (discussing these five bases for presumption against extraterritorial application of law).

Section 271(a) does not address whether all components of the patented invention need to be manufactured and assembled within the United States to constitute infringement. The Supreme Court addressed this issue in *Deepsouth Packing Co. v. Laitram Corp.*³¹ Laitram sued Deepsouth for patent infringement.³² The district court held that the patents in question, which applied to machinery that deveined shrimp, were valid.³³ Deepsouth defended by arguing that it did not make, use, or sell the invention within the United States but instead shipped components of the patented invention abroad where they were assembled and sold to foreign users.³⁴ The Supreme Court found that § 271(a) makes “clear that it is not an infringement to make or use a patented product outside of the United States”³⁵ and held that Deepsouth did not infringe Laitram’s patents.³⁶

In direct response to *Deepsouth*, Congress enacted § 271(f), which effectively overruled that decision. Section 271(f)(1) defines as an infringer anyone who exports the unassembled components of a patented device and actively induces the assembly of the device outside the United States.³⁷ Section 271(f)(2) defines as an infringer anyone who knowingly exports a component that is not a staple article of commerce, or has no substantial noninfringing use, for combination outside the United States into the completed patented device.³⁸

In 1988, Congress amended § 271 by adding § 271(g), which defines as an infringer anyone who imports, sells, or offers to sell in the United States a product made by a patented invention.³⁹ Before this amendment, a competitor could evade a U.S. patent that covered only the process of making a product, but not the product itself.⁴⁰ Therefore, § 271(g) has some extraterritorial reach: A person who uses a patented process outside of the United States and subsequently imports the resulting product into the United States will be liable for direct infringement.

In order to meet the United States’s obligations under the Agreement on Trade-Related Aspects of Intellectual Property Rights

³¹ 406 U.S. 518 (1971).

³² *Laitram Corp. v. Deepsouth Packing Co.*, 301 F. Supp. 1037, 1046 (E.D. La. 1969).

³³ 406 U.S. at 519–20.

³⁴ *Id.* at 523–24.

³⁵ *Id.* at 527.

³⁶ *Id.* at 532.

³⁷ 35 U.S.C. § 271(f)(1) (2000).

³⁸ *Id.* § 271(f)(2).

³⁹ *Id.* § 271(g).

⁴⁰ *See, e.g.*, S. REP. NO. 100-83, at 29–30 (1987) (“In contrast to Japan and nearly all of the Western European nations, the United States does not provide patent protection against the importation, and subsequent use or sale, of products made abroad without authorization using a process patented in the United States . . .”).

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(TRIPS),⁴¹ in 1994 Congress amended § 271(a), (c), (e), and (g) to include “offers to sell” and “importation” of an invention.⁴² In the same year, Congress also added § 271(i), which narrows the meaning of “offer for sale” or “offer to sell” to offers in which the sale will occur before the expiration of the term of the patent.⁴³ Similar to the amendments discussed above, Congress’s addition of “offers to sell” to the Patent Act demonstrates an increasing trend to expand the extraterritorial scope of patent law.

Current international standards and activities are relevant in U.S. patent law. Congress has made a number of amendments to § 271 that have expanded the extraterritorial scope of patent law. These amendments attempt to close loopholes that arise from the territorial nature of patent rights.

II

THE FEDERAL CIRCUIT’S EXPANSION OF THE EXTRATERRITORIAL NATURE OF PATENT LAW

Despite these congressional amendments, the U.S. patent statute fails to define the scope of extraterritorial application of patent law for intangible products such as software and network-dependent inventions, whose importance and frequency have grown exponentially in the past decade.⁴⁴ The extraterritorial application of patent law under § 271 is relatively easy to determine for physical products. Courts have resisted expanding the extraterritorial scope of patent law when the patented product can easily be contained within the United States. In contrast, intangible products are difficult to contain within national borders because the advancement of networking and communications technology allows, for the first time, a cost-efficient way to perform steps of a patented process or components of a patented system in multiple countries. A series of recent decisions by the Federal Circuit have tried to demarcate the appropriate scope of transnational patent law jurisdiction. In particular, these recent decisions have focused on software and network-dependent inventions, where

⁴¹ Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments—Results of the Uruguay Round, 108 Stat. 4809, 1869 U.N.T.S. 299.

⁴² Uruguay Round Agreements Act, Pub. L. No. 103-465, § 533, 108 Stat. 4809, 4988 (1994); see also MERGES & DUFFY, *supra* note 21, at 58 (providing summary of TRIPS changes). See generally J.H. Reichman, *Universal Minimum Standards of Intellectual Property Protection Under the TRIPS Component of the WTO Agreement*, 29 INT’L LAW. 345 (1995) (describing important TRIPS provisions).

⁴³ 35 U.S.C. § 271(i).

⁴⁴ Evans & Reddy, *supra* note 8, at 321 (discussing growth of software industry and corresponding increase in number of software patents awarded).

the transmission of electronic signals or source code between countries was at issue.⁴⁵

A. *NTP, Inc. v. Research in Motion, Ltd.*

The Federal Circuit has addressed a common example of divided infringement that involves a process and a system that use software running on a server in one country, but also uses software on a computer in another country. In the widely reported case involving the BlackBerry handheld unit, *NTP, Inc. v. Research in Motion, Ltd.*, the Federal Circuit held that a distributed system and process could infringe system claims but not method claims.⁴⁶ In the remainder of Part II, I will review the *NTP* case and argue that the Federal Circuit's expansion of the extraterritorial scope of U.S. patent law falls short because it still allows for circumvention of the patent system and creates an arbitrary distinction between system and method claims.

The BlackBerry system, run by defendant Research in Motion (RIM), involves wireless e-mail technology. The system uses (1) a handheld unit, (2) Redirector software installed on the user's desktop or corporate server, (3) a relay station located in Canada, and (4) a wireless network.⁴⁷ E-mail travels from the e-mail server to the relay station in Canada.⁴⁸ Then the relay station automatically transmits e-mail messages over a wireless network to the handheld unit.⁴⁹ The handheld system can also send e-mails through the same process, except in reverse.⁵⁰

⁴⁵ See, for example, *Eolas Techs. Inc. v. Microsoft Corp.*, 399 F.3d 1325 (Fed. Cir. 2005), *cert. denied*, 126 S. Ct. 568 (2005), wherein Eolas sued Microsoft for exporting a limited number of "golden master" disks containing the Windows operating system to foreign manufacturers so that they might replicate the code on hard drives for sale outside of the United States. *Id.* at 1331. Eolas claimed that its patented software was included on the disks. *Id.* at 1328. The question was whether Microsoft had supplied the foreign manufacturers with a "component" of a patented product to enable them to produce the product abroad, in violation of § 271(f). *Id.* at 1338. The master disks never became a part of the hard drives, but the source code did. *Id.* at 1339. The Federal Circuit found that § 271(f) applied to intangible data, such as a software source code, as well as to physical objects. *Id.*

AT&T Corp. v. Microsoft Corp., 414 F.3d 1366 (Fed. Cir. 2005), *cert. granted*, 127 S. Ct. 467 (Oct. 27, 2006) (No. 05-1056), involved facts similar to *Eolas*. In this case the question was whether exporting a limited number of "golden master" disks to foreign manufacturers, with the intent that they be replicated, constitutes an act of "supplying" for the purposes of infringement under § 271(f). *Id.* at 1369. The Federal Circuit held that "the act of copying is subsumed in the act of 'supplying,' such that sending a single copy abroad with the intent that it be replicated" was sufficient to violate § 271(f). *Id.* at 1370.

⁴⁶ *Id.* at 1325.

⁴⁷ *Id.* at 1289-90.

⁴⁸ *Id.* at 1290.

⁴⁹ *Id.*

⁵⁰ *Id.*

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NTP alleged that use of a BlackBerry handheld unit infringed both system and method claims of a number of NTP patents. As discussed in Part I, system claims apply to a physical object, whereas method claims apply to an activity. An example of a system claim is a handheld wireless e-mail system comprising (1) a handheld unit, (2) Redirector software, (3) a relay station, and (4) a wireless network. In contrast, an example of a method claim is: A method of transmitting e-mail to a handheld wireless unit comprising (1) transmitting a copy of the e-mail to a relay station, and (2) transmitting a copy of the e-mail from the relay station over a wireless network to the handheld unit.

The main issue raised by the *NTP* case was whether, under § 271(a), infringement by manufacture, use, or sale of a patented product “within the United States” could be found notwithstanding the location of the relay station in Canada. The court noted that the grammatical structure of § 271(a) “indicates that ‘within the United States’ is a separate requirement from the infringing acts clause,” and therefore the exact territorial effect of § 271(a) is unclear when the location of the infringing act and at least part of the patented invention are different.⁵¹

First, the court distinguished *Deepsouth* by noting that in that case, the assembly of the patented invention took place wholly outside of the United States, while *NTP* involved a system that was partly practiced within the United States.⁵² Instead, the court thought *Decca Ltd. v. United States*⁵³ was more on point. In *Decca*, the claimed invention was a radio navigation system requiring fixed stations to transmit signals to a receiver.⁵⁴ In *Decca*, the United States operated a navigation system that had two stations in the United States and one station in Norway.⁵⁵ The *Decca* court found that the system was “used” in the United States, holding that use occurs “wherever the signals are received and used in the manner claimed.”⁵⁶ The *Decca* court found it noteworthy that the United States government owned the system, that the beneficial use and control of the system occurred within the United States, and that the system lacked utility unless at least one station was outside the territorial boundaries of the United States.⁵⁷

⁵¹ *Id.* at 1315.

⁵² *Id.*

⁵³ 544 F.2d 1070 (Ct. Cl. 1976).

⁵⁴ *Id.* at 1075.

⁵⁵ *Id.* at 1074.

⁵⁶ *Id.* at 1083.

⁵⁷ *Id.* at 1081–82.

With respect to system claims, the court found that when an invention is a system of components, the question is not whether the entire system is present within the country. Instead, one must determine if use of the system can occur apart from where one or more of its components are physically located. If so, use occurs at “the place at which the system as a whole is put into service, i.e., the place where control of the system is exercised and beneficial use of the system obtained.”⁵⁸ The court held that the BlackBerry users in the United States controlled and benefited from the exchange of information and therefore the use of the system “as a whole occurs in the United States.”⁵⁹

The Federal Circuit could have used the same analysis to determine whether there was infringement of the method claims.⁶⁰ For example, the court could have found that the location of use for the method is determined based on where the user exercises control of the method and where she enjoys the benefits of use. But, believing that the “use” of a patented method is fundamentally different from the “use” of a patented system, the court held “that a process cannot be used ‘within’ the United States as required by section 271(a) unless each of the steps is performed within this country.”⁶¹

The court then went on to hold that RIM’s practiced method was not an act of “importation,” “sale,” or “offer[] for sale” of a patented method under § 271(a).⁶² The court made clear that only “use” of a method could infringe a method claim.⁶³

Since the court concluded that RIM’s transnationally distributed process did not directly infringe any of the method claims at issue under § 271(a), it next addressed whether RIM had liability under any other subsection of § 271 dealing with direct infringement. The court addressed whether RIM had infringed NTP’s method claims by fur-

⁵⁸ NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282, 1317 (Fed. Cir. 2005) (emphasis omitted).

⁵⁹ *Id.*

⁶⁰ The Federal Circuit cites the following lines from *Minton v. National Ass’n of Securities Dealers* as support for analyzing system and method claims differently: “It is not correct that ‘nothing in § 102(b) compels different treatment between an invention that is a tangible item and an invention that describes a series of steps in a process.’ The very nature of the invention may compel a difference.” 336 F.3d 1373, 1378 (Fed. Cir. 2003), *quoted in NTP*, 418 F.3d at 1316. However, this distinction does not appear to be rigorous. *See Eolas Techs. Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1339 (Fed. Cir. 2005) (“This court cannot construct a principled reason for treating process inventions different than structural products.”).

⁶¹ *NTP*, 418 F.3d at 1318.

⁶² *Id.* at 1321 (holding that “[t]he sale or offer to sell handheld devices is not, in and of itself, enough”).

⁶³ *Id.* at 1319 (“Congress has consistently expressed the view that it understands infringement of method claims under section 271(a) to be limited to use.”).

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nishing components of a patented product for extranational assembly under § 271(f),⁶⁴ or by extranationally producing a product by a patented process and importing it into the United States under § 271(g).⁶⁵

To be liable for infringement under § 271(f), one must, among other things, export a component that is used in the patented invention.⁶⁶ The court quickly dismissed liability under § 271(f) by noting that the handheld devices and Redirector software were not “component” steps supplied for combination into NTP’s patented methods.⁶⁷ To be liable for infringement under § 271(g), one must import, sell, or offer to sell in the United States a product made by a patented invention.⁶⁸ The court held that e-mail messages are insufficiently tangible products to trigger liability for infringement under § 271(g).⁶⁹

B. Critique of *NTP, Inc. v. Research in Motion, Ltd.*

The Federal Circuit’s analysis has led to an arbitrary distinction between system and method claims. The court has given extraterritorial reach to system claims but denied this relief for method claims. In the computer software and telecommunications fields it is common practice to draft both method and system claims.⁷⁰ So long as every element of the patented invention is located within the United States, system and method claims regarding the same invention can each serve as the basis for a successful infringement action. Yet if any element of the patented invention occurs outside the United States, the system claims might be infringed, while the method claims would not be infringed. Thus, two claims that have identical scope with respect to uses entirely within the United States will have differing scope if a portion of the patented invention is located abroad.

This distinction between method and system claims is also inconsistent with existing patent law. The Federal Circuit has concluded that it “cannot construct a principled reason for treating process inventions different than structural products.”⁷¹ However, even if existing law supported the distinction between system and process claims, there are claims for which it would be unclear whether to apply the system or method test. For example, should the system or

⁶⁴ 35 U.S.C. § 271(f) (2000).

⁶⁵ *Id.* § 271(g).

⁶⁶ *Id.* § 271(f).

⁶⁷ *NTP*, 418 F.3d at 1322.

⁶⁸ 35 U.S.C. § 271(g).

⁶⁹ *NTP*, 418 F.3d at 1323.

⁷⁰ Victor Siber & Marilyn Smith Dawkins, *Claiming Computer-Related Inventions as Articles of Manufacture*, 35 *IDEA* 13, 13 (1994).

⁷¹ *Eolas Techs. Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1339 (Fed. Cir. 2005).

method test be used for “product-by-process” claims, in which the product is defined at least in part by the process from which it is made?⁷²

The Federal Circuit also did not consider the implications of extending the transnational effect of U.S. patent infringement laws. In fact, the Canadian government filed an amicus brief in support of rehearing on just this issue.⁷³ But the Federal Circuit declined even to discuss comity concerns or the concerns arising when a nation does not recognize the laws of another nation. Additionally, the court did not discuss the normative reasons for expanding the extraterritoriality of patent law.

The most significant shortcoming of the decision is that it still allows for circumvention of the patent system. By refusing to provide relief for process claims, a would-be infringer can perform most of the patented process within the United States but escape liability by practicing at least one part of the patented process offshore. As described in the next Part, allowing evasion of the patent system undercuts its purpose.

III

REASONS TO EXPAND THE EXTRATERRITORIAL NATURE OF PATENT LAW

While the overall trend has been to expand the transnational nature of patent law, the recent extraterritorial expansion of patent law does not go far enough. In particular, there are still a number of ways to evade the patent system and escape liability for divided infringement. In this Part, I provide normative justifications for expanding the transnational scope of patent law.

A. Policy Reasons to Expand the Transnational Scope of Patent Law

First, the primary purpose of patent law, to “promote the Progress of Science and useful Arts,”⁷⁴ is thwarted by the limited transnational reach of § 271. An inventor receives a patent as a quid pro quo for disclosing a new invention. Congress decided that in return for the

⁷² See *In re Hughes*, 496 F.2d 1216, 1219 (C.C.P.A. 1974) (holding it permissible to claim new product by describing it in process terms); DONALD S. CHISUM, CHISUM ON PATENTS § 8.05 (2005) (defining “product-by-process”).

⁷³ Brief Amicus Curiae of the Government of Canada in Support of the Request for Rehearing En Banc Made in the Combined Petition by Research in Motion, Ltd. for Panel Rehearing and Rehearing En Banc, *NTP, Inc. v. Research in Motion, Ltd.*, 392 F.3d 1336 (Fed. Cir. 2005) (No. 03-1615) [hereinafter Amicus Brief].

⁷⁴ U.S. CONST. art. I, § 8, cl. 8; see *supra* notes 13–14 and accompanying text (discussing rationale and purpose of patent law).

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disclosure of a novel, nonobvious, and useful invention, the inventor receives the right to exclude others from practicing the invention for a period of years. If a potential infringer can escape liability by placing part of the invention in another jurisdiction, this prevents the patentee from garnering the financial rewards associated with her exclusive rights. The advancement of networking and communications technology allows a potential infringer to practice a patented invention across national borders, reap the rewards of the American market, and avoid liability for patent infringement. If divided infringement stunts the economic impetus to innovate, inventors will turn their focus to developing inventions that cannot be easily distributed among multiple countries. The result will be a skew in innovation. Software and network-dependent fields will lag behind other fields whose inventions can more readily be contained within national borders.⁷⁵

Second, encouraging innovation is not the only consideration when expanding the transnational scope of patent law. As with any extraterritorial application of U.S. law, comity concerns arise. The major comity concern with expanding the extraterritorial scope of patent law is allowing something that is in the public domain (not patentable) in one country to be actionable (or give rise to patent infringement) in another country. Countries are concerned that allowing this type of liability will result in a chilling of innovation within their borders.⁷⁶ The United States is a party to a number of bilateral or multinational intellectual property agreements that enable each participating country to control its own affairs, including what is public (not patented) and what is private (patented) within its territorial borders.⁷⁷

Nonetheless, expanding the extraterritorial scope of patent law does not necessarily violate principles of comity; indeed, it can be consistent with them. A limited extranational application of U.S. patent law can prevent the circumvention of U.S. law without adversely affecting incentives to innovate in foreign countries. A would-be infringer who circumvents the U.S. patent system is preventing the U.S. patentee⁷⁸ from receiving the full scope her return from the

⁷⁵ *But see* Mark H. Webbink, *A New Paradigm for Intellectual Property Rights in Software*, 2005 DUKE L. & TECH. REV. 0012, ¶¶ 1, 27 (arguing that software patents do not promote innovation in software industry).

⁷⁶ *See* Amicus Brief, *supra* note 73, at 4 (arguing that extraterritorial expansion of U.S. patent law may result in chilling effect on innovation within Canada).

⁷⁷ *See* GRAEME B. DINWOODIE ET AL., INTERNATIONAL INTELLECTUAL PROPERTY LAW AND POLICY 41–43 (2001) (describing major multilateral intellectual property agreements).

⁷⁸ By “U.S. patentee” I mean any person, regardless of nationality, who owns a U.S. patent.

American market. A patentholder who seeks enforcement of a U.S. patent presumably seeks a remedy within the United States. The expansion of the extranational scope of patent law in this case does not breach the spirit of the bilateral or multinational intellectual property agreements the United States has adopted with other countries. These agreements normally call for national treatment of intellectual property law, which means that patentholders enjoy rights regardless of their citizenship.⁷⁹ However, the concerns of other countries will likely be minor when the harmful effects of the divided infringement are largely limited to the U.S. market and its patentholders.

This is not to say that other countries do not have an interest in the extraterritorial application of U.S. patent law. For example, Canada may have an interest in RIM's financial success because the relay station is located within its national borders. However, from the point of view of patent law, the issue is not whether Canada has any interest but whether the enforcement of a U.S. patentee's rights frustrates the purposes of the Canadian patent system by preventing a Canadian patentee from garnering the financial rewards of the Canadian market. Every extraterritorial application of U.S. law will affect another country; the question with respect to divided infringement is which effects or interests should be protected to best serve the policies and purposes of patent law. With respect to divided infringement, the focus should be on whether patentees are receiving the full financial awards of the market in which they hold a patent.

Third, the transnational application of certain inventions is often intentional. For example, the radio navigation system at issue in *Decca* lacked utility unless at least one station was outside the territorial boundaries of the United States.⁸⁰ Therefore, it would have been impossible for the inventor to draft claims that only referred to domestic activity yet still satisfied the utility requirement of the Patent Act.⁸¹ In addition, the extranational application of many network-dependent inventions is inevitable. For example, the BlackBerry system in the *NTP* case transmits information across borders and would do so even if the relay station were located within the United States.

Furthermore, as discussed in Part I, the recent trend has been to enlarge the transnational effect of patent law. Congress has made a series of amendments to § 271, and almost all have broadened the extraterritorial reach of patent law. Additionally, these amendments

⁷⁹ DINWOODIE ET AL., *supra* note 77, at 79.

⁸⁰ *Decca Ltd. v. United States*, 544 F.2d 1070, 1082 (Ct. Cl. 1976).

⁸¹ 35 U.S.C. § 112 (2000).

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closed a series of loopholes. For example, § 271(f) overturned *Deepsouth* and closed the loophole that allowed defendants to escape infringement liability by shipping components of an invention and assembling and selling it overseas.⁸² Section 271(g) closed another loophole by making clear that the importation of a product made by a patented process constitutes infringement.⁸³ Expanding the extraterritorial nature of patent law would close the loophole created by software and network-dependent inventions.

*B. Extraterritorial Expansion of Other Areas of
Intellectual Property Law*

There are a number of U.S. statutory schemes that apply extraterritorially, including admiralty law,⁸⁴ antitrust law,⁸⁵ securities law,⁸⁶ and trademark law.⁸⁷ Of these fields, trademark law is the most closely related to patent law. In addition to trademark law, copyright law is also drifting toward greater extraterritoriality. The expansion of

⁸² *Id.* § 271(f).

⁸³ *Id.* § 271(g).

⁸⁴ In a case involving the Jones Act, 46 U.S.C. app. § 688 (2000), the Supreme Court addressed the issue of extraterritoriality as if it were simply a matter of weighing the modern choice-of-law factors, without referring to the presumption against extraterritoriality. *Lauritzen v. Larsen*, 345 U.S. 571, 583 (1953) (“We therefore review the several factors which, alone or in combination, are generally conceded to influence choice of law to govern a tort claim, particularly a maritime tort claim, and the weight and significance accorded them.”); see also *Romero v. Int’l Terminal Operating Co.*, 358 U.S. 354, 381–84 (1959) (applying *Lauritzen* test to claims under both Jones Act and general maritime law, with respect to injury in U.S. waters).

⁸⁵ Although the Supreme Court applied the presumption against extraterritoriality in *American Banana Co. v. United Fruit Co.*, 213 U.S. 347, 357 (1909), where it denied extraterritorial effect to the Sherman Antitrust Act, the Court arguably backed away from the holding in subsequent antitrust cases during the early part of this century. See *United States v. Sisal Sales Corp.*, 274 U.S. 268, 276 (1927) (applying Sherman Act to “deliberate acts, here and elsewhere [that] br[ing] about forbidden results within the United States”); *United States v. Pac. & Arctic Ry. & Nav. Co.*, 228 U.S. 87, 105–06 (1913) (applying Sherman Act to combination formed in United States to monopolize certain transportation partly within and partly without United States).

⁸⁶ Although the issue has not yet been decided by the Supreme Court, lower federal courts have held that, despite the absence of clear extraterritorial language, the antifraud provisions of the federal securities laws apply to some extraterritorial conduct. See, e.g., *Itoba Ltd. v. LEP Group PLC*, 54 F.3d 118, 121–22 (2d Cir. 1995) (describing “conduct” and “effects” tests to determine extent of extraterritorial application of Securities Exchange Act); *Schoenbaum v. Firstbrook*, 405 F.2d 200, 208–09 (2d Cir. 1968) (holding that Securities Exchange Act has extraterritorial application “at least when the transactions involve stock registered and listed on a national securities exchange, and are detrimental to the interest of American investors”), *rev’d on other grounds*, 405 F.2d 215, 217 (2d Cir. 1968) (en banc). See generally Note, *American Adjudication of Transnational Securities Fraud*, 89 HARV. L. REV. 553 (1976) (discussing federal court’s extraterritorial application of antifraud proscriptions of Securities and Exchange Commission Rule 10b-5).

⁸⁷ See *infra* Part III.B.1.

the transnational reach of U.S. intellectual property law is a response to the courts' concerns over whether the harm caused by divided infringement can be remedied by any foreign jurisdiction and the difficulty of containing protected marks, works, or inventions within the United States. In the remainder of this Part, I will illustrate the expanding transnational scope of U.S. trademark and copyright law and argue that patent law should follow their lead.

1. *Trademark Law*

Trademark law applies to the use of a word, phrase, symbol, or device that uniquely identifies goods in commerce.⁸⁸ The Lanham Act,⁸⁹ which established the modern U.S. trademark system, extends to acts occurring outside of the United States. This extension can be traced back, at least in part, to the Supreme Court's decision in *Steele v. Bulova Watch Co.*⁹⁰ *Bulova*, a New York corporation that produces watches, sued Steele, a U.S. citizen who operated a watch business in Mexico City, for trademark infringement.⁹¹ Steele imported parts for his business from the United States but assembled and sold his watches, stamped with the name "Bulova," in Mexico.⁹² The Supreme Court interpreted the clause "all commerce which may lawfully be regulated by Congress"⁹³ of the Lanham Act expansively to extend jurisdiction to acts outside the United States.⁹⁴ Finding that the district court had personal jurisdiction over Steele,⁹⁵ the Supreme Court noted that it is not "material that petitioner affixed the mark 'Bulova' in Mexico City rather than here, or that his purchases in the United States when viewed in isolation do not violate any of our laws."⁹⁶ The Court stressed the potential damage to the American corporation's trade reputation,⁹⁷ the fact that Steele was a U.S. citizen,⁹⁸ and that Mexico's Supreme Court had nullified Steele's Mexican registration of "Bulova."⁹⁹

Bulova left open a number of questions. In particular, the Court did not provide guidance on what would have happened if Steele had

⁸⁸ See 15 U.S.C. § 1127 (2000) (defining trademarks).

⁸⁹ *Id.* §§ 1051–1141.

⁹⁰ 344 U.S. 280 (1952).

⁹¹ *Id.* at 281.

⁹² *Id.*

⁹³ 15 U.S.C. § 1127.

⁹⁴ *Bulova*, 344 U.S. at 287.

⁹⁵ *Id.* at 289.

⁹⁶ *Id.* at 287 (citation omitted).

⁹⁷ *Id.* at 286.

⁹⁸ *Id.*

⁹⁹ *Id.* at 285.

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possessed a valid registration in Mexico (raising comity concerns) or if Steele were not a U.S. citizen. In response to this uncertainty, lower courts have adopted a three-part test, which factors in the citizenship of the defendant, whether the defendant had valid trademark rights in the foreign country, and whether the defendant's actions had an effect on commerce within the United States.¹⁰⁰ The salient point is that courts are willing to find trademark infringement in situations where an infringing act did not take place in the United States.

2. Copyright Law

Copyright law protects "original works of authorship fixed in any tangible medium of expression."¹⁰¹ The 1976 Copyright Act generally gives the owner of a copyright the exclusive right to reproduce the work, to prepare derivative works based upon the work, and to distribute, perform, and display the work publicly.¹⁰² Neither the "exclusive rights" of copyright listed in § 106 nor the general infringement provision listed in § 501(a) of the Copyright Act define its territorial scope. While the courts have held that the extraterritorial reach of copyright law is less than that of trademark law, there is a trend toward expanding the extraterritorial scope of the Copyright Act. Courts have held that nondomestic activity falls under the protective ambit of the Copyright Act when an infringing act occurs within the United States.¹⁰³

The Ninth Circuit, however, hews to the presumption against extraterritoriality with regard to copyright law. In *Subafilms, Ltd. v. MGM-Pathe Communications Co.*, the Ninth Circuit held that U.S. law does not prohibit a U.S. resident from authorizing foreign activity that would constitute copyright infringement if conducted in the United States.¹⁰⁴

In contrast, the Second Circuit has taken a more liberal view of the transnational reach of the Copyright Act. In *Update Art, Inc. v. Modiin Publishing, Ltd.*, the Second Circuit announced that extraterritorial application of U.S. copyright law is permissible "when the type

¹⁰⁰ See, e.g., *Vanity Fair Mills, Inc. v. T. Eaton Co.*, 234 F.2d 633, 642 (2d Cir. 1956) (interpreting *Bulova* to require consideration of three pertinent factors). The circuits differ regarding the degree of effect the defendant's conduct must have on U.S. commerce. Compare *Totalplan Corp. of Am. v. Colborne*, 14 F.3d 824, 830 (2d Cir. 1994) (requiring "substantial" effect), with *Nintendo of Am., Inc. v. Aeropower Co.*, 34 F.3d 246, 250 (4th Cir. 1994) (requiring "significant" effect), and *Am. Rice, Inc. v. Ark. Rice Growers Coop. Ass'n*, 701 F.2d 408, 414 n.8 (5th Cir. 1983) (requiring "some" effect).

¹⁰¹ 17 U.S.C. § 102(a) (2000).

¹⁰² *Id.* § 106.

¹⁰³ See *infra* notes 109–11 and accompanying text.

¹⁰⁴ 24 F.3d 1088, 1099 (9th Cir. 1994).

of infringement permits further reproduction abroad.”¹⁰⁵ The doctrinal foundation for *Update Art* was articulated fifty years earlier by the Second Circuit in *Sheldon v. Metro-Goldwyn Pictures Corp.*¹⁰⁶ In *Sheldon*, Judge Learned Hand reasoned that if a defendant has made an unauthorized reproduction of a copyrighted work, the copyright owner acquires an equitable interest in the infringing work that “attache[s] to any profits from [its] exploitation, whether in the form of money remitted to the United States, or of increase in the value of shares of foreign companies held by the defendants.”¹⁰⁷ In *Subafilms*, the Ninth Circuit did not recognize this theory for expanding the reach of the Copyright Act.¹⁰⁸

The Ninth Circuit limited the applicability of *Subafilms* in *Los Angeles News Service v. Reuters Televisions International Ltd.*,¹⁰⁹ holding that subsequent extraterritorial acts of infringement are cognizable under the Copyright Act where the initial act of infringement occurred within the United States.¹¹⁰ Additionally, several district courts have criticized and declined to follow *Subafilms*.¹¹¹

3. *Similarities and Substantive Differences Support the Expansion of the Transnational Scope of Patent Law*

It is not surprising that trademark law was the first intellectual property regime to have its transnational scope expanded. Trademark law focuses on the reputation of the trademark holder, and the *Bulova* Court must have realized that it is very difficult to localize to one specific jurisdiction the reputation and trademark of goods that are known internationally. However, while patented goods were historically easier to contain within the United States, the advancement of networking and communications technology has destroyed this pre-

¹⁰⁵ 843 F.2d 67, 73 (2d Cir. 1988).

¹⁰⁶ 106 F.2d 45 (2d Cir. 1939).

¹⁰⁷ *Id.* at 52.

¹⁰⁸ *Subafilms*, 24 F.3d at 1094.

¹⁰⁹ 149 F.3d 987 (9th Cir. 1998).

¹¹⁰ *Id.* at 990.

¹¹¹ See, e.g., *Nat'l Football League v. Primetime 24 Joint Venture*, No. 98 Civ. 3778, 1999 U.S. Dist. LEXIS 3592, at *10 (S.D.N.Y. Mar. 24, 1999) (holding that “where an individual commits an act of infringement in the United States that permits further reproduction outside the United States . . . a court may assert jurisdiction over those foreign acts and a plaintiff may recover damages for the infringing acts that took place extraterritorially”); *Expeditors Int'l of Wash., Inc. v. Direct Line Cargo Mgmt. Serv., Inc.*, 995 F. Supp. 468, 477 (D.N.J. 1998) (holding that “mere authorization of infringing acts abroad constitutes direct infringement and is actionable under United States Copyright Law”); *Curb v. MCA Records, Inc.*, 898 F. Supp. 586, 594 (M.D. Tenn. 1995) (“*Subafilms* relies upon a peculiar interpretation of the scope and nature of the authorization right in 17 U.S.C. § 106. This interpretation . . . appears contrary . . . to well-reasoned precedent, statutory text, and legislative history.”).

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sumption. The localization of patented goods is becoming as difficult as the localization of the reputation of a trademark.

Several differences between trademark, copyright, and patent law support the expansion of the extraterritorial reach of patent law. First, patent law is linked more closely to the evolution of technology than trademark and copyright law.¹¹² Patent law must constantly evolve to keep pace with emerging technologies, whereas the connection between trademark and copyright law with science is more tenuous. There are numerous examples where Congress or courts have expanded the scope of patent law to account for new technologies. For example, the breadth of patentable subject matter often expands to incorporate new fields of science. Today, an inventor can obtain a patent on biological materials,¹¹³ business methods,¹¹⁴ and software.¹¹⁵ As progress in science has caused the courts to expand the scope of patentable subject matter, scientific progress should also be the impetus behind expanding the transnational effect of patent law. The last Supreme Court case interpreting § 271(a) of the Patent Act was in 1971.¹¹⁶ At that time, the Court was not faced with the modern technology that infringers now use to thwart the patent system. As technology evolves, so too must U.S. patent infringement law; otherwise we risk jeopardizing the purpose of the patent system.

Second, in contrast to trademarks,¹¹⁷ patents have a limited duration.¹¹⁸ Trademark law protects a mark as long as the mark is in use.

¹¹² Patent protection can be sought for, among other things, “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101 (2000). In contrast, federal copyright protection does not turn on novelty but extends to “original works of authorship” that are fixed in a tangible form of expression. 17 U.S.C. § 102(a) (2000). Finally, trademark law does not protect the uniqueness of the product but instead protects “any word, name, symbol, or device, or any combination thereof . . . used by a person . . . to identify and distinguish his or her goods . . . from those manufactured or sold by others . . .” 15 U.S.C. § 1127 (2000).

¹¹³ See *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (granting patent for non-naturally occurring microorganism).

¹¹⁴ See *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1375 (Fed. Cir. 1998) (holding that business methods are “subject to the same legal requirements for patentability as . . . any other process or method”).

¹¹⁵ *Id.*

¹¹⁶ *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518 (1971). The Supreme Court has granted certiorari in *AT&T Corp. v. Microsoft Corp.*, 414 F.3d 1366 (Fed. Cir. 2005), *cert. granted*, 127 S. Ct. 467 (Oct. 27, 2006) (No. 05-1056). However, while the *AT&T* case involves software and telecommunications technology, it does not pose the problem of divided infringement. See *supra* note 45.

¹¹⁷ The federal trademark registration certificates issued by the Patent and Trademark Office last ten years but may be renewed repeatedly for additional ten-year terms. 15 U.S.C. §§ 1058–59 (2000).

¹¹⁸ The Constitution authorizes Congress to confer patent protection “for limited [t]imes.” U.S. CONST. art. I, § 8, cl. 8. The duration of protection under the current patent

The limited tenure of patent rights favors extending extraterritorial protection to acts occurring outside of the United States.

In sum, there are many reasons to expand the transnational scope of patent law. Some arise from the similarities and differences between patent law and other areas of intellectual property law. Others highlight policy considerations or the reality that some inventions are made specifically to cross national borders. However, all suggest that the current limited transnational reach of patent law falls short.

IV

POSSIBLE SOLUTIONS TO THE PROBLEM OF DIVIDED INFRINGEMENT

In this Part, I begin by discussing and critiquing suggestions for solving the problem of divided infringement. Then I propose my own solution: an expansion of the extraterritorial scope of U.S. patent law by adopting a substantial effects test, constrained by comity concerns.

A. Proposed Solutions

Mark Lemley and his coauthors have suggested that careful drafting of patent claims would solve divided infringement.¹¹⁹ In particular, they suggest that drafting unitary patent claims will preserve the patentee's rights and help prevent circumvention of the patent system.¹²⁰ A unitary patent claim is a claim that covers activity only in the United States. For example, if a server was located in the United States but a router was located in Canada, a unitary claim would refer to the activities of the server only and not the router. While it is conceivable to draft unitary claims in certain situations, Lemley and his coauthors acknowledge that the number of jurisdictions in which some claims can be practiced limits the practicability of unitary claim drafting.¹²¹

The approach presented by Lemley and his coauthors falls short in three specific areas. First, it may not be possible for claims that cover only part of an invention to meet the nonobviousness, novelty, and utility criteria necessary for obtaining patent protection in the United States. For example, an invention may be novel because of the unique combination of several elements, and therefore all claims

statute is twenty years after the date of application, *see* 35 U.S.C. § 154(a)(2) (2000), except for design patents, which last up to fourteen years after the date of issuance, *see id.* § 173.

¹¹⁹ Mark A. Lemley et al., *Divided Infringement Claims*, 33 AIPLA Q.J. 255, 256 (2005).

¹²⁰ *Id.* at 272–76.

¹²¹ *Id.* at 274–75.

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would have to contain at least these elements, or the invention would lack novelty. If a potential infringer were to practice these elements in different jurisdictions, it would be impossible for the patentee to draft claims that would capture the accused infringing activity. Second, encouraging the drafting of unitary claims will only add to the number of claims that inventors seek. Patent prosecutors will seek the claims that cover the entire patented invention as well as unitary claims. Adding claims to a patent application will tax the already overburdened Patent and Trademark Office.¹²² Third, as the globalization of the economy increases it will become more difficult to draft claims that capture activity occurring solely within the United States.

Another possible solution to the divided infringement problem is to create a unified patent system in which infringing acts in all countries can be aggregated when determining whether a patented invention is infringed. This proposal would require a major overhaul of the patent system and involve developing a set of patent rules agreed upon by all countries. While the Patent Cooperation Treaty (PCT) provides a unified procedure for filing patent applications to protect inventions internationally, it does not create a “worldwide” patent.¹²³ Even if an inventor files a PCT patent application and identical patents issue worldwide, the territorial limitations of each country’s patent law would still allow for circumvention of the patent system.

One of the main reasons why a worldwide patent system does not exist is that patent law differs dramatically from country to country. For example, the United States operates on a first-to-invent system while almost all other nations utilize a first-to-file system.¹²⁴ A worldwide patent system would have to resolve a host of discrepancies in patent law between countries. The variation between countries in patentable subject matter is perhaps the most problematic difference in patent laws with respect to divided infringement.¹²⁵ While the United

¹²² See Proposed Rules, 71 Fed. Reg. 61 (Jan. 3, 2006) (detailing PTO’s proposal of placing additional requirements on applicants who wish to have more than ten representative claims examined in order to “allow the Office to do a better, more thorough and reliable examination since the number of claims receiving initial examination will be at a level which can be more effectively and efficiently evaluated by an examiner”).

¹²³ MERGES & DUFFY, *supra* note 21, at 55–56. In particular, the Patent Cooperation Treaty provides for a single filing which results in a single search accompanied with a written opinion (and optionally a preliminary examination), after which the examination (if provided by national law) and grant procedures are handled by the relevant national or regional authorities. *Id.*

¹²⁴ *Id.* at 64.

¹²⁵ See John Gladstone Mills, III, *A Transnational Patent Convention for the Acquisition and Enforcement of International Rights*, 84 J. PAT. & TRADEMARK OFF. SOC’Y 83, 94–95 (2002) (discussing differences in patentable subject matter in United States, Europe, and Japan).

States allows for patenting of software and business methods, many countries do not.¹²⁶ Because the fields of software and networking give rise to the easiest evasion of the patent system, the pressure to form a worldwide patent system to prevent this problem may be minimal at best. Countries that do not allow for patenting of software have little incentive to push for a worldwide system because they do not have the same concerns over evasion of their patent system as the United States.

B. Substantial Effects Test and Comity Factors

1. Substantial Effects Test

I advocate a position that is less radical than adopting a worldwide patent system but is less passive than simply urging inventors to draft better claims. I propose expanding the extraterritorial nature of direct infringement by adopting a substantial effects test, constrained by some important comity concerns.

If the defendant in an infringement action practices only part of the patented invention within the United States and if the defendant's activity has a *substantial effect* on the U.S. market, then the defendant should be liable for patent infringement in the United States so long as comity concerns are taken into account.

The substantial effects test is workable. Courts have applied a similar analysis in many other areas of law, utilizing an effects test when analyzing extraterritorial implications of antitrust law,¹²⁷ securities law,¹²⁸ and the Lanham Act.¹²⁹ The substantial effects test requires that the defendant's behavior affect the United States with

¹²⁶ *Id.* at 95.

¹²⁷ *Hartford Fire Ins. Co. v. California*, 509 U.S. 764, 796 (1993) (“[I]t is well established by now that the Sherman Act applies to foreign conduct that was meant to produce and did in fact produce some substantial effect in the United States.”); *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 582 n.6 (1986) (“The Sherman Act does reach conduct outside our borders, but only when the conduct has an effect on American consumers.”); RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW OF THE UNITED STATES § 415 & reporters’ note 3 (1986) (stating that extraterritorial agreements or conduct in restraint of trade are subject to U.S. jurisdiction if agreements or conduct have “substantial effect” on U.S. commerce and “jurisdiction is not unreasonable”).

¹²⁸ *Bersch v. Drexel Firestone, Inc.*, 519 F.2d 974, 989 (2d Cir. 1975) (exercising jurisdiction when acts “result in injury to purchasers or sellers of those securities in whom the United States has an interest”); *Schoenbaum v. Firstbrook*, 405 F.2d 200, 206 (2d Cir. 1968) (holding that Exchange Act applies to trades outside United States when “necessary to protect American investors”), *rev’d en banc*, 405 F.2d 215 (2d Cir. 1968); Phanesh Koneru, *The Right “to Authorize” in U.S. Copyright Law: Questions of Contributory Infringement and Extraterritoriality*, 37 IDEA 87, 117–18 (1996) (referring to extraterritorial application of securities law in *Bersch* and *Schoenbaum*).

¹²⁹ See *supra* notes 91–100 and accompanying text.

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sufficient character and magnitude, in contrast to a test that requires just *some* effect on the American market.¹³⁰

If the patentee is practicing the patented invention, diversion of sales away from the American market may constitute a substantial effect on the U.S. market. However, it is not necessary for the patentee to practice the invention to find that the defendant's actions have a substantial effect on the American market. Loss of licensing opportunities or dilution of present licenses to the patentee may also constitute a substantial effect on the market. The court will need to weigh the value of lost sales or the amount of dilution to a licensee's rights in order to determine whether the effect on the American market is substantial. Additionally, the court should consider whether the defendant is selling or using the accused device within the United States when determining whether the defendant's behavior has a substantial effect on the American market.

A substantial effects test would greatly reduce the opportunities to circumvent the patent system for software and networking technology. According to current doctrine, a potential infringer only needs to practice part of the invention outside the United States in order to evade liability with respect to method claims in a patent. With the adoption of the substantial effects test, an infringer who reaps the rewards of the U.S. market, but does not practice every element of the claimed invention within the United States, may still be liable for infringement if her actions have a substantial effect on the U.S. market.

Additionally, a substantial effects test would eliminate the Federal Circuit's arbitrary distinction between system and method claims.¹³¹ When the system and method claims are drawn to essentially the same patented invention, a defendant who is practicing the patented invention across national borders but is reaping the rewards of the U.S. market will have a substantial effect on the U.S. market with respect to both types of claims.

2. *Comity Factors*

Expanding the extraterritorial reach of patent law through the adoption of the substantial effects test inevitably raises comity concerns. A series of factors should be weighed to determine whether international concerns should bar the application of U.S. patent law to divided infringement, similar to the procedure adopted by the Ninth

¹³⁰ See *supra* note 100 (highlighting differences among "substantial" effect, "significant" effect, and "some" effect as tests utilized in trademark law).

¹³¹ See *supra* notes 58–61, 70–72 and accompanying text.

Circuit to determine the transnational scope of trademark law: (1) the degree of conflict with foreign law or policy; (2) the nationality or allegiance of the parties and the locations of principal places of business of the involved corporations; (3) the extent to which enforcement in a foreign jurisdiction can provide a remedy; (4) the relative impact of the divided infringement within the United States as compared with the impact elsewhere; (5) intent to harm or affect American commerce; and (6) the foreseeability of effects on the American market.¹³²

The use of these comity factors will help to demarcate the line between defendants who are purposefully trying to circumvent the U.S. patent system and those who are not. It is important to distinguish these two types of defendants so that innocent defendants, who are doing nothing wrong in their own country and are not trying to reap the rewards of the American market, are not liable under U.S. law.

a. Degree of Conflict with Foreign Law or Policy

In order to minimize comity concerns, the transnational scope of U.S. patent law should be inversely proportional to the degree of conflict with foreign law or policy. Nonetheless, this should not be a dispositive factor because patent law differs substantially from country to country. Business methods are patentable subject matter in the United States but not in Europe or Japan.¹³³ Furthermore, U.S. patent law provides protection for software patents, whereas Europe's patent law protection of software is more sporadic.¹³⁴ Because software and telecommunications are the areas of technology in which divided infringement is most likely to arise, there is a good policy reason that patents in the foreign country should not be a prerequisite for finding infringement. A more desirable standard would merely require that the defendant *not* have patent protection in the foreign

¹³² *Reebok Int'l Ltd. v. Marnatech Enters., Inc.*, 970 F.2d 552, 555 (9th Cir. 1992) (quoting *Timberlane Lumber Co. v. Bank of Am. Nat'l Trust & Sav. Ass'n*, 549 F.2d 597, 614 (9th Cir. 1976)). *Timberlane Lumber* dealt with extraterritorial application of antitrust law. This is now governed by statute, 15 U.S.C. § 6a (2000), which states that the antitrust provisions of "this title shall not apply to conduct involving trade or commerce (other than import trade or import commerce) with foreign nations unless . . . such conduct has a direct, substantial, and reasonably foreseeable effect" on import, export, or domestic trade or commerce. See also *McGlinchy v. Shell Chem. Co.*, 845 F.2d 802, 813–14 n.8 (1988) (explaining that § 6a was enacted in order "to provide a single standard for the issue of extraterritorial application of the Sherman Act," as opposed to previously used multifactor test).

¹³³ *Mills*, *supra* note 125, at 95.

¹³⁴ *Id.*

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jurisdiction.¹³⁵ This standard seems to be consistent with Supreme Court precedent holding that there is a conflict of laws only where foreign law *requires* the defendant to act in a way that violates U.S. law.¹³⁶

b. Nationality or Allegiance of the Parties and the Locations of Principal Places of Business of Corporations

If the defendant is a U.S. citizen, U.S. patent law should apply extraterritorially. The Court in *Bulova* noted that the citizenship of the defendant was a factor it considered when expanding the extraterritorial reach of the Lanham Act.¹³⁷ Additionally, if the principal place of business is located in the United States, courts can deem that the company has consented to the application of U.S. law. The citizenship of the plaintiff should be irrelevant; she only needs to hold a valid U.S. patent.

c. Extent to Which Enforcement in a Foreign Jurisdiction Can Provide a Remedy

If foreign enforcement can provide a suitable remedy, then U.S. patent law should not apply extraterritorially. In other words, if the U.S. patentee can or could have obtained a patent in the foreign country that covered the defendant's activities, then a transnational extension of U.S. patent law need not provide a remedy.

d. Relative Impact of the Divided Infringement Within the United States as Compared with the Impact Elsewhere

This factor prevents the extraterritorial application of patent law when the effect within the United States is small compared to elsewhere. In making this determination, the size of markets in America versus abroad should be considered; if the potential for diverted sales is greater in America than abroad this factor would weigh toward expanding the transnational scope of patent law. Even if the defendant's activity has a substantial effect on the American market, U.S. patent law should not be applied extraterritorially when the effect of the defendant's activity is more acute in another jurisdiction.

¹³⁵ In effect, this is the standard the Supreme Court endorsed in *Bulova* when it noted that the defendant did not have a valid trademark on the mark "Bulova" in Mexico. See *supra* note 99 and accompanying text.

¹³⁶ *Hartford Fire Ins. Co. v. California*, 509 U.S. 764, 799 (1993) (finding no conflict where foreign law did not require party to violate U.S. law).

¹³⁷ See *supra* note 98 and accompanying text.

e. Intent to Harm or Affect American Commerce

This factor is particularly important because it targets defendants who are evading the U.S. patent system. If the primary purpose for practicing divided infringement is to escape liability under U.S. law while still reaping the returns of the American market, then U.S. patent law should apply extraterritorially. As discussed above, comity concerns are minimized in this case because a U.S. patentee is being prevented from recovering the full benefit of the American market. The interests of the foreign jurisdiction will most likely be minor in comparison. Additionally, this factor should prevent individuals who are innocently practicing part of the patented invention in a foreign country—with no intent to harm or affect American commerce—from being liable for patent infringement.

f. The Foreseeability of Effects on the American Market

This factor essentially serves as a proxy for the defendant's intent, which may be difficult to prove given the subjective nature of intent. Many defendants will claim that they did not intend for their actions to affect the U.S. market; however, if the foreseeability of effects of their actions is high, the court may infer that they should have known the effect of their actions. The standard of foreseeability should scale with the sophistication of the defendant. For example, a corporate entity usually has the resources and expertise to analyze the impact of their actions on the U.S. market. In contrast, an individual may not have the same in-depth understanding of the foreseeability of her actions on American commerce. In cases where foreseeability is high, U.S. patent law should apply extraterritorially.

3. *Application of the Substantial Effects Test*

To illustrate the usefulness of the substantial effects test, limited by the comity concerns discussed above, I will apply my proposed test to the facts at issue in the RIM case.¹³⁸ First, the handheld units sold and maintained by RIM had a substantial effect on the American market. RIM sold and buyers used the handheld devices in the United States, and RIM made millions of dollars from these sales.¹³⁹ These sales arguably diluted the licenses that NTP had negotiated

¹³⁸ NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282 (Fed. Cir. 2005).

¹³⁹ See Beth Duff-Brown, *Patent Clash over BlackBerry Grows Political*, SEATTLE TIMES, Jan. 26, 2005, at E1 (noting that most of RIM's two million subscribers are in United States and that RIM's third-quarter profits were \$369.5 million).

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with third parties¹⁴⁰ and limited NTP's ability to reap additional financial rewards from the American market. Thus, under a substantial effects test, RIM's activities would have infringed both the process and system claims of NTP's patents because practicing either type of these claims had a substantial effect on the American market.

Additionally, the comity factors weigh in favor of applying U.S. patent law extraterritorially. The degree of conflict with foreign law or policy is minimal because there was no final litigation or ruling from a Canadian court that enjoined or allowed RIM to continue to sell its handheld devices. While RIM was a Canadian corporation, it would not have infringed on a Canadian patent covering the BlackBerry system because only a small part of the patented invention was being practiced in Canada. Additionally, the effects on the American market substantially outweighed the effects on the Canadian market. RIM sold BlackBerry units in overwhelmingly greater quantities in the United States than in Canada, and those units were intended for use in the United States. RIM was purposely affecting American commerce by actively marketing its handheld units to American consumers and providing them with maintenance and support. Finally, it is doubtful that RIM could not foresee the effect of its activities on the U.S. market. Taken together, the comity factors weigh in favor of applying U.S. patent law to RIM's activities. Under this analysis, RIM infringed both the system and method claims of NTP's patent.

C. Other Factors That Minimize Comity Concerns

A number of considerations indicate that adopting a substantial effects test limited by comity concerns would not disrupt international activities. First, a court cannot assert jurisdiction over a potential defendant unless the defendant has sufficient "minimum contacts" with the forum state to satisfy "traditional notions of fair play and substantial justice."¹⁴¹ Courts have modified this approach for disputes regarding the Internet, applying a "sliding scale" test to determine jurisdiction.¹⁴²

¹⁴⁰ NTP signed licensing agreements with Visto, Good Technology, and Nokia. Reuters, *NTP Signs License Deal with Visto*, CNET NEWS, Dec. 14, 2005, http://news.com.com/NTP+signs+license+deal+with+Visto/2100-1047_3-5995412.html.

¹⁴¹ See *Int'l Shoe Co. v. Washington*, 326 U.S. 310, 316 (1945) (citations omitted).

¹⁴² *Zippo Mfg. Co. v. Zippo Dot Com, Inc.*, 952 F. Supp. 1119, 1124 (W.D. Pa. 1997) (describing how passive websites, in contrast to active websites, do not give rise to personal jurisdiction).

In *Akro Corp. v. Luker*, the Federal Circuit announced the basic test for personal jurisdiction in the patent context.¹⁴³ The *Akro* test requires three conditions for personal jurisdiction: (1) activities purposefully directed at the forum state; (2) relationship of these activities to the cause of action; and (3) constitutional reasonableness of jurisdiction.¹⁴⁴

Limiting the reach of patent law where the adverse foreign effect is independent of any adverse domestic effect would, in part, minimize comity concerns. The Supreme Court held exactly this with respect to the reach of U.S. antitrust laws over non-U.S. commerce.¹⁴⁵ However, as one commentator recently noted, the adverse effects in international intellectual property cases may not easily be separated, especially when behavior in one jurisdiction is necessarily interwoven with behavior in another.¹⁴⁶

Finally, the United Kingdom has expanded the transnationality of its patent law without a large backlash from the international community. Section 60(2) of the United Kingdom Patents Act sets forth:

A person (other than the proprietor of the patent) also infringes a patent for an invention if, while the patent is in force and without the consent of the proprietor, he supplies or offers to supply in the United Kingdom a person other than a licensee or other person entitled to work the invention with any of the means, relating to an essential element of the invention, for putting the invention into effect when he knows, or it is obvious to a reasonable person in the circumstances, that those means are suitable for putting, and are intended to put the invention into effect in the United Kingdom.¹⁴⁷

In *Menashe Business Mercantile, Ltd. v. William Hill Organisation Ltd.*, the Patents Court of the Chancery Division in the United Kingdom interpreted the meaning of section 60(2).¹⁴⁸ The court's ruling interpreted the statute broadly, concentrating on the spirit and intention of patent protection and not confining itself to the linguistic construction of the law that developed before the advent of the

¹⁴³ 45 F.3d 1541, 1545–49 (Fed. Cir. 1995).

¹⁴⁴ *Id.*

¹⁴⁵ *F. Hoffman-La Roche Ltd. v. Empagran S.A.*, 542 U.S. 155, 164 (2004) (holding that where anticompetitive behavior, such as price-fixing agreement, “significantly and adversely affects both customers outside the United States and customers within the United States, but the adverse foreign effect is independent of any adverse domestic effect,” plaintiffs alleging injury by “foreign effect” cannot invoke jurisdiction of United States antitrust laws or courts).

¹⁴⁶ Rochelle Dreyfuss, *The ALI Principles on Transnational Intellectual Property Disputes: Why Invite Conflicts?*, 30 *BROOK. J. INT'L L.* 819, 840 (2005).

¹⁴⁷ United Kingdom Patents Act, 1977, § 60(2).

¹⁴⁸ *Menashe Bus. Mercantile, Ltd. v. William Hill Org., Ltd.*, [2002] EWHC (Pat) 397, [5], (2002) 3 All E.R. 597, *aff'd*, [2002] EWCA (Civ) 1702, [24]–[35], (2003) 1 All E.R. 279.

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Internet. In *Menashe*, the plaintiff owned a European patent covering the United Kingdom for an invention referred to as an “[i]nteractive, computerised gaming system with remote control.”¹⁴⁹ Menashe sued the defendant, claiming that Hill was infringing the patent by operating an online gaming system. The defense argued that because the server that operated the system was located outside the United Kingdom, the invention was not put “into effect in the United Kingdom.”¹⁵⁰ In response, the Patents Court noted that allowing the defendants to avoid infringement “anywhere” through cross-border tactics would be “monstrous.”¹⁵¹ According to the court, the “effect” was obviously felt in the United Kingdom, where the defendant targeted users.¹⁵² The Court of Appeals agreed, stating: “Thus the supply of the CD in the United Kingdom to the United Kingdom [user] will be intended to put the invention into effect in the United Kingdom.”¹⁵³

CONCLUSION

Advances in networking and communications technologies make practicing patented inventions across national borders cost-efficient. While U.S. patent law is moving toward greater extraterritoriality, existing law does not hold a potential infringer liable for practicing a patented process in multiple jurisdictions. Allowing would-be infringers to practice a patented invention, escape liability, and reap the returns from the U.S. market undercuts the purpose of the patent system. To solve the problem of divided infringement, this Note proposes adopting a substantial effects test, constrained by comity concerns, to expand the transnational scope of U.S. patent law. The proposal made in this Note will also alleviate comity concerns by weighing the interests of foreign countries along with the interests of patentholders.

¹⁴⁹ [2002] EWCA (Civ) 1702 at [2], (2003) 1 All E.R. at 280–81.

¹⁵⁰ [2002] EWHC (Pat) 397 at [5], (2002) 3 All E.R. at 599.

¹⁵¹ *Id.* at [20], (2002) 3 All E.R. at 601.

¹⁵² *Id.* at [24], (2002) 3 All E.R. at 602.

¹⁵³ [2002] EWCA (Civ) 1702 at [33]–[35], (2003) 1 All E.R. at 288.

