Method Patent Exceptionalism

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ABSTRACT: Inventive methods and processes have long received hostile treatment by the patent system. Courts have been skeptical of these claims because of the potential for overbreadth of the patent, particularly if the method is delineated in functional terms. This categorical skepticism, however, fails to consider the technological specificity of such concerns. For example, the pharmaceutical industry views method claims, particularly methods of use and treatment, as weaker, second-tier forms of protection. Patents on the chemical compound itself offers greater downstream protection over all uses of the compound.

Nevertheless, process claims have received differential treatment in patent law. Congress has adopted process-specific provisions. Notwithstanding that Congress has often legislated specific provisions for process claims, the Federal Circuit has gone further, affording patented processes exceptional—and usually detrimental—treatment, even though the patent statute is neutral as to the nature of the invention. Moreover, the exceptional treatment creates inconsistencies in the law. For example, the Federal Circuit has stated that it would not be possible to infringe a patent on a method by selling or offering to sell the invention, even though the law is clear that method claims are subject to patent exhaustion (the "first sale" doctrine) and to the on-sale bar. Similar exceptional treatment arises for the extraterritorial protection for U.S. patents and the manner courts handle "divided infringement" scenarios, where more than one party is involved in the act of infringement. Ironically, the one area where treating methods differently would be most appropriate—assessing patent eligible subject matter under 35 U.S.C. § 101—is the one place where the Supreme Court has conflated patented methods with other types of inventions.

This Article offers the first comprehensive exploration of method patent exceptionalism and posits ways to eliminate the differential treatment of method claims to put them on equal footing with other types of inventions.

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I. INTRODUCTION

Patents generally are about intangibles. The rights afforded by patents do not attach to any particular, physical embodiment of the invention. Instead, the inventor describes her invention within the patent document itself. It is this written description and the attendant claims that govern what the patent holder's exclusive rights cover.

Patents on processes and methods, however, complicate this dynamic even more. They are somewhat strange creatures in patent law. These inventions relate to the performance of particular steps, as opposed to a machine or object that could perform the process.[1] In fact, a patent covering a method does not necessarily cover something physical. Instead, the steps of the process are covered. So, the intangibility dynamic is magnified—the intangible patent covers acts that, even in the real world, are fairly intangible.

For example, a company could build a massive plant to use a patented method of producing a chemical. Under current law, the plant itself does not infringe upon the patent on the method.[2] Only when someone hits the switch and turns it on—resulting in the steps of the method being performed—would there be infringement.[3] Building the plant alone would not be sufficient.

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1. Gottschalk v. Benson, 409 U.S. 63, 70 (1972) ("A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing." (quoting Cochrane v. Deener, 94 U.S. 780, 788 (1876))).

2. Joy Techs., Inc. v. Flakt, Inc. 6 F.3d 770, 773 (Fed. Cir. 1993) ("[T]he sale of equipment to perform a process is not a sale of the process within the meaning of section 271(a).").

3. CRAIG ALLEN NARD, THE LAW OF PATENTS 522 (4th. Ed. 2016) ("For infringement of a method claim, the patentee must prove that the accused infringer performs each and every step

A much-vilified patent, U.S. Patent No. 6,368,227 ('227 patent), offers a helpful illustration. The '227 patent claims a method of swinging sideways on a swing.[4] The claim recites the following:

> 1. A method of swinging on a swing, the method comprising the steps of:
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> a) suspending a seat for supporting a user between only two chains that are hung from a tree branch;
>
> b) positioning a user on the seat so that the user is facing a direction perpendicular to the tree branch;
>
> c) having the user pull alternately on one chain to induce movement of the user and the swing toward one side, and then on the other chain to induce movement of the user and the swing toward the other side; and
>
> d) repeating step c) to create side-to-side swinging motion, relative to the user, that is parallel to the tree branch.

The patent offers this oh-so-helpful diagram to explain this method:

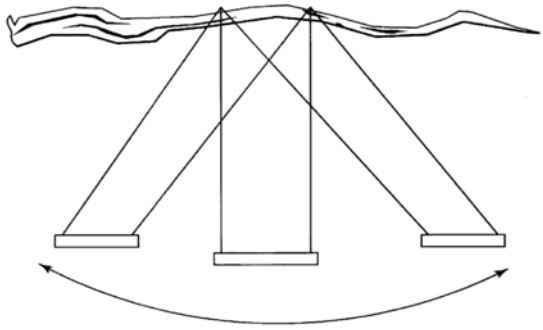

Figure 2

Putting aside how trivial this invention is, the claim itself helps elucidate the nature of method or process claims. The claim does not cover the swing itself, so everyone with a swing in their backyard is not an infringer. Instead, the claim is limited to the actual steps of performing sideways swinging. These steps do not relate to the swing itself but instead actions applied to the swing, so the method claim relates to something other than the physical structure of the swing.

Method and process patents are pervasive, and they are particularly prevalent in certain technologies. Many software patents are claimed as

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of the claimed method.").

4. Method of Swinging on a Swing, U.S. Patent No. 6,368,227 (issued Apr. 9, 2002).

methods—and generally speaking—inventions that could be viewed as "business method" patents are usually claimed (tautologically) as processes.[5] The chemical and pharmaceutical industries often patent methods of making various chemical entities.[6] Pharmaceutical companies often obtain patents on methods of using drugs to treat various conditions.[7] Such "method of use" patents can be quite important: if an inventor finds a new use for an old drug, she can get a patent on the new method for using the drug even though she cannot get a patent on the drug itself. For example, the patent on aspirin has long since expired, so anyone is free to make that chemical. Nevertheless, someone who discovers a new use for aspirin is still able to patent it, such as a method of using aspirin to implant embryos.[8]

Patents on inventive methods and processes generally have been controversial. Even back in the 19th century, it was not clear whether such inventions could be or should be patented.[9] The concern then was that claims to methods were merely claiming the abstract functioning or result of an actual machine.[10] Efforts to patent the method, therefore, represented an effort to patent something beyond the actual invention.[11]

Historically, there were concerns as to whether processes were categorically excluded from the patent system,[12] though, at least as to chemical processes, these concerns were dispelled.[13] The adoption of the

5. *See* Methods and Apparatus Relating to the Formulation and Trading of Risk Management Contracts, U.S. Patent No. 5,970,479 (issued Oct. 19, 1999) ("A method to enable the formulation of customized multi-party risk management contracts having a future time of maturity . . . .").

6. *See* Methods for Synthesis of Prodrugs from 1-acyl-alkyl Derivatives and Compositions Thereof, U.S. Patent No. 6,927,036 (issued Aug. 9, 2005).

7. *See* Method for Treating Allergies, U.S. Patent No. 6,369,032 (issued Apr. 9 2002) ("A method of treating a subject suffering from an allergic condition, said method comprising administering to said subject a therapeutically effective amount of a pharmaceutical composition comprising a cathepsin S inhibitor.").

8. Method of Using Aspirin to Implant an Embryo, U.S. Patent No. 5,760,024 (issued June 2, 1998) ("In a method of implanting an embryo into the uterine endometrium of a healthy mammal the improvement which comprises administering aspirin to said mammal prior to implantation.").

9. *In re* Tarczy-Hornoch, 397 F.2d 856, 857–63 (C.C.P.A. 1968) (tracing history and controversy over patented methods).

10. *Cf.* Christopher A. Cotropia, *Physicalism and Patent Theory*, 69 VAND. L. REV. 1543, 1549–53 (2016) (noting historical focus on physicalism in the patent system).

11. *Tarczy-Hornoch*, 397 F.2d at 857 ("In an infringement suit, in 1840, Justice Story, sitting on circuit, held the claimed matter [a process for uniformly cutting ice] 'unmaintainable' in point of law and a patent, granted for such, void as for an abstract principle and broader than the invention. 'A claim broader than the actual invention of the patentee is, for that very reason, upon the principles of the common law, utterly void, and the patent is a nullity.'" (quoting Wyeth v. Stone, 30 F. Cas. 723, 727 (C.C.D. Mass. 1840))).

12. *See id.* at 858 ("The latter exposition apparently cast some doubt on the validity of claims for processes generally, whether mechanical or not.").

13. *See id.* ("It shortly became clear . . . that the patentability of chemical processes at least had been unaffected."); *see also* William B. Whitney, *Patentable Processes*, 19 HARV. L. REV. 30, 48

1952 Patent Act confirmed that processes were generally patent-eligible.[14] The Court of Customs and Patent Appeals ("CCPA") also confirmed, and expanded, the patentability of processes.[15]

What's old is new again. Concerns over the patenting of processes has again entered the patent system. Nothing has been more troubling in recent years to actors in the patent system than patents covering methods and processes, particularly in the electronic and digital age. Justice Kennedy of the U.S. Supreme Court has noted that:

> The Information Age empowers people with new capacities to perform statistical analyses and mathematical calculations with a speed and sophistication that enable the design of protocols for more efficient performance of a vast number of business tasks. If a high enough bar is not set when considering patent applications of this sort, patent examiners and courts could be flooded with claims that would put a chill on creative endeavor and dynamic change.[16]

The scope of patentable methods broadened to include methods of doing business,[17] software,[18] and the recognition of correlations between the presence of metabolites and recognition that something pathological is happening.[19] Some of these methods cover "personalized medicine," where

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(1905) (arguing that the rule that "a process is simply the function or operative effect of a machine the authorities are conclusive against its patentability" is true only in context and not as a categorical rule).

14. 35 U.S.C. § 101 (2012) ("Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."); *see also* Diamond v. Diehr, 450 U.S. 175, 182 (1981) ("Although the term 'process' was not added to 35 U.S.C. § 101 until 1952, a process has historically enjoyed patent protection because it was considered a form of 'art' as that term was used in the 1793 Act.").

15. *Tarczy-Hornoch*, 397 F.2d at 866 ("Our present review of the major precedents has persuaded us that the decisions of the Supreme Court have not required the rejection of process claims merely because the process apparently could be carried out only with the disclosed apparatus. These rejections have been the product of decisions in the lower courts and especially in this court. We decide today that we will no longer follow those decisions."). The CCPA is a predecessor court to the United States Court of Appeals for the Federal Circuit whose precedent is binding on the Federal Circuit unless changed en banc or by the Supreme Court. *See* S. Corp. v. United States, 690 F.2d 1368, 1371 (Fed. Cir. 1982) (en banc) ("[W]e begin by adopting as a basic foundation the jurisprudence of the two national courts which served . . . as our predecessors . . . ."). The Federal Circuit, of course, has appellate jurisdiction over all cases arising under the patent laws of the United States. 28 U.S.C. § 1295(a) (2012).

16. Bilski v. Kappos, 561 U.S. 593, 608 (2010) (plurality opinion).

17. *See, e.g.*, Alice Corp. v. CLS Bank Int'l., 134 S. Ct. 2347, 2352 (2014) (discussing a method of mitigating settlement risks in financial transactions); *Bilski*, 561 U.S. at 599 (discussing a method of hedging in commodities markets "against the risk of price changes").

18. *See* Limelight Networks, Inc. v. Akamai Techs., Inc., 134 S. Ct. 2111, 2115 (2014) (noting a "method of delivering electronic data using a 'content delivery network,'" i.e. the internet).

19. Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1295 (2012) ("The patent claims at issue here set forth processes embodying researchers' findings that

the treatment is particularized to a patient's specific biology.[20] Congress has created a unique procedure at the U.S. Patent and Trademark Office ("USPTO") specifically designed to review issued patents on business methods.[21] These types of inventions are also viewed as an area in which patent assertion entities ("PAEs"), pejoratively known as patent trolls, are likely to operate.[22]

Given the unique, intangible aspect of processes vis-à-vis other forms of inventions, it is unsurprising that, at times, Congress has afforded patented methods unique treatment.[23] For the most part, however, the Patent Act facially treats patented processes just like other forms of patented inventions; the Patent Act is generally neutral on its face in its treatment of different types of inventions. Section 101 of the Patent Act delineates what types of innovations are eligible for patent protection: machines, manufactures, compositions of matter, and, of course, processes.[24] Although the methods are not listed in section 101, the Patent Act defines "process" to include methods.[25] There is no differential treatment of methods or processes under

identified these correlations with some precision."); Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc., 548 U.S. 124, 125 (2006) (Breyer, J., dissenting) (characterizing invention as a "process [that] consists of using any test (whether patented or unpatented) to measure the level in a body fluid of an amino acid called homocysteine and then noticing whether its level is elevated above the norm; if so, a vitamin deficiency is likely").

20. *See* Healix Infusion Therapy, Inc. v. Helix Health, LLC, No. H-08-0337, 2008 WL 1883546, at *1 (S.D. Tex. Apr. 25, 2008) (defining "personalized medicine" as "a medical practice that tailors one's medical care to one's genetic and environmental background"); *see also* Methods of Assigning Treatment to Breast Cancer Patients, U.S. Patent No. 7,171,311 (filed Jan. 30, 2007) (discussing a patent directed to particularized treatments based off "genetic markers whose expression is correlated with breast cancer").

21. Leahy–Smith America Invents Act, Pub. L. No. 112–29, § 18, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.) (creating the "Transitional Program for Covered Business Method Patents") (hereinafter AIA).

22. Christopher A. Cotropia et al., *Unpacking Patent Assertion Entities* (PAEs), 99 MINN. L. REV. 649, 650 (2014) ("The recent entrants, often-called 'patent assertion entities' ('PAEs'), non-practicing entities ('NPEs'), patent monetization entities ('PMEs'), or simply patent trolls, come in many shapes and sizes."); Timothy Holbrook, *Give Existing Reforms a Chance to Kill Patent Trolls*, CONVERSATION (July 30, 2015, 3:45 PM), https://theconversation.com/give-existing-reforms-a-chance-to-kill-patent-trolls-44499; Timothy Holbrook, *Not All Patent Trolls Are Demons*, CNN, http://www.cnn.com/2014/02/21/opinion/holbrook-patent-trolls-demons (last updated Feb. 21, 2014, 9:08 AM).

23. *See infra* Part II.

24. 35 U.S.C. § 101 (2012).

25. 35 U.S.C. § 100(b) ("The term 'process' means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material."); *see also* State St. Bank & Tr. Co. v. Signature Fin. Grp., 149 F.3d 1368, 1377 (Fed. Cir. 1998) (treating methods and processes interchangeably in discussing section 101 eligibility), *abrogated by In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008); Sabasta v. Buckaroos, Inc., 507 F. Supp. 2d 986, 1004 (S.D. Iowa 2007) ("As a general matter, the patent statutes use the term 'process' interchangeably with the term 'method.'"). Justice Stevens characterized this definition as "not especially helpful, given that it also uses the term 'process' and is therefore somewhat circular." Bilski v. Kappos, 561 U.S. 593, 622 (2010) (Stevens, J., concurring).

the novelty provisions of section 102 of either the 1952 Patent Act or the America Invents Act ("AIA").[26] Similarly, with one rarely used exception, the assessment of obviousness under section 103 is not contingent on the type of invention.[27] That is also the case with section 271(a) of the Patent Act, which delineates the most basic forms of infringement: making, using, selling, offering to sell, or importing the claimed invention.[28] Nothing in the provision suggests that methods or processes should be treated any differently from other types of inventions.

The law has evolved such that patented processes can only be infringed by using the invention and not by making, selling, offering to sell, or importing it.[29] Notwithstanding the statute's textual neutrality, the courts created rules unique to claimed methods that do not have a textual justification in the Patent Act itself.[30] Moreover, some of these rules are completely inconsistent with each other. This Article will explore the exceptional, and at times inconsistent, treatment that courts have afforded patented processes.

This Article provides the first comprehensive treatment of the unique status of method claims in the patent landscape. In so doing, it offers novel insights and critiques into the current jurisprudence of patented methods, particularly their exceptional treatment by the courts. Part II of this Article explores the nature of claims to inventive processes and methods. In particular, it highlights the somewhat paradoxical dynamic of patented methods: in some contexts, such as pharmaceuticals, method claims are viewed as second-best options that afford a fairly limited scope of protection. In others, such as patents on methods of doing business and some diagnostics, method claims are viewed as inappropriately broad and vague, affording far too much protection to the patent holder. The courts have failed to appreciate that the technological context for patented processes is important in assessing their potential overbreadth. Ignoring such context, the courts have carved out processes for exceptional treatment regardless of any potential policy concerns.

Part III then interrogates the ways that patented processes are treated under the patent laws. It first begins with the Patent Act itself, elaborating where Congress has afforded process claims unique treatment. Part IV then distills the case law surrounding patented methods, highlighting circumstances where, in the face of a facially neutral statute, the courts

26. AIA, 35 U.S.C. § 102 (2011); 1952 Patent Act, 35 U.S.C. § 102 (2006).

27. *See* AIA, 35 U.S.C. § 103 (2011); 1952 Patent Act, 35 U.S.C. § 103 (2006). Congress did create a unique obviousness standard for processes in the biotechnological arts. *See infra* Part III.C. The AIA eliminated this biotech-specific rule. *See* Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part I of II*, 21 FED. CIR. B.J. 435, 490–91 (2012).

28. 35 U.S.C. § 271(a) (2012).

29. *See infra* notes 179–204 and accompanying text.

30. *See infra* Part IV.A–D and accompanying text.

nevertheless create unique rules for patented processes that at times are inconsistent with other related aspects of patent law. In particular, it explores, and criticizes, current rules that limit method claims to infringing uses only, notwithstanding Supreme Court and Federal Circuit case law that suggests such claims can be "sold." It also criticizes the harsher treatment that method claims receive with respect to extraterritorial protection and circumstances where multiple parties perform the method's steps. Finally, this Part criticizes recent Supreme Court jurisprudence on eligible subject matter, arguing that evaluation of such eligibility *should* turn more on the nature of the claimed invention. Instead, the Supreme Court chooses to ignore the nature of the claims in its sweeping assessments of eligible subject matter.

Part V then offers and assesses potential adjustments to patent doctrines that could afford method claims equal treatment with other forms of inventions. Given that the statute does not distinguish among the types of inventions and the forms of infringement, it argues that the courts are wrong to limit infringement of methods to mere use. Instead, it suggests that processes should be viewed as "made" if a party creates an apparatus with no use other than to perform the patented method. This approach would provide infringement liability for a method claim if such apparatus was sold, offered for sale, or imported. This approach also allows courts to countenance the technological differences that drive concerns with method claims: claims to business methods that generally operate on general purpose computers would not be covered by this adjustment, whereas more traditional industrial processes would. Part V also offers ways to show that a patented method can be sold or offered for sale. It then offers alternatives for harmonizing the treatment of patented methods with respect to extraterritorial protection and for situations with multiple actors using a method or system. Finally, it argues that the nature of the claim should be given far more salience in evaluating patentable subject matter. Part VI concludes.

II. THE UNIQUE NATURE OF PATENT CLAIMS ON PROCESSES AND METHODS

Inventive processes and methods are not recent phenomena.[31] They have been around as long as innovation has existed. Think of the process of making fire: clearly it was an important breakthrough. With respect to the patent system, however, processes and methods have always been problematic.[32] As

31. *See* Michael Risch, *America's First Patents*, 64 FLA. L. REV. 1279, 1320 (2012) ("Early inventors were no strangers to claiming methods, though it is clear that most inventive activity lay in the making of new things, even if the primary inventive principle behind the thing was a better method of operation.").

32. *See id.* at 1289–94. As Mark Lemley has noted, whether processes were patentable at all was not definitively answered until 1909. Mark A. Lemley, Lecture, *Software Patents and the Return of Functional Claiming*, 2013 WIS. L. REV. 905, 912 n.24 (citing Expanded Metal Co. v. Bradford, 214 U.S. 366, 385–86 (1909)). In *Expanded Metal*, the Court stated: "We . . . reach the conclusion that an invention or discovery of a process or method involving mechanical operations, and producing a new and useful result, may be within the protection of the Federal statute, and entitle

this Part elaborates, because claims to methods relate to the intangible steps and not necessarily something tangible, courts and commentators have worried about the scope and clarity of such claims. In the industrial age, though, methods generally related to something concrete and often produced a tangible product. In the modern information age, however, methods and processes often produce only data or information. This dynamic creates further issues of scope and also challenges the assumptions of many patent law doctrines related to methods that presuppose the production of some sort of process. This Part explores the nature of processes and how their engagement with the patent system has evolved over time.

If one thinks of a patent as an intangible property right, then a patent on a process or method provides an intangible property right over something else intangible—a process. Of course, to infringe the patent, there generally is something tangible—such as a machine—that must fall within the limitations of the claim. The claim must "read on" the thing accused of infringement.[33] For machines, manufactures, and compositions of matter, there necessarily is a tangible item that a court or jury uses to assess infringement. This is not so with method claims, where the bases of comparison are fleeting acts or steps. Under current law, the claims to processes technically do not cover the machine or other apparatus (if any) that performs the process, but only the performance of the steps of the process.[34] So, building a huge factory that can perform a patented method of making aspirin does not infringe until the factory is turned on and starts to perform the method.

In the industrial age, the gap between this intangible nature of process claims and the physical instantiation of the method was far narrower. Methods of producing chemicals generally require concrete steps—chemicals, mass transfer, heat transfer, temperatures, pressure, etc. These are not terribly abstract things. Even methods of treating human diseases generally have a physicality associated with them: an example is when someone with an allergy takes a pill that triggers a cascade of reactions in the body to create an antihistamine reaction.

Somewhat paradoxically, methods in the chemical and pharmaceutical industries are often viewed as second-best forms of protection. In those industries, patents covering the chemical entity itself afford far greater protection. A patent claiming the chemical itself covers *all* uses of that chemical, even ones the inventor had not discovered when she filed her

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the inventor to a patent for his discovery." *Expanded Metal Co.*, 214 U.S. at 385–86.

33. *See* Jeneric/Pentron, Inc. v. Dillon Co., 205 F.3d 1377, 1382 (Fed. Cir. 2000) ("[A]n accused product literally infringes if every limitation recited in the claim appears in the accused product, i.e., the properly construed claim reads on the accused product exactly.").

34. *See* Joy Techs., Inc. v. Flakt, Inc., 6 F.3d 770, 773 (Fed. Cir. 1993) ("The sale of the apparatus in Standard Havens was not a direct infringement because a method or process claim is directly infringed only when the process is performed.").

patent application.[35] For example, suppose an inventor patents a chemical that is useful for treating an enlarged prostate. Because the chemical satisfies all the various patentability requirements, she obtains a patent on the chemical itself. Subsequently, a different inventor discovers that the chemical helps to generate hair growth and thus can be used to treat baldness. Even though the first inventor had no idea that the chemical could be used to treat baldness, her patent on the chemical itself means any subsequent use of the chemical to treat baldness would infringe her patent.[36]

Indeed, patents on chemical compounds were deemed as over-protective in many foreign patent systems. These systems would allow patents on methods of making and of using these compounds, but they would not permit patents on the compounds themselves.[37] As a result of various international agreements, countries such as Hungary[38] and India[39] were obligated to provide protection for chemical compounds. The concern of overprotection was with the compounds claims, however, and not the claims to methods of making or using these pharmaceuticals.

The dynamic is dramatically different for methods used in the information age. Method claims in the information age are viewed as broad and over-protective.[40] Computer software, essentially a collection of

35. Cynthia M. Ho, *Should All Drugs Be Patentable?: A Comparative Perspective*, 17 VAND. J. ENT. & TECH. L. 295, 306 (2015) ("When the drug or active ingredient is itself patented, no one else can make the identical compound, such that a patent can enable the manufacturer to charge a premium.").

36. This hypothetical is based on the history of Propecia. *See How Was Propecia Discovered?: Hair Loss & Hair Transplant Surgery Guide*, HEALTH DEV. ADVICE, http://www.hda-online.org.uk/hair-loss/propecia/how-was-propecia-discovered.html (last visited Jan. 20, 2017). Viagra shares a similar history in that, originally, the chemical was believed to treat heart conditions; subsequently, researchers discovered its efficacy for treating erectile dysfunction. Jacque Wilson, *Viagra: The Little Blue Pill That Could*, CNN, http://www.cnn.com/2013/03/27/health/viagra-anniversary-timeline (last updated Mar. 27, 2013, 6:33 PM). The subsequent inventor who discovered the use of the chemical for treating baldness could obtain her own patent, though it would solely be on the method of using the chemical to treat baldness. This scenario represents a classic "blocking patent" situation, where the subsequent inventor (here, the method of using the compound) cannot use her invention without permission from the first inventor (the discoverer of the chemical compound). The first inventor, however, would be infringing the later patent if she uses the drug to treat baldness. They would need to cross-license each other to permit both parties to use the chemical for this process (or the subsequent inventor would have to wait for the first patent to expire).

37. *See* Jodie Liu, Note, *Compulsory Licensing and Anti-Evergreening: Interpreting the TRIPS Flexibilities in Sections 84 and 3(d) of the Indian Patents Act*, 56 HARV. INT'L L.J. 207, 210 (2015) (noting before India joined the WTO that "Section 5 of the Act barred pharmaceuticals from obtaining product patents on their drugs, meaning that pharmaceuticals could seek only process patents").

38. LEVENTE TATTAY, INTELLECTUAL PROPERTY LAW IN HUNGARY 129 (2010) (noting that 1993 agreement with United States required "the introduction of patent protection for pharmaceuticals, chemicals, and food products"); *see also* Agreement on Intellectual Property Between the Government of the United States of America and the Government of the Republic of Hungary, art. IV, sec. 1, Sept. 24, 1993, http://tcc.export.gov/trade_agreements/all_trade_agreements/exp_005349.asp (requiring patents to "be available for all inventions, whether products or processes").

39. *See generally* Liu, *supra* note 37.

40. Bernard Chao, *Finding the Point of Novelty in Software Patents*, 28 BERKELEY TECH. L.J.

complicated algorithms, combined with general purpose computers created challenges for the patent system in how exactly to claim such innovations.[41] Claiming code seemed unduly burdensome while simultaneously affording rather narrow protection. Claiming the software in terms of function, in contrast, was incredibly broad that could capture instantiations of the invention far beyond what the inventor created.[42]

Finally, many processes no longer produced a "product" in the classic industrial sense. Instead they generate information or digital output.[43]

The biological sciences have not been immune to this departure from the industrial age. Investigations into the genome and proteome uncovered, for example, various predispositions for disease created by certain mutations or alterations in protein structures.[44] In these circumstances, the existence of a mutation is probabilistic—the mutation creates a greater probability of a person getting a disease, not an absolute certainty.[45] Inventors claimed these correlations as methods, claiming a method of discovering the mutation and

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1217, 1224 (2013) ("Numerous commentators have been critical of software patents, arguing that software patents discourage innovation, have unclear boundaries, and are of low quality." (footnotes omitted)); Lemley, *supra* note 32, at 907 ("The result, particularly in the software and Internet industries, has been a proliferation of patents with extremely broad claims, purporting to own everything from international electronic commerce to video-on-demand to emoticons to means of hedging commodity risk." (footnote omitted)).

41. *See In re* Alappat, 33 F.3d 1526, 1545 (Fed. Cir. 1994) (en banc) ("Alappat admits that claim 15 would read on a general purpose computer programmed to carry out the claimed invention, but argues that this alone also does not justify holding claim 15 unpatentable as directed to nonstatutory subject matter. We agree."), *abrogated by In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008); Risch, *supra* note 31, at 1326 ("Should the patent be granted on a method of weaving if computer software that controls the loom for the new pattern is nonobvious? Many people today would say no, but it is unclear why nonobvious 'hardwired' variations in loom design should be patentable, while nonobvious 'software' variations of loom punch card design should not be, when the resulting products are the same."). For additional support, see generally Julie E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CALIF. L. REV. 1 (2001).

42. *See* Lemley, *supra* note 32, at 907 ("[M]odern patent law pays far less attention to what the patentee actually invented than to the patent 'claims'—the legal definition of the scope of the patent. . . . The result, particularly in the software and Internet industries, has been a proliferation of patents with extremely broad claims, purporting to own everything from international electronic commerce to video-on-demand to emoticons to means of hedging commodity risk.").

43. *See, e.g.*, AT&T Corp. v. Excel Commc'ns Mktg., Inc., 172 F.3d 1352, 1354 (Fed. Cir. 1999) (discussing a method generating data called a PIC indicator), *abrogated by In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008).

44. *See* Jordan Paradise et al., *Patents on Human Genes: An Analysis of Scope and Claims*, 307 SCIENCE 1566, 1567 (2005) (noting as "troubling" claims "drafted disclosing only a correlation between two things, often the presence of an isoform or mutation and some multigenic disorder or a disorder having a genetic component").

45. *See, e.g.*, Detection of Human α-Thalassemia Mutations and Their Use as Predictors of Blood-Related Disorders, U.S. Patent No. 5,750,345 (issued May 12, 1998) (claiming the "method of screening a human subject for an increased risk of developing a blood-related disorder" by assaying genomic DNA for deletion mutation wherein presence of mutation "correlates with an increased risk of developing a blood-related disorder").

correlating it to a risk of disease.[46] Further investigations into the manner that individuals reacted uniquely to certain drugs—the early stages of personalized medicine—also generated various types of method claims where the effectiveness of a drug would be measured on an individual level, and drug levels could be adjusted.[47]

These examples demonstrate why claims to patented methods and processes have created tension in the patent law. Of course, categorical treatment of processes divorced from their context—such as their lesser protection for pharmaceuticals—seems inappropriate. Yet that is precisely what has happened. Moreover, the question remains as to whether these unique characteristics suggest that patent law should treat such inventions uniquely at all, even in the face of a relatively neutral statute.

III. THE EXPRESS EXCEPTIONAL TREATMENT OF METHOD CLAIMS IN THE PATENT ACT

It is unsurprising that patent law has encountered various, relatively new variations of inventive processes and methods. As an engine of innovation, patent law often has to wrestle with thorny issues of new technologies. Nevertheless, the inconsistent treatment of patented methods and processes bears further exploration.

This Part explores the statutory provisions that provide explicit exceptional treatment to patented processes. Interestingly, Congress has demonstrated a mixed bag in terms of valuing process claims. Some of these provisions, particularly those made earlier in time, afford exceptional treatment to process patents that enhances their effectiveness and value. More recent enactments show some concern with the scope of these claims, particularly those dealing with medical procedures and methods of doing business.[48]

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46. *See, e.g.*, Methods for Detecting Mitochondrial Mutations Diagnostic for Alzheimer's Disease and Methods for Determining Heteroplasmy of Mitochondrial Nucleic Acid, U.S. Pat. No. 5,976,798 (issued Nov. 2, 1999) (claiming a "method for diagnosing the risk of having Alzheimer's disease" that includes step of "correlating the presence of the [sic] at least one mutation and the degree of heteroplasmy with the risk of having Alzheimer's disease").

47. *See* Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1294–95 (2012) (describing the patent claiming method of optimizing drug treatment by measuring metabolite levels in patients); Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc., 548 U.S. 124, 129 (2006) (Breyer, J., dissenting) (describing the patent claiming method of identifying a vitamin deficiency by measuring and identifying elevated protein levels).

48. The USPTO carved out business methods for exceptional treatment, such as creating a "Second Pair of Eyes Review," in response to critiques regarding patent quality for business method patent applications. *See* John R. Allison & Starling D. Hunter, *On the Feasibility of Improving Patent Quality One Technology at a Time: The Case of Business Methods*, 21 BERKELEY TECH. L.J. 729, 734–35 (2006) (discussing steps taken by the USPTO to address issues surrounding business method patent applications). As these are related to procedure, and not the substantive treatment of method patents, I have not included it in this discussion.

Generally, process patents are infringed only when the steps of the process are performed.[49] Moreover, a patent's exclusive rights generally are limited to the territorial United States.[50] Patents have been characterized as the most territorial form of intellectual property protection.[51] Given the typical tangible aspect of an act of infringement, the territorial limits are not surprising: a physical item is usually in a single geographic location.

A. INFRINGEMENT FOR IMPORTING, SELLING, OFFERING TO SELL, OR USE THE PRODUCT OF A PATENTED PROCESS UNDER 35 U.S.C. § 271(G)

Prior to 1988, the intersection of these two aspects of patent law posed a problem for patented methods: one could perform the patented process outside of the United States—thus avoiding the United States patent—and then import the product of that process back into the United States, potentially competing with the patent owner's product. This dynamic is particularly a concern if the product itself is no longer covered by a patent. For example, aspirin has long been in the public domain.[52] Imagine, however, that someone obtains a patent on a new, more cost-effective method to manufacture aspirin. If someone began using the patented method overseas, she could evade the U.S. patent while nevertheless importing the aspirin into the United States, competing with the method patent holder.[53]

This territorial dynamic could reduce the value of process patents within the United States. Moreover, the other countries had provided protection against such uses of a patented method, creating a "loophole" in protection for U.S. patent holders relative to foreign patent owners.[54] In response, Congress adopted 35 U.S.C. § 271(g) in 1988,[55] which provides:

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49. *See* Joy Techs., Inc. v. Flakt, Inc., 6 F.3d 770, 773 (Fed. Cir. 1993) (noting method claims are infringed only by performance of the method, not sales of machines that perform the method).

50. *See* 35 U.S.C. § 271(a) (2012) (limiting acts of infringement to acts within or into the United States).

51. Donald S. Chisum, *Normative and Empirical Territoriality in Intellectual Property: Lessons from Patent Law*, 37 VA. J. INT'L L. 603, 605 (1997); Timothy R. Holbrook, *The Potential Extraterritorial Consequences of* Akamai, 26 EMORY INT'L L. REV. 499, 503–06 (2012) (discussing various territorial limits of patent infringement).

52. *See* Bayer Co. v. United Drug Co., 272 F. 505, 509 (S.D.N.Y. 1921) (discussing how aspirin became generic after the patent expired).

53. *See* Timothy R. Holbrook, *Territoriality Waning? Patent Infringement for Offering in the United States to Sell an Invention Abroad*, 37 U.C. DAVIS L. REV. 701, 721–22 (2004).

54. *See* 132 CONG. REC. S17386 (1986) ("A significant loophole in our patent laws, as compared with those of our major trading partners, has emerged as a major factor in the dynamics of global innovation and economic competition. 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."). Of course, calling this a "loophole" reveals a particular normative viewpoint on this issue: that patent owners *should* be afforded protection against this dynamic.

55. This Act was known as the Process Patent Amendments Act of 1988, Pub. L. No. 100-418, 102 Stat. 1107.

> Whoever without authority imports into the United States or offers to sell, sells, or uses within the United States a product which is made by a process patented in the United States shall be liable as an infringer, if the importation, offer to sell, sale, or use of the product occurs during the term of such process patent.[56]

This provision provides extraterritorial protection for the holders of patented processes because the statute is not territorially limited to uses within the United States.[57] The legislative history makes clear that the intent was to protect U.S. patent holders from overseas uses of patented methods, where the resulting product enters the United States' markets.[58] Protection afforded by section 271(g) is now required under the Agreement on Trade Related Aspects of Intellectual Property ("TRIPS") so that all WTO countries must provide similar protection for patent owners.[59] In adopting this provision, Congress expanded the protections afforded to owners of process patents, suggesting that it views these innovative methods and processes as worthy of protection.

While the provision clearly covers foreign uses of a method patented in the United States, the statutory language is not so limited. Facially, the language could allow uses of patented methods within the United States to constitute infringement. There is currently a district court split over the issue of whether the provision applies only to overseas uses of the process or also covers domestic uses.[60] The broader implication is that, if it applies to domestic uses of the method, a variety of downstream actors could also be direct infringers.

Section 271(g) is not entirely pro-patentee, however. It contains a safe harbor for potential infringers. There is no infringement if the product of the process has been "materially changed by subsequent processes" or if "it becomes a trivial and nonessential component of another product."[61] That provision also restricts remedies for noncommercial use or retail sale of the product absent another adequate remedy.[62]

Additionally, in conjunction with the adoption of section 271(g), Congress created defenses and other limitations on remedies that are specific to that provision and thus to processes. Section 282(b) affords a defense to a party in possession of the product of the process if that party did not have

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56. 35 U.S.C. § 271(g) (2012).

57. *See* Timothy R. Holbrook, *Extraterritoriality in U.S. Patent Law*, 49 WM. & MARY L. REV. 2119, 2139 (2008) (discussing case law showing considerable extraterritorial reach to section 271(g)).

58. *See* 132 CONG. REC. S17386 (1986).

59. Holbrook, *supra* note 57, at 2183.

60. *Id.* at 2141 n.84.

61. 35 U.S.C. § 271(g)(1)–(2) (2012).

62. *Id.* § 271(g).

notice of infringement.[63] This defense affords some balance to the provision. Whereas the party performing the process will be liable, someone who innocently obtains the potentially unpatented product, without knowledge of the process or the patent, would truly be innocent. The balance of section 282(b) articulates various factors for assessing remedies under section 271(g), such as taking into account whether a potential infringer has requested disclosures from the patent holder.[64] As such, the entirety of the statute dealing with infringement under section 271(g) affords a balance between patent holders and potential infringers.

This provision is rooted in antiquated views of methods and processes, however. It only applies if the patented process actually generates some sort of *product*. The legislative history confirms this view of process patents, such as when then-Commissioner Mossinghoff noted that "[a] process patent, however, only protects a process or method *of making an article or product*."[65] Section 271(g)'s safe harbor also reflects this outdated view of processes: only a physical product would seem to be able to be materially changed or a trivial and nonessential component.[66] This language evinces a focus on material products, ones that can be modified in a tangible sense. Such language would be an odd fit for processes that generate primarily information or data. Along these lines, the Federal Circuit has held that the provision does not apply to method patents that generate data as their product.[67] Somewhat ironically, the Federal Circuit has carved out some processes for exceptional treatment under a provision that was *designed* to provide unique treatment for patented processes.

The digital age will continue to challenge the idea of what constitutes a "product," as we increasingly have "digital" products, like ebooks.[68] Scenarios

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63. *Id.* § 282(b).

64. *Id.* § 282.

65. *Patent Law Improvements Act: Hearing on S. 1535 and S. 1841 Before the Subcomm. on Patents, Copyrights, and Trademarks of the S. Comm. on the Judiciary*, 98th Cong. 18 (1984) (statement of Comm'r Mossinghof) (emphasis added).

66. 35 U.S.C. § 271(g)(1), (2).

67. Bayer AG v. Housey Pharms., Inc., 340 F.3d 1367, 1377 (Fed. Cir. 2003) (holding that "in order for a product to have been 'made by a process patented in the United States' it must have been a physical article that was 'manufactured' and that the production of information is not covered"). For criticism of this approach based on extraterritoriality concerns, see Holbrook, *supra* note 57, at 2139–41 (arguing it unnecessarily narrows scope of method patents and reflects the Federal Circuit's "hopelessly inconsistent methodology" on interpreting extraterritorial provisions of the Patent Act).

68. *See, e.g.*, Ormco Corp. v. Align Tech., Inc., 609 F. Supp. 2d 1057, 1076–77 (C.D. Cal. 2009) (holding that a digital 3D model for orthodontic devices is a product under section 271(g)); CNET Networks, Inc. v. Etilize, Inc., 528 F. Supp. 2d 985, 995 (N.D. Cal. 2007) (holding that a digital catalog is a product under section 271(g)); *cf.* Timothy R. Holbrook & Lucas S. Osborn, *Digital Patent Infringement in an Era of 3D Printing*, 48 U.C. DAVIS L. REV. 1319, 1323–24 (2015). In contrast to these interpretations of section 271(g), the Federal Circuit recently rejected the International Trade Commission's attempt to regulate the importation of digital

already have arisen that challenge this antiquated, industrialized notion of products. The courts are beginning to confront the situation where the "product" may be something intangible, such as an electronic catalog.[69] And, of course, this provision remains unavailable for processes that do not generate any sort of product but instead only generate data or information, such as revealing genetic mutations that predispose a patient to a disease.[70]

B. Burden Shifting for Proving Infringement of Patented Processes

Often, a patented process is performed in a place not publicly accessible, so it may be difficult for the patent owner to determine whether her patent is actually being used.[71] There may, of course, be circumstantial evidence, such as particular impurities in the final product that typify a particular process. Nevertheless, gathering proof of infringement may be difficult.

This difficulty may also arise in actual litigation, particularly if the use of the process is overseas. Obtaining discovery in these contexts may be difficult. As part of the Process Patent Amendments Act of 1988, Congress created a burden-shifting provision that is specific to patented processes.[72] Section 295, entitled "Presumption: Product made by patented process,"[73] shifts the burden onto the accused infringer to prove non-infringement in a manner akin to *res ipsa loquitur*.[74] In order to trigger the shift in burden, the patent holder must demonstrate both that "a substantial likelihood exists that the product was made by the patented process" and "that the plaintiff has made a reasonable effort to determine the process actually used in the production of

products. *See* ClearCorrect Operating, LLC v. Int'l Trade Comm'n, 810 F.3d 1283, 1286 (Fed. Cir. 2015) (holding that "articles" means "material things" and thus excludes "electronic transmissions of digital data"); *see also generally* Sapna Kumar, *Regulating Digital Trade*, 67 FLA. L. REV. 1909 (2015) (discussing and criticizing the ITC's attempts to regulate digital trade).

69. Boehm v. Future Tech Today, Inc., No. 6:15–cv–277–MC, 2015 WL 2401423, at *4 (D. Or. May 19, 2015) (rejecting infringement under section 271(g) of a "method is a means of calculating resonant frequencies and treating an animal or a human with that frequency"); Yangaroo Inc. v. Destiny Media Techs. Inc., 720 F. Supp. 2d 1034, 1038 (E.D. Wis. 2010) (rejecting infringement under section 271(g) for "'a method of distributing content' that already exists"); *Ormco Corp.*, 609 F. Supp. 2d at 1076–77 (holding that a digital 3D model for orthodontic devices is a product under section 271(g)); *CNET Networks, Inc.*, 528 F. Supp. 2d at 995 (holding that a digital catalog is a product under section 271(g)).

70. *See Bayer*, 340 F.3d at 1377 (agreeing with the district court's conclusion that "'processes of identification and generation of data are not steps in the manufacture of a final drug product'" (quoting Bayer AG v. Housey Pharms., 169 F. Supp. 2d 328, 331 (D. Del. 2001)).

71. *Cf.* Creative Compounds, LLC v. Starmark Labs., 651 F.3d 1303, 1314–15 (Fed. Cir. 2011) ("Because the accused infringer is in a far better position to determine the actual manufacturing process than the patentee, fairness dictates that the accused, likely the only party able to obtain this information, reveal this process or face the presumption of infringement.").

72. *See* 35 U.S.C. § 295 (2012).

73. *Id.*

74. Timothy R. Holbrook, *Patents, Presumptions, and Public Notice*, 86 IND. L.J. 779, 816–17 (2011) (comparing section 295 to *res ipsa loquitur*).

the product and was unable to so determine."[75] If the patent owner satisfies these two conditions, then "the product shall be presumed to have been so made, and the burden of establishing that the product was not made by the process shall be on" the accused infringer.[76] This provision thus forces the party in the best position to know about the process—the accused infringer—to disclose the relevant information or else be found liable.

This burden-shifting provision is required under the TRIPS Agreement; interestingly, though, the United States has chosen to implement this obligation differently than noted in TRIPS.[77] Under TRIPS Article 34, signatories may permit such burden shifting "if there is a substantial likelihood that the identical product was made by the process and the owner of the patent has been unable through reasonable efforts to determine the process actually used"[78] or "if the product obtained by the patented process is new."[79] Article 34 expressly notes, however, that signatories need only require "at least one of" those circumstances to trigger the burden shifting.[80] The United States, in implementing its obligations, has chosen only the former trigger, and not the latter, for shifting the burden of proof onto the accused infringer.[81]

Similar, and related, to section 271(g), the benefit of this presumption framework inures to the patent holder. This makes it easier for the owner of a patented process to prove infringement. This provision, however, also shows its tie to industrial-era views of processes by assuming processes invariably produce some sort of product. In the modern, digital era, there are a variety of patented processes that do not yield a product in the classic sense but, instead, may result in something more intangible, such as data or other information. It is not clear why this provision should be limited to processes that produce products because the discovery asymmetries that justify the position would exist for any sort of process. Indeed, it might be more difficult to assess whether a process that does not produce a product is being infringed because one cannot examine the product to discern the process that yielded it. Yet the express language of the statute is limited to processes that produce products.

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75. 35 U.S.C. § 295.

76. *Id.*

77. *See* Timothy R. Holbrook, *Should Foreign Patent Law Matter?*, 34 CAMPBELL L. REV. 581, 586–87 (2012) (noting that U.S. law, unlike the TRIPS provision, "does not afford the presumption merely on the basis of the product being new").

78. Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, art. 34(1)(b), 1869 U.N.T.S. 315 [hereinafter TRIPS Agreement].

79. TRIPS Agreement art. 34(1)(a).

80. *Id.* art. 34(1).

81. *See* Holbrook, *supra* note 77, at 586–87 (discussing this dynamic and suggesting United States courts should look to foreign interpretations of similar provisions as persuasive authority).

C. *BIOTECHNOLOGICAL PROCESS PATENTS ACT OF 1995 CREATES A UNIQUE STANDARD OF NON-OBVIOUSNESS FOR BIOTECHNOLOGY PROCESSES*

Congress's concern with affording adequate protection for patented processes did not end in 1988 with the process-specific infringement provisions of the Process Protection Amendments. Members of Congress also expressed concern about the patentability of processes in the then-nascent biotechnology industry.[82] In response, Congress adopted the Biotechnological Process Patents Act ("BPPA") of 1995,[83] thus continuing its work to afford stronger protection to process patents.[84]

The BPPA amended the patent statute by adding 35 U.S.C. § 103(b) to create a unique standard of non-obviousness for biotechnology process patents.[85] Specifically, the BPPA overruled the Federal Circuit's decision in In re *Durden*, which dealt with the obviousness of a chemical process, albeit in a non-biotechnology context.[86] The process in *Durden* involved the use of non-obvious chemicals to produce a non-obvious chemical, although the steps of the process itself were otherwise obvious.[87] The court held that the non-obviousness of the ingredients or product was not sufficient to render the process also non-obvious.[88]

The BPPA overruled that holding but only as to biotechnological processes. Section 103(b)(1) noted that "a biotechnological process using or resulting in a composition of matter that is novel under section 102 and nonobvious under subsection (a) of this section shall be considered nonobvious."[89] The BPPA then provided explicit definitions of what constituted a biotechnological process for purposes of this provision.[90] The

82. *See* 141 CONG. REC. S15220–21 (1995) ("The difficulties in obtaining patents on products of biotechnology, therefore, make the availability of effective process patent protection vital in providing a reward for the achievements of biotechnology pioneers. Moreover, adequate protection is necessary to encourage the continued investment in biotechnology research and development.").

83. Biotechnological Process Patents Act, Pub. L. No. 104–41, 109 Stat. 351 (1995).

84. *See* 141 CONG. REC. H10095, H10095 (1995) ("The House Judiciary Committee took the first step in protecting innovation in 1988 when the Congress enacted two bills which [were] introduced relating to process patents and reform of the International Trade Commission. However, our work will not be complete until we enact this legislation."); 141 CONG. REC. S15220–21 (discussing Process Patent Amendments Act as precursor to Biotechnological Process Protection Act).

85. Biotechnological Process Patents Act, at § 1.

86. *In re* Durden, 763 F.2d 1406 (Fed. Cir. 1985).

87. *Id.* at 1408 ("The issue to be decided is whether a chemical process, otherwise obvious, is patentable *because* either or both the specific starting material employed and the product obtained, are novel and unobvious . . . .").

88. *Id.* at 1411.

89. 35 U.S.C. § 103(b)(1) (2006). There were additional, technical requirements for this provision to apply, such as requiring the process and composition claims be in the same application or to be in separate ones with the same effective filing date, and that the composition and process have the same ownership. *Id.* § 103(b)(1)(A)–(B).

90. *Id.* §103(b)(3).

BPPA also amended the presumption of validity for these processes by noting that a finding that the relevant compositions were obvious would also render the process obvious.[91]

Congress justified this unique rule as needed to ensure adequate protection for these types of inventions.[92] In particular, the legislative history shows a concern that U.S. inventors were at a disadvantage relative to foreign ones.[93] Congress deemed it appropriate to provide greater protection for these types of methods, again demonstrating an interest in affording greater protection for process patents.

While the USPTO may have relied upon this provision during the prosecution of various patents, section 103(b) was rarely, if ever, litigated.[94] It may have been that biotechnology evolved in unexpected ways, rendering this provision somewhat useless given the narrow definitions of biotechnology processes.[95] Later Federal Circuit decisions may have rendered the provisions superfluous.[96] Unsurprisingly, the AIA removed this unique treatment of

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91. *Id.* § 282 ("[I]f a claim to a composition of matter is held invalid and that claim was the basis of a determination of nonobviousness under section 103(b)(1), the process shall no longer be considered nonobvious solely on the basis of section 103(b)(1).").

92. 141 CONG. REC. S15221 (1995) (statement of Sen. Hatch) ("Although a product patent is generally considered to provide better protection for innovators than process patents, they are often not available for products of biotechnology."); 141 CONG. REC. S11207 (1995) (statement of Sen. Hatch) ("It is abundantly clear that the current patent law is not adequate to protect our creative American inventors who are on the cutting edge of scientific experimentation.").

93. 141 CONG. REC. S11207 (1995) (statement of Sen. Hatch) ("The potential for unfair foreign competition, however, threatens the capital base of the biotechnology research industry.").

94. It is not clear from the case law that this provision has ever been applied in litigation. A search for the provision yielded a number of citations, but generally the citations are typographical errors. For example, in *Fresnel Technologies., Inc. v. Rokonet Industries USA, Inc.*, the court quoted section 102(b) but instead cited section 103(b). Fresnel Techs., Inc. v. Rokonet Indus. USA, Inc., No. 4:01–CV–1091–A, 2003 WL 21047137, at *3 (N.D. Tex. May 7, 2003) ("Defendant contends that the patent is invalid because 'the invention was . . . in public use or on sale in this country[ ] more than one year prior to the date of the application for the patent in the United States.'" (quoting 35 U.S.C. § 103(b) (omission and alteration in original)); *see also* Jet Imports, LLC v. HJC I, LLC, No. 2:11–CV–709 JCM (CWH), 2012 WL 4620084, at *2 (D. Nev. Oct. 1, 2012) (citing section 103(b) but actually discussing obviousness under section 103(a)). I was unable to locate a case that discussed section 103(b) substantively. Only one decision properly mentioned the provision, but it was not at issue in the case. Sightsound.com Inc. v. N2K, Inc., 391 F. Supp. 2d 321, 347 (W.D. Pa. 2003) ("Although Defendants also purport to rely on 35 U.S.C. § 103(b) (Defs.' Brief at 34), that paragraph pertains to patents involving specifically enumerated biological processes irrelevant to the patents herein.").

95. Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1128 (2003) ("As biotechnology increasingly becomes an information-driven industry, however, this definition of biotechnological process is rapidly becoming outdated."); John R. Thomas, *Of Text, Technique, and the Tangible: Drafting Patent Claims Around Patent Rules*, 17 J. MARSHALL J. COMPUTER & INFO. L. 219, 242 (1998) ("The statute's specific definition of the term 'biotechnological process' ties it to contemporary biotechnology research that will quickly become outdated.").

96. *See generally* Kristin Connarn, Note, *Section 103(b): Obviously Unnecessary?*, 5 J. HIGH

biotechnology process patents because it was "no longer needed."[97] The provision will continue to govern any pre-AIA patents, however, so it technically still is in force. Although its effectiveness was minimal, the BPAA demonstrates that Congress again found patented processes important enough to warrant exceptional treatment.

D. MEDICAL AND SURGICAL PROCEDURE INFRINGEMENT DEFENSE

The previous examples of exceptional treatment of patented methods demonstrated that Congress generally viewed them favorably and worked to plug perceived gaps in protection for them. While embracing an antiquated, industrial notion of processes, these provisions did provide patent owners with greater protection for their method-based inventions.

Such sanguinity began to erode in 1996, however, when Congress carved out a particular set of process patents for unique treatment: medical and surgical procedures. Section 287(c) immunizes a medical practitioner or her related health care entity from liability if performance of a "medical activity" is infringement under section 271(a) or (b) of the Patent Act.[98] The provision defines "medical activity" as "the performance of a medical or surgical procedure on a body" but excludes from this defense three types of activity: use of a patented machine, manufacture, or composition of matter; practice of a patented use of a composition of matter; and practice of a process of a biotechnology patent.[99]

The section makes clear that "the use of a patented machine, manufacture, or composition of matter" still constitutes infringement.[100] For example, if a doctor is using a patented device, such as an MRI machine, then she would still be infringing. Similarly, section 287(c)'s defense does not cover "the practice of a patented use of a composition of matter . . . ."[101] So, if a doctor were to inject a patented drug into a patient, they may still be liable for patent infringement. Finally, the provision does not exclude "the practice of a process in violation of a biotechnology patent," although the statute does not define a biotechnology patent.[102] Likely it involves the use of complex proteins, such as biologics, that can be used for medical treatment. The term is likely intentionally vague given that the biotechnology sector was just beginning to emerge at this time.

TECH. L. 287 (2005).

97. *See* Matal, *supra* note 27, at 491.

98. 35 U.S.C. § 287(c)(1) (2012); *cf.* Emtel, Inc. v. Lipidlabs, Inc., 583 F. Supp. 2d 811, 826 (S.D. Tex. 2008) (finding that a method with steps of "physician communicating through videoconferencing with a remote medical facility to diagnose a medical condition" is not medical activity).

99. 35 U.S.C. § 287(c)(2)(A).

100. *Id.* § 287(c)(2)(A)(i).

101. *Id.* § 287(c)(2)(A)(ii).

102. *Id.* § 287(c)(2)(A)(iii).

Although section 287(c) uses the term "procedures," the language of the provision and its exclusions demonstrate that this provision is directed towards doctors and other medical professionals who are performing medical processes or methods on people, as well as cadavers or non-human animals if the use is for medical research directed to the treatment of humans.[103] Importantly, the defense only excludes medical practitioners from liability; it does not declare these acts to be non-infringing.[104] As a result, other parties could be liable for inducing this activity or for contributing to such infringement under section 271(b) and (c). For example, a company that provides a device and instructions for using the device to perform a patented method could be liable for induced infringement even though the doctor would be immune.

The legislative history shows that Congress was concerned that patents on medical and surgical procedures could inhibit the medical profession's ability to treat patients or to perform research effectively.[105] A key case in spurring Congress to act was *Pallin v. Singer*.[106] The patentee in *Pallin* discovered a method of performing cataract surgery that did not require sutures.[107] He sued 2,000 ophthalmologists for patent infringement.[108] Suing such a large number of doctors, and the potential impact on health care, generated considerable concern in the medical community,[109] even though the patentee ultimately lost the case and the patent.[110]

As one court noted, this provision "has an unusual legislative history" because the original bill was going to ban all patents claiming such procedures.[111] Ultimately Congress passed this immunity, with its sponsor, Senator Frist, noting that "[u]nlike innovations in medical drugs and devices, innovations in pure procedures—such as discovering a better way to suture a wound or set a broken bone—are constantly being made without the need of

103. *Id.* § 287(c)(2)(E) (defining the term "body" to "mean a human body, organ or cadaver, or a nonhuman animal used in medical research or instruction directly relating to the treatment of humans").

104. *Id.* § 287(c)(1) (noting "provisions of sections 281 [civil action for infringement], 283 [injunctions], 284 [damages], and 285 [attorney fees] shall not apply").

105. *See generally* Gerald J. Mossinghoff, *Remedies Under Patents on Medical and Surgical Procedures*, 78 J. PAT. & TRADEMARK OFF. SOC'Y 789 (1996) (detailing the legislative history and impetus for adoption of section 287(c)(1)); *see also generally* Joseph M. Reisman, Comment, *Physicians and Surgeons As Inventors: Reconciling Medical Process Patents and Medical Ethics*, 10 HIGH TECH. L.J. 355 (1995).

106. *See generally* Pallin v. Singer, No. 5:93–202, 1995 WL 608365 (D. Vt. May 1, 1995).

107. *Id.* at *1.

108. R. CARL MOY, 6 MOY'S WALKER ON PATENTS § 20:5 (4th ed. 2016).

109. *Id.*

110. Eric M. Lee, *35 U.S.C. § 287(c)—The Physician Immunity Statute*, 79 J. PAT. & TRADEMARK OFF. SOC'Y 701, 702 (1997) (noting that a consent decree resulted in the patent's invalidation and barred the patentee from enforcing against other medical practitioners and institutions).

111. Emtel, Inc. v. Lipidlabs, Inc., 583 F. Supp. 2d 811, 820 (S.D. Tex. 2008); *see also* Lee, *supra* note 110, at 704–10 (discussing legislative history).

significant research investments" and that "[a]llowing a doctor to enforce a patent on such improvements would have disastrous effects."[112] He identified four potential "disastrous consequences" that could arise without this immunity: exploding health care costs, loss of patient privacy, loss of information exchange among medical professionals, and opening the door to FDA regulation.[113] Throughout, Frist discusses "pure procedures" as targeted by this provision,[114] demonstrating its focus on creating unique treatment for certain patented methods and processes.

E. FIRST INVENTOR DEFENSE ACT OF 1999

The immunity afforded to medical practitioners under section 287(c) was narrowly tailored to address concerns with a particular class of inventions. Congress would shortly use this approach in dealing with another class of inventions it deemed problematic—business methods. Congress adopted the First Inventor Defense Act of 1999 to provide a specific defense for potential infringers of patented business methods.[115] The defense applied "if such person had, acting in good faith, actually reduced the subject matter to practice at least 1 year before the effective filing date of such patent, and commercially used the subject matter before the effective filing date of such patent . . . ."[116] The defense was limited only to "a method of doing or conducting business . . . ."[117] By affording a defense to a subset of method claims, Congress nevertheless demonstrated concern with the scope of such patent claims.

This defense was enacted in response to the Federal Circuit decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*[118] *State Street* made clear that methods of doing business were eligible subject matter under 35 U.S.C. § 101, rejecting the "business method exception" adopted by some regional circuits[119] and the suggestion that such methods were merely ineligible mathematical algorithms.[120] This holding was technically dicta

112. 142 CONG. REC. S12023 (1996) (statement of Sen. Frist); *see also Emtel*, 583 F. Supp. at 820–23 (discussing legislative history).

113. 142 CONG. REC. S12023–24 (1996) (statement of Sen. Frist).

114. *See id.* at S12024 (noting "innovations in pure procedures . . . are constantly being made without the need of significant research investments"). Senator Frist also stated that "[this] legislation would prevent the enforcement of so-called pure medical procedure patents against health professionals." *Id.*

115. First Inventor Defense Act of 1999, Pub. L. No. 106–113, 113 Stat. 1501 (codified at 35 U.S.C. § 273 (2012)).

116. 35 U.S.C. § 273(b)(1).

117. *Id.* § 273(a)(3).

118. *See generally* State St. Bank & Tr. Co. v. Signature Fin. Grp., Inc., 149 F.3d 1368 (Fed. Cir. 1998), *abrogated by In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008).

119. *Id.* at 1375 ("We take this opportunity to lay this ill-conceived exception to rest.").

120. *Id.* at 1373 (holding that "the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price,

because the claims at issue were directed to a machine, not a method.[121] The Federal Circuit, however, quickly confirmed the patentability of methods of doing business in the subsequent case, *AT&T Corp. v. Excel Communications, Inc.*[122]

After *State Street* expanded what constituted patentable subject matter, "a wave of small businesses began seeking patent protection for techniques used in their businesses that they previously believed unpatentable."[123] Although these inventions constituted patent eligible subject matter after *State Street*, businesses that previously used these methods likely would be precluded from patenting the inventions post-*State Street* under the statutory bars of 35 U.S.C. § 102(b).[124] Because these uses would be secret vis-à-vis other patent holders, however, these small companies could not invalidate later patents.[125] Such businesses would be caught in an odd bind as a result.

Congress responded to this concern by adopting the First Inventor Defense.[126] The Defense resolved this inequitable situation by providing such actors with a defense, one that had no implications for the validity of the patents at issue. As one court noted, "[i]t appears from the legislative history, then, that the clear purpose of Congress' enactment of § 273 was to protect both the business method patent owner, as well as the numerous businesses that may have long used the patented method or process prior to the method being patented."[127] Although the legislative history suggests that this provision

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constitutes a practical application of a mathematical algorithm").

121. *Id.* at 1375 ("[C]laim 1 is directed to a machine . . . ."); *see also* John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139, 1160–61 (1999) ("Given the absence of method claims in the patent at suit—not due to happenstance but because of their knowing deletion by the applicant—this portion of the *State Street* opinion may amount to nothing more than *dicta*." (emphasis added)).

122. AT&T Corp. v. Excel Commc'ns, Inc., 172 F.3d 1352, 1361 (Fed. Cir. 1999), *abrogated by In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008); *see also* Rai, *supra* note 95, at 1106 ("Any room for speculation in that regard was eliminated the following year, when the Federal Circuit decided *AT&T Corp. v. Excel Communications, Inc.*").

123. Sabasta v. Buckaroos, Inc., 507 F. Supp. 2d 986, 1003 (S.D. Iowa 2007).

124. *See* Invitrogen Corp. v. Biocrest Mfg., L.P., 424 F.3d 1374, 1380 (Fed. Cir. 2005) ("[T]he test for the public use prong includes the consideration of evidence relevant to experimentation, as well as, *inter alia*, the nature of the activity that occurred in public; public access to the use; confidentiality obligations imposed on members of the public who observed the use; and commercial exploitation."); Metallizing Eng'g Co. v. Kenyon Bearing & Auto Parts Co., 153 F.2d 516, 520 (2d Cir. 1946) (holding that patentee's commercialization of a secret process constitutes an invalidating public use).

125. W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1550 (Fed. Cir. 1983) ("There is no reason or statutory basis, however, on which [the] secret commercialization of a process, if established, could be held a bar to the grant of a patent . . . on that process.").

126. *Bilski*, 561 U.S. at 613, *aff'd* Bilski v. Kappos, 561 U.S. 593 (2010) (Stevens, J., concurring) ("Congress quickly responded to a Federal Circuit decision with a stopgap measure designed to limit a potentially significant new problem for the business community.").

127. *Sabasta*, 507 F. Supp. 2d. at 1003.

could apply to machine claims such as those in *State Street*,[128] the primary concern was with particular methods or processes. Congress could have eliminated business method patents altogether but instead chose this narrower route, demonstrating that Congress saw some value in these methods. Indeed, the Supreme Court refused to categorically exclude patents on business methods due in part to this provision.[129]

Once again, Congress explicitly provided for exceptional treatment of some method claims, although here it was to the detriment of such claims given various policy concerns.[130] This provision demonstrated a retreat from Congress's general trend of expanding patent protection, although Congress could have excluded business methods from patent protection altogether.[131] Congress recently expanded this provision beyond the business method context. Under the AIA, Congress created a prior user rights defense that expanded the First Inventor Defense to include all types of inventions.[132] Nevertheless, Congress was not yet done with its exceptional treatment of patented methods, particularly business methods.

F. COVERED BUSINESS METHOD PROCEDURE

The First Inventor Defense was not the only example of Congress's concern with business methods. A more recent and conspicuous way that the patent statute treats process and method claims distinctly is the transitional Covered Business Method ("CBM") procedures created by Congress in the AIA.[133]

The CBM is one of a number of post-issuance procedures that Congress created in the AIA to allow challenges to patents after they have issued, along with inter partes review ("IPR") and post-grant review ("PGR").[134] IPR permits

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128. H.R. REP. NO. 106–464, at 123 (1999) (Conf. Rep.) ("For example, a method for doing or conducting business that has been claimed in a patent as a programmed machine, as in the State Street case, is a method for purposes of section 273 if the invention could have as easily been claimed as a method. Form should not rule substance.").

129. *See Bilski*, 561 U.S. at 607 ("A conclusion that business methods are not patentable in any circumstances would render § 273 meaningless.").

130. *Bilski*, 561 U.S. at 646 (Stevens, J., concurring) ("The fact that Congress decided it was appropriate to create a new *defense* to claims that business method patents were being infringed merely demonstrates recognition that such claims could create a significant new problem for the business community.").

131. Timothy R. Holbrook, *Liability for the "Threat of a Sale": Assessing Patent Infringement for Offering to Sell an Invention and Implications for the On-Sale Patentability Bar and Other Forms of Infringement*, 43 SANTA CLARA L. REV. 751, 764 (2003) ("The history of § 271 demonstrates that, contrary to the Supreme Court's historical antipathy to patents, Congress has taken an expansive view of them, enlarging the class of activities covered by the patent statute's forms of infringement.").

132. AIA, Pub. L. No. 112-29, § 5, 125 Stat. 284 (2011) (codified as amended in scattered sections of 35 U.S.C.).

133. *Id.* § 18.

134. Gregory Dolin, *Dubious Patent Reform*, 56 B.C. L. Rev. 881, 913–14 (2015) ("The three

third-parties to challenge patents issued both under the 1952 Patent Act and under AIA, although, for AIA patents, a party cannot institute an IPR until nine months after the patent issues.[135] A party can only raise novelty and non-obviousness challenges in IPR based solely on printed publications and earlier patents.[136] One cannot challenge the patent on other grounds, such as subject matter eligibility under section 101 or inadequate disclosure under section 112(a).[137] These substantive limits on the grounds for challenging a patent do not exist in PGRs. A challenger can raise any issue of patentability in a PGR.[138] A PGR must be brought within nine months of the patent issuing,[139] and only America Invents Act patents are eligible for the procedure.[140]

CBMs represent a bit of a hybrid between IPRs and PGRs. By statute, CBMs run like PGRs, so that a party can challenge the validity of the patent on any grounds, particularly whether the invention constitutes eligible subject matter under 35 U.S.C. § 101,[141] or satisfies the various disclosure requirements of 35 U.S.C. § 112(a).[142] Like IPRs, however, a challenge can be

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new mechanisms created by the AIA are (a) post grant review; (b) inter partes review; and (c) covered business method review."). These procedures pose interesting questions for the development of claim construction doctrine. *See generally* Timothy R. Holbrook, *The Patent Trial and Appeal Board's Evolving Impact on Claim Construction*, TEX. INTELL. PROP. L.J. (forthcoming), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2828962 (arguing that PTAB decisions could change prosecution disclaimer doctrine and trigger issue preclusion on claim construction).

135. 35 U.S.C. § 311(c)(1) (2012); *see also* AIA, Pub. L. No. 112–29, § 6, 125 Stat. 284 (2011) (codified as amended in scattered sections of 35 U.S.C.) (IPRs "apply to any patent issued before, on, or after that effective date."). For AIA patents, a challenger may bring a post-grant review challenge in the period after issuance until nine months after issuance. 35 U.S.C. § 321(c) (2012). Thus, AIA patents are subject to PGRs for their first nine months and then IPRs thereafter. 1952 Act patents are subject only to IPRs for the entirety of their term.

136. 35 U.S.C. § 311(b); *see also* Dolin, *supra* note 134, at 919 (noting IPRs are limited to anticipation and obviousness challenges based on patents and printed publications).

137. 35 U.S.C. § 311(b) (limiting IPR challenges to "a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications").

138. 35 U.S.C. § 321(b) (2012) ("A petitioner in a post-grant review may request to cancel as unpatentable 1 or more claims of a patent on any ground that could be raised under paragraph (2) or (3) of section 282(b) (relating to invalidity of the patent or any claim).").

139. *Id.* § 321(c).

140. AIA, Pub. L. No. 112–29, § 6(f)(2)(A), 125 Stat. 284 (2011) (codified as amended in scattered sections of 35 U.S.C.) ("The amendments made by subsection (d) shall take effect upon the expiration of the 1-year period beginning on the date of the enactment of this Act and, except as provided in section 18 and in paragraph (3), shall apply only to patents described in section 3(n)(1).").

141. The Federal Circuit rejected a challenge to the ability of the PTAB to hear section 101 challenges in CBMs. *See* Versata Dev. Grp., Inc. v. SAP Am., Inc., 793 F.3d 1306, 1330 (Fed. Cir. 2015) ("We agree with the USPTO and SAP and we so hold that, looking at the entirety of the statutory framework and considering the basic purpose of CBM reviews, the PTAB acted within the scope of its authority delineated by Congress in permitting a § 101 challenge under AIA § 18.")

142. AIA, Pub. L. No. 112–29, § 18(a)(1), 125 Stat. 284 (2011) (codified as amended in

raised at any time during the patent's lifetime.[143] A party can also use CBMs to challenge both 1952 Patent Act and AIA patents.[144] Unlike IPRs and PGRs, only a party who has been sued can bring a CBM challenge.[145] These procedures are also transitional, with an eight-year sunset provision.[146] Most importantly, the challenged patent must fall within the definition of a "covered business patent."[147] The statute does not offer a robust definition of what this term means.[148] It offers only the following definition: "'covered business method patent' means a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions."[149] The USPTO issued regulations that in theory would help define what constitutes a covered business method.[150] But, as the Federal Circuit noted, "[t]he USPTO's regulation . . . restates verbatim the statutory definition and nothing more."[151] Congress also failed to further define the term "technological inventions,"[152] and the USPTO regulation regarding this term is also relatively unhelpful, noting that the exception's scope will be assessed on a "case-by-case basis" by considering "whether the claimed subject matter as a whole recites a technological feature that is novel and unobvious over the prior art; and solves a technical problem using a technical solution."[153] The courts, including the Federal Circuit, have begun to opine on what these terms mean.[154]

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scattered sections of 35 U.S.C.) ("The transitional proceeding implemented pursuant to this subsection shall be regarded as, and shall employ the standards and procedures of, a post-grant review . . . .").

143. Dolin, *supra* note 134, at 922 ("Unlike PGR that is available only within the first nine months post-issuance, and only for patents with a filing date after March 16, 2013, CBMR is available at any time for all patents that fit within the 'covered business method' definition.").

144. AIA, Pub. L. No. 112–29, § 18(a)(1)(A), 125 Stat. 284 (2011) (excluding CBMs from various statutory provisions governing time limits on IPRs and PGRs).

145. *Id.* § 18(a)(1)(B).

146. *Id.* § 18(a)(3)(A).

147. *Id.* § 18(a)(1)(E).

148. Dolin, *supra* note 134, at 921 ("Given the origin of the CBMR provision it is unsurprising that 'covered business method' is defined in a seemingly narrow yet sufficiently amorphous way, leaving its sweep quite undefined.").

149. AIA, Act. Pub. L. No. 112–29, § 18(d)(1), 125 Stat. 284 (2011) (codified as amended in scattered section of 35 U.S.C.).

150. 37 C.F.R. § 42.301(a) (2012).

151. Versata Dev. Grp., Inc. v. SAP Am., Inc., 793 F.3d 1306, 1323 (Fed. Cir. 2015); *see also id.* at 1325 ("It might have been helpful if the agency had used that authority to elaborate on its understanding of the definition provided in the statute.").

152. *Id.* at 1323 ("Unhelpfully, Congress did not then define a 'technological invention' . . . .").

153. 37 C.F.R. § 42.301(b) (2014).

154. *See Versata Dev. Grp., Inc.*, 793 F.3d at 1323–27 (interpreting both terms); Mkt.–Alerts Pty. Ltd. v. Bloomberg Fin. L.P., 922 F. Supp. 2d 486, 491–92 (D. Del. 2013) (evaluating the

The legislative history shows that Congress was concerned with these particular forms of business method patents and attendant claims for machines to perform those methods. Members of Congress did not use laudatory language in describing such claims. Some referred to the "scourge of business method patents currently plaguing the financial sector," calling them an "anathema to the protection the patent system provides."[155] Concern was raised because these patents cover "abstract and common concepts."[156] Congress was clearly responding to the Federal Circuit's *State Street* decision,[157] even though the Supreme Court had reigned in eligible subject matter—particularly as to processes—considerably over the last few years.[158] Some members were also concerned with the use of such patents by PAEs.[159]

Congress intended to treat a subset of methods in an exceptional way, to the consternation of some other members of Congress.[160] The legislative history does suggest that CBM was to be a narrowly tailored procedure, focusing primarily on patents in the financial industry.[161]

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likelihood of CBM institution in a request for stay).

155. 157 CONG. REC. S1053 (daily ed. Mar. 1, 2011) (statement of Sen. Schumer).

156. *Id.*

157. 157 CONG. REC. H4496 (daily ed. June 23, 2011) (statement of Rep. Crowley) ("It only allows for the review of abstract patents issued since 1988 [sic] when a Federal court ruled that business methods could be patented—a ruling which the U.S. Supreme Court limited significantly last year."(the correct year is 1998)); *id.* at H4497 (statement of Rep. Smith) ("I want to clarify that Section 18 is designed to address the problem of low-quality business method patents that are commonly associated with the Federal Circuit's 1998 State Street decision.").

158. *See generally* Timothy R. Holbrook & Mark D. Janis, *Patent-Eligible Processes: An Audience Perspective*, 17 VAND. J. ENT. & TECH. L. 349 (2015).

159. 157 CONG. REC. H4497 (daily ed. June 23, 2011) (statement of Rep. Grimm) ("Infamous 'patent trolls'—people who aggressively try to enforce patents through the courts in friendly venues—have made business-method patents their specialty in recent years."); 157 CONG. REC. S1053 (daily ed. Mar. 1, 2011) (statement of Sen. Schumer) ("The holders of business method patents then attempt to extract settlements from the banks by suing them in plaintiff-friendly courts and tying them up in years of extremely costly litigation.").

160. 157 CONG. REC. H4496 (daily ed. June 23, 2011) (statement of Rep. Schock) ("Section 18 carves out a niche of business method patents covering technology used specifically in the financial industry and would create a special class of patents in the financial services field subject to their own distinctive post-grant administrative review."). Speaking in opposition to CBM, Representative Schock made the exceptional nature of this legislation plain: "[W]hy are we doing something separate for financial services patents? Why are we doing something separate for the business method patents? Shouldn't all reforms affect all patents and all industries?" *Id.* at H4497.

161. *Id.* at H4497 ("I would like to place in the record my understanding that the definition of 'covered business method patent,' Section 18(d)(1) of H.R. 1249, the America Invents Act, is intended to be narrowly construed to target only those business method patents that are unique to the financial services industry in the sense that they are patents which only a financial services provider would use to furnish a financial product or service." (statement of Rep. Shuster)); *see also id.* ("Unfortunately, many of these patents are being used by aggressive trial lawyers to extort money from deep pockets." (statement of Rep. Goodlatte)); 157 CONG. REC. S1053 (daily ed. Mar. 1, 2011) ("Often, business method patents are issued for practices that have been in widespread use in the financial industry . . . . We want to make sure to capture the business method patents which are at the heart of the problem and avoid any collateral circumstances."

Nevertheless, even with the circumscribed scope of the CBM process, it is yet another example of Congress singling out method claims for unique treatment. Like the First Inventor Defense, Congress expressed concern—if not outright disdain—for certain forms of patented business methods, particularly those in the financial industry.[162]

IV. THE COURTS' EXCEPTIONAL AND INCONSISTENT TREATMENT OF METHOD CLAIMS

When Congress wants to treat method and process claims differently, it clearly knows how to do so. In these contexts, Congress identified a problem with respect to process claims and legislatively addressed them. Undeniably, process patents do pose some unique problems, so such congressional reactions are to be expected. Given how Congress clearly has the capacity to adopt method-specific provisions, one would think that provisions that treat processes just like any other types of inventions would be treated on equal footing.

This is not so. Courts have provided exceptional, and often inconsistent, treatment of method and process claims beyond these specialized provisions. The courts have carved out a number of unique doctrines or exceptions for method claims that have no statutory basis, and they have done so knowingly.[163] This Part explicates the case law regarding patented processes. In particular, it looks at areas where the statute is facially neutral with respect to the treatment of processes relative to other forms of inventions. The courts, nevertheless, have carved out patented processes for exceptional, and at times inconsistent, treatment without any consideration to the technological context of the process. This Part explores these unique treatments of method claims and highlights how, at times, they are contrary to the statute and, even worse, create irreconcilable doctrinal inconsistencies.

A. THE PATENT MARKING STATUTE

To help effect notice of patent rights, the Patent Act creates an incentive for patent owners to mark products they are selling with the patent number. If the patent owner marks their product, then they are entitled to all infringement damages,[164] capped at six years prior to filing an infringement complaint,[165] regardless of when the accused infringer had notice of their infringement. Marking acts as a form of constructive notice to would-be

(statement of Sen. Schumer)).

162. *See supra* notes 155–61 and accompanying text.

163. Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 576 F.3d 1348, 1363 (Fed. Cir. 2009) (en banc) ("Our precedents draw a clear distinction between method and apparatus claims for purposes of infringement liability, which is what Section 271 is directed to.").

164. 35 U.S.C. § 287(a) (2012).

165. *Id.* § 286.

infringers.[166] If the patented item is capable of marking—but the patent holder fails to do so—then damages only begin to accrue once the patent holder has provided actual notice to the infringer.[167] The patent owner must affirmatively provide such notice; independent, actual knowledge by the infringer will not satisfy the marking statute's notice requirement.[168] Even if the infringer is aware of the patent, damages will not start to run until the patent holder provides notice to the infringer.[169]

The patent marking statute operates by permitting patentees, or those producing the invention for them, to "give notice to the public that the same is patented, either by fixing thereon the word 'patent' or the abbreviation 'pat.', together with the number of the patent . . . ."[170] The America Invents Act added a "virtual" marking provision.[171] Now, a patentee can satisfy the marking statute by placing "'patent or pat.' . . . together with an address of a posting on the Internet, accessible to the public without charge for accessing the address, that associates the patented article with the number of the patent . . . ."[172]

The patent marking statute contemplates that the patentee is selling something that can be marked.[173] The marking statute is inapplicable if the patent holder is not selling the patented invention.[174] Moreover, if the patent holder knowingly labels an item as covered by a patent that actually is not covered, then the patent holder can be liable for false marking, with penalties of up to $500 per each falsely marked article.[175]

Aside from a non-practicing inventor, the courts also have addressed whether the patent-marking statute applies to patented methods and

166. Gart v. Logitech, Inc., 254 F.3d 1334, 1345 (Fed. Cir. 2001) ("The statute permits . . . constructive notice, which is accomplished by marking the article with the patent number . . . .").

167. 35 U.S.C. § 287(a) ("In the event of failure so to mark, no damages shall be recovered by the patentee in any action for infringement, except on proof that the infringer was notified of the infringement and continued to infringe thereafter, in which event damages may be recovered only for infringement occurring after such notice.").

168. Amsted Indus. Inc. v. Buckeye Steel Castings Co., 24 F.3d 178, 187 (Fed. Cir. 1994) ("The correct approach to determining notice under section 287 must focus on the action of the patentee, not the knowledge or understanding of the infringer.").

169. *Id.*

170. 35 U.S.C. § 287(a).

171. AIA, Pub. L. No. 112–29, § 16, 125 Stat. 284 (2011) (codified as amended in scattered sections of 35 U.S.C.).

172. 35 U.S.C. § 287(a).

173. *Id.* (noting "fixing" the mark on the "patented article . . . or when, from the character of the article, [fixing on the article] can not be done, by fixing to it, or to the package . . . a label containing a like notice").

174. Dennis Crouch, *The Marking Requirement: Here Is How the Statute Has Been Interpreted*, PATENTLY-O (Mar. 2, 2010), http://patentlyo.com/patent/2010/03/the-marking-requirement-here-is-how-the-statute-has-been-interpreted.html.

175. 35 U.S.C. § 292(a); *see also* Forest Grp., Inc. v. Bon Tool Co., 590 F.3d 1295, 1301 (Fed. Cir. 2009) (holding that "the statute clearly requires that each article that is falsely marked with intent to deceive constitutes an offense under 35 U.S.C. § 292").

processes. The Federal Circuit has held—in the face of ambiguous language—that generally the marking statute does not apply to method claims.[176] The patent-marking statute also does not apply when only method claims are asserted, even if the patent contains both method and apparatus claims.[177] The court's reasoning is as follows: "where the patent claims are directed to only a method or process there is nothing to mark."[178] Thus, the statute's requirement for the marking of an "article" excludes owners of patented processes from the marking requirement.

This approach generally works to the benefit of method patent holders. Because the marking statute simply does not apply, recoverable damages will begin to accrue as of the moment of infringement, regardless of whether the patent owner has provided actual notice. Given the intangible nature of process and method claims, it creates an odd paradox: the types of inventions for which notice might seem the most problematic are categorically excluded from the added constructive notice provisions of the marking status. Consequently, this act of exceptionalism is problematic.

B. THE INCONSISTENT TREATMENT OF "SALES" OF PROCESS PATENTS FOR INFRINGEMENT, EXHAUSTION, AND VALIDITY PURPOSES

Patents provide the right to exclude others from performing a variety of acts. The most basic rights are delineated in 35 U.S.C. § 271(a). This provision defines infringement as any unauthorized making, using, selling, offering to sell, or importing of the patented invention.[179] Section 271(a) is neutral as to the *types* of inventions that can be infringed under this provision; it merely states that it applies to "any patented invention."[180] Section 100 of the Patent Act defines "invention" unhelpfully as "invention or discovery,"[181] but section 101 does delineate the statutory categories of inventions: processes, machines, manufactures, and compositions of matter.[182] The infringement definitions of section 271(a) also contrast with section 271(g), which

176. *See* Bandag, Inc. v. Gerrard Tire Co., 704 F.2d 1578, 1581 (Fed. Cir. 1983) ("[I]t is . . . settled in the case law that the notice requirement of this statute does not apply where the patent is directed to a process or method."); *see also* JANICE M. MUELLER, PATENT LAW 915 (5th ed. 2016) ("The § 287(a) marking statute does not apply to patents that claim only processes or methods, because in such cases there is usually no tangible article to mark.").

177. Crown Packaging Tech., Inc. v. Rexam Beverage Can Co., 559 F.3d 1308, 1317 (Fed. Cir. 2009) ("In this case . . . the patentee only asserted method claims despite the fact that the patent contained both method and apparatus claims. . . . Because Rexam asserted only the method claims of the '839 patent, the marking requirement of 35 U.S.C. § 287(a) does not apply.").

178. Am. Med. Sys., Inc. v. Med. Eng'g Corp., 6 F.3d 1523, 1538 (Fed. Cir. 1993).

179. 35 U.S.C. § 271(a).

180. *Id.*

181. *Id.* § 100.

182. *Id.* § 101.

specifically is limited to processes patented in the United States.[183] Congress knows how to specify when an infringement provision applies only to a particular type of invention. As such, the term "invention" in section 271(a) at least facially seems to apply to all four categories of inventions listed in section 101.[184]

Section 271(a) uses the disjunctive, meaning that each of the listed activities is an independent form of infringement.[185] Nevertheless, the Federal Circuit has suggested that process and method claims should be treated differently for purposes of infringement under section 271(a).[186] In particular, method claims generally cannot be infringed through acts of "making" the invention.[187] This is true even though historically, method claims remain tied to some sort of tangible apparatus that would perform the method.[188] There is a dearth of authority on what constitutes a "making" of the claimed invention,[189] but, under current law, method claims are categorically excluded from infringement by "making" the claimed invention.[190] Method claims are directed to the steps of the process, and not the apparatus that performs them. Merely having the potential to infringe is insufficient.[191] For example, making a kit to perform a patented process is not

183. *Id.* § 271(g).

184. Holbrook, *supra* note 51, at 503 ("The plain language of § 271(a) does not create different forms or requirements for infringement based on the type of invention in the claim. Nevertheless, the Federal Circuit has carved out different rules for infringement depending on whether the claimed invention is a method or a system.").

185. 5-16 DONALD S. CHISUM, CHISUM ON PATENTS § 16.02(3)(a) (2015) ("Section 271(a) use[s] the disjunctive 'or.' This codifies the long-standing rule that making a patented product without use or sale will constitute infringement.").

186. *See, e.g.*, NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282, 1316 (Fed. Cir. 2005) ("Because the analytical frameworks differ, we will separately analyze the alleged infringing acts, considering first the system claims and then the claimed methods.").

187. Joy Techs., Inc. v. Flakt, Inc., 6 F.3d 770, 773 (Fed. Cir. 1993).

188. *See* Holbrook & Osborn, *supra* note 68, at 1322–23 (noting the "historical anchoring" of patent law to the physical); *see also* Mark P. McKenna & Christopher Jon Sprigman, *What's In, and What's Out: How IP's Boundary Rules Shape Innovation* 19–20 (February 19, 2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2735073 (discussing patent law's struggle with the tangible).

189. Bauer & Cie v. O'Donnell, 229 U.S. 1, 10 (1913) ("The right to make can scarcely be made plainer by definition, and embraces the construction of the thing invented."); Coburn Optical Indus. v. Cilco, Inc., 610 F. Supp. 656, 658 n.2 (M.D.N.C. 1985) ("Were it not for the paucity of law defining the simple term 'make' the Court would impose sanction on counsel for advancing this legal theory, especially after the de facto abandonment of this argument at oral argument.").

190. *See Joy Techs., Inc.*, 6 F.3d at 773 (describing *Standard Havens* as follows: "the method claims of the patent at issue were held not directly infringed by the mere sale of an apparatus capable of performing the claimed process"); Standard Havens Prods., Inc. v. Gencor Indus., Inc., 953 F.2d 1360, 1374 (Fed. Cir. 1991) ("The '938 patent claims a method for producing asphalt, not the apparatus for implementing that process. Thus, the sale in the United States of an unclaimed apparatus alone does not make Gencor a contributory infringer of the patented method.").

191. *See Joy Techs., Inc.*, 6 F.3d at 774–75 ("[A] method claim is not directly infringed by the

infringement in and of itself; instead, there is only infringement when the kit is used.[192] As such, under current law, there is no infringement until the process is performed.[193]

1. No Infringement of Method Claims by Selling or Offering to Sell

The exclusion of method claims from section 271(a) protections is not limited to "making," however. Federal Circuit has also strongly suggested that it is not possible to infringe a method claim by selling or offering to sell the claimed invention. In *Joy Technologies, Inc. v. Flakt, Inc.*, the Federal Circuit faced an issue of the appropriate scope of an injunction.[194] The court rejected the argument "that the making or selling of an industrial plant designed to enable use of the patented FGD system may constitute a sale of the process claimed in the '873 patent within the meaning of section 271(a)."[195] Of course, *Joy Technologies* dealt with the permissible scope of the injunction, so there had already been a determination of infringement. Therefore, the court did not have the issue of an infringing sale of, or offer to sell, a patented method squarely before it.

The Federal Circuit later addressed this potential in *NTP v. Research In Motion*.[196] The patent at issue included claims regarding a method of integrating email with wireless communications, and the accused device was the BlackBerry system. Among one of the myriad issues the court faced in the case was whether it was possible to sell or offer to sell the patented method, particularly when part of the method was performed in Canada, and thus outside of the United States.[197] The court, considering this question as one of

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sale of an apparatus even though it is capable of performing only the patented method.").

192. *See, e.g.*, Giese v. Pierce Chem. Co., 29 F. Supp. 2d 33, 35 (D. Mass. 1998) ("As to those kits, Vector argues that Pierce does not practice the patented methods, and that any infringement must be based on infringement by end users who do practice the patented methods without permission."). The seller of the kit could be liable for inducing infringement or for contributory infringement under 35 U.S.C. § 271(b) & (c). *Joy Techs., Inc.*, 6 F.3d at 774 ("That the sale of equipment to perform a process is not a direct infringement of the process within the meaning of section 271(a) is further highlighted by 35 U.S.C. § 271(c) (1988), discussed *infra*, which provides in pertinent part that such a sale may be a contributory infringement. To hold that the sale of equipment which performs a patented process is itself a direct infringement would make that portion of section 271(c) relating to the sale of an apparatus for use in practicing a patented process meaningless.").

193. *Joy Techs., Inc.*, 6 F.3d at 773 ("[A] method or process claim is directly infringed only when the process is performed."). *But see infra* notes 324–30 and accompanying text (arguing that method claims should be infringed by "making" the invention if the apparatus has no substantial non-infringing uses).

194. *Joy Techs., Inc.*, 6 F.3d at 773.

195. *Id.*

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

197. *Id.* at 1318. The court reached this issue because it concluded there was no infringement by "using" the patented method because one of the steps of the method occurred outside of the United States. *Id.* See *infra* Part IV.C for a critique of the exceptional extraterritorial treatment of method claims vis-à-vis system claims. Interestingly, this lengthy exegesis on section

first impression, reviewed section 271(a) and noted that the statute does not "specify which infringing acts apply to which types of claims."[198] Reviewing the case law interpreting the "sales" portion of section 271(a), the court noted that a sale requires "a thing capable of being transferred."[199] The court then suggested that method claims cannot be infringed through sales or offer to sell: "It is difficult to envision what property is transferred merely by one party performing the steps of a method claim in exchange for payment by another party. Moreover, performance of a method does not necessarily require anything that is capable of being transferred."[200]

The court then turned to the legislative history of section 271(a), noting that "Congress has consistently expressed the view that it understands infringement of method claims under section 271(a) to be limited to use."[201] The court also looked to the TRIPS Agreement, which only requires countries to provide an exclusive right "to prevent third parties . . . from the act of using the process" if "the subject matter of a patent is a process."[202] The other exclusive rights—using, selling, offering to sell, or importing—apply only to the products of patented processes.[203] Thus, according to the court, TRIPS "makes clear that claimed processes are . . . protected only from" infringing uses.[204]

The court ultimately held that there were no infringing sales or offers to sell the claimed method in this case, though it based the holding on the facts of the case and not a bright-line limit on the sale of method claims.[205] Notwithstanding the strong language to which it referred, the court noted that it "need not and do[es] not hold that method claims may not be infringed under the 'sells' and 'offers to sell' prongs of section 271(a)[,]" holding "only that RIM's performance of at least some of the recited steps of the asserted method claims as a service for its customers cannot be considered to be selling or offering to sell the invention . . . ."[206] Such a fact-specific holding is odd given the lengthy legal exegesis that precedes it. It also strongly suggests, though, that the court believes that method claims can only be infringed by use and not by sales or offers to sell.

271(a) was added to the opinion when it was reissued. The original decision at the Federal Circuit merely concluded that there was an infringing use of the system without delving into the method claims. *See* NTP, Inc. v. Research In Motion, Ltd., 392 F.3d 1336, 1369–70 (Fed. Cir. 2004).

198. *NTP, Inc.*, 418 F.3d at 1319.

199. *Id.*

200. *Id.*

201. *Id.*

202. TRIPS Agreement art. 28(1)(b).

203. *Id.* art. 28(1)(a). This provision corresponds with section 271(g) of the U.S. patent statute. 35 U.S.C. § 271 (2012).

204. *NTP, Inc.*, 418 F.3d at 1320.

205. *Id.* at 1320–21.

206. *Id.*

When confronted with the issue again, the Federal Circuit again refused to provide a definitive answer. In *Ricoh Co. v. Quanta Computer Inc.*, the patentee argued that the sale of software that permitted the performance of the claimed method constituted an infringing sale of, or offer to sell, the invention.[207] The Federal Circuit recognized that it left this question open in *NTP* but expressly refused to answer it, instead deciding the case on a narrower ground.[208] The court distinguished the software from the method itself: "software is not itself a sequence of actions, but rather it is a set of instructions that directs hardware to perform a sequence of actions."[209] In essence, software is one-step removed from the actual performance of the method. It is essentially the potential to perform the method, not the actual method itself. The court therefore concluded that the sales and offers to sell the software did not constitute infringement of the method claim.[210]

Although it did not answer the question, the court's reasoning, as in *NTP*, strongly suggests that it may be impossible to sell a method. Its distinction between software and the method itself would apply to all fact scenarios, where something that facilitates the performance of the method is a step shy of performance of the actual method itself. So, while the court has refused to answer the question, it effectively leaves little to no room for infringing sales of, or offers to sell, method claims.

At a general level, the differential treatment of method claims makes some sense. If the claim is only infringed by performance of the steps, and not by the mere creation of an apparatus to perform the method or software that triggers performance of the method, then it would seem to necessarily follow that only uses can infringe. This approach is also consistent with the view that method claims are about intangible steps and not the physical instantiation of the invention. The Federal Circuit in *NTP* and *Ricoh* gesture towards a bright-line proscription of infringement of method claims through sales or offers to sell, but the court never adopted such a rule. The Federal Circuit, though, has never found liability in that context, suggesting that in effect such a rule may be in existence.[211] This issue technically remains open in the Federal Circuit.

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207. Ricoh Co. v. Quanta Comput. Inc., 550 F.3d 1325, 1335 (Fed. Cir. 2008).

208. *Id.* ("As did the court in *NTP*, we conclude that we need not definitively answer this question to conclude as a matter of law that Quanta did not sell or offer to sell the invention covered by Ricoh's method claims.").

209. *Id.*

210. *Id.* ("Accordingly, we hold that a party that sells or offers to sell software containing instructions to perform a patented method does not infringe the patent under § 271(a).").

211. W.L. Gore & Assocs., Inc. v. Medtronic, Inc., 874 F. Supp. 2d 526, 544 (E.D. Va. 2012) ("The Federal Circuit has never found a method claim to infringe the 'sells' or 'offers to sell' prong of Section 271(a) . . . ."), *aff'd*, 530 F. Appx. 939 (Mem.) (Fed. Cir. 2013).

2. Methods Can Be Sold for Purposes of Exhaustion and the On-Sale Bar

The thought that a method claim can never be "sold," however, is inconsistent with other doctrines involving the commercialization of method claims. For example, the Supreme Court has made it clear that method claims can be "sold" so as to trigger patent exhaustion, also known as the "first sale" doctrine. Patent exhaustion is an affirmative defense to patent infringement that arises when a patent holder or his authorized agent sells an embodiment of the claimed invention without restriction.[212] When this happens, "the patentee has bargained for and received full value for the goods" so that he can no longer assert the patent against those particular instantiations of the invention.[213]

In *Quanta Computer, Inc. v. LG Electronics, Inc.*, the Supreme Court squarely addressed the issue of whether exhaustion doctrine applies to method claims.[214] The Federal Circuit had held that method claims were categorically excluded from the exhaustion doctrine, noting that "the sale of a device does not exhaust a patentee's rights in its method claims."[215] The Supreme Court disagreed, holding that method claims can be exhausted by such a sale. The Court rejected the distinction adopted in *NTP* between the apparatus and the method:

> It is true that a patented method may not be sold in the same way as an article or device, but methods nonetheless may be "embodied" in a product, the sale of which exhausts patent rights. Our precedents do not differentiate transactions involving embodiments of patented methods or processes from those involving patented apparatuses or materials.[216]

Patent exhaustion can therefore be triggered by the sale of something embodying the process.[217] The Court recognized that carving out method claims from patent exhaustion would permit patent drafters to game the system by including both system and method claims in patents, thus avoiding patent exhaustion.[218] Under Supreme Court precedent, method claims can be "sold" so as to trigger exhaustion, creating tension with the reasoning in *NTP* and *Ricoh*.[219]

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212. Keurig, Inc. v. Sturm Foods, Inc., 732 F.3d 1370, 1373 (Fed. Cir. 2013).

213. *Id.*

214. Quanta Comput., Inc. v. LG Elecs., Inc., 553 U.S. 617, 628–35 (2008).

215. LG Elecs., Inc. v. Bizcom Elecs., Inc., 453 F.3d 1364, 1370 (Fed. Cir. 2006), *rev'd sub. nom., Quanta Comput., Inc.*, 553 U.S 617.

216. *Quanta Comput., Inc.*, 553 U.S. at 628–29.

217. *Id.* at 629.

218. *Id.* at 629–30 ("By characterizing their claims as method instead of apparatus claims, or including a method claim for the machine's patented method of performing its task, a patent drafter could shield practically any patented item from exhaustion.").

219. District courts have recognized this tension. CLS Bank Int'l v. Alice Corp., 667 F. Supp.

The inconsistent treatment of the commercialization of method claims is not limited to patent exhaustion, however. The Federal Circuit has held that method claims are subject to the on-sale bar of section 102(b) of the 1952 Patent Act and, as a result, likely section 102(a) of the AIA. Both acts preclude a patent if the invention has been on-sale before a certain point in time.[220] The 1952 Act precludes patentability if the invention was for sale more than one year before the effective application date.[221] The AIA precludes patentability if the invention was on-sale by an unrelated third party prior to the filing date or if it was on-sale by the inventor or someone with a connection to the inventor more than one year prior to the filing date.[222]

Given the reasoning of *NTP* and *Ricoh*, one might expect method claims to be exempt from the on-sale bar: method claims seemingly cannot be infringed by sales or offers to sell, so how can they be invalidated under the on-sale bar? That intuition would be wrong. The court has recognized that sales of a patented method are different then sales of tangible items.[223] Nevertheless, the Federal Circuit has invalidated method claims on the basis of the on-sale bar.[224] In *Scaltech, Inc. v. Retec/Tetra, LLC.*, the court alluded to the nature of the claim—a method—and the potential for method claims to operate differently in the context of the on-sale bar.[225] The Federal Circuit noted that "the fact that the process itself was not offered for sale but only

2d 29, 37 (D.D.C. 2009) ("The court's implication that a method could be sold for purposes of § 271(a) is supported by the Supreme Court's decision in *Quanta* . . . ."); *accord* WesternGeco L.L.C. v. ION Geophysical Corp., 869 F. Supp. 2d 793, 798–99 (S.D. Tex. 2012) ("This Court echoes the conclusion reached in *CLS Bank* that, if a method may be sold for exhaustion purposes, there is 'no persuasive reason why a method could not also be sold for infringement purposes.'" (quoting *CLS Bank Int'l*, 667 F. Supp. 2d at 37)); Optigen, LLC v. Int'l Genetics, Inc., 777 F. Supp. 2d 390, 403, 403 n.11 (N.D.N.Y. 2011) (rejecting the argument that methods cannot be sold or offered for sale "[f]or the reasons articulated by Judge Collyer in *CLS Bank Int'l v. Alice Corp.*, 667 F.Supp.2d 29 (D.D.C.2009)").

220. AIA, 35 U.S.C. § 102(a)(1), (b)(1) (2012); 1952 Patent Act, 35 U.S.C. § 102(b) (2012).

221. 1952 Patent Act, 35 U.S.C. § 102(b).

222. AIA, 35 U.S.C. § 102(a)(1), (b)(1).

223. *See* Minton v. Nat'l Ass'n of Sec. Dealers, Inc., 336 F.3d 1373, 1378 (Fed. Cir. 2003) ("The sale of a tangible item is usually a straightforward event; the item is transferred from the seller to the buyer, who normally owns it outright. In contrast, a process is a series of acts, and the concept of sale as applied to those acts is ambiguous.").

224. *See, e.g.*, Space Sys./Loral, Inc. v. Lockheed Martin Corp., 271 F.3d 1076, 1081 (Fed. Cir. 2001) (holding a method claim is not invalid under the on-sale bar because it is not ready for patenting, but not merely because the bar does not apply to method claims); Scaltech, Inc. v. Retec/Tetra, LLC., 269 F.3d 1321, 1327 (Fed. Cir. 2001) (holding a refinery waste disposal process is invalid under the on-sale bar); Grp. One, Ltd. v. Hallmark Cards, Inc., 254 F.3d 1041, 1049 (Fed. Cir. 2001) (finding there was no commercial offer to sell, *inter alia*, method claims, but not because on-sale bar does not apply to method claims); Robotic Vision Sys., Inc. v. View Eng'g, Inc., 249 F.3d 1307, 1311 (Fed. Cir. 2001) (invalidating a method of scanning the leads on integrated circuit devices under the on-sale bar, with no discussion of issues because a claim is also a method).

225. *Scaltech, Inc.*, 269 F.3d at 1328.

offered to be used by the patentee to process waste does not take it outside the on sale bar rule."[226] Similar to section 271(a), section 102(b) applies to the sale of the invention and, as the Federal Circuit reasoned, "in this case, the invention was a process, as permitted by § 101. As a result, the process involved in this case is subject to § 102(b)."[227]

This approach to reading section 102(b) contrasts sharply with the *NTP* court's reading of section 271(a) as not "specify[ing] which infringing acts apply to which types of claims."[228] The court in *Scaltech* took the statute's facial neutrality to mean that the on-sale bar applied to method claims, whereas the *NTP* court took it as an invitation to treat method claims differently from other types of claims for purposes of infringement.[229]

What can explain this disparate treatment of the commercialization of method claims? To be fair, the Federal Circuit in *NTP* did recognize the tension its reasoning created with the on-sale bar. The court referred to the cases applying the on-sale bar to method claims, but then reasoned, "we have previously 'decline[d] to import the authority construing the "on-sale" bar of § 102(b) into the "offer to sell" provision of § 271(a).'"[230] The court then supported its restrictive application of the commercial forms of infringement to method claims by drawing on the Supreme Court's general restrictive approach to defining patent infringement absent clear Congressional intent[231] as well as the court's view that "[t]he indication we have from Congress on infringement by selling or offering to sell method claims shows that it believes the beachhead is narrow."[232]

This reasoning leaves much to be desired, however. It ignores the plain meaning of the statute—that all inventions are subject to section 271(a), just

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226. *Id.*

227. *Id.* The invalidating commercial activity was an unsuccessful offer by Scaltech to third parties to process their waste. *Id.* at 1328–29.

228. NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282, 1319 (Fed. Cir. 2005).

229. The Federal Circuit has noted, however, that it treats methods and processes differently even within the context of the on-sale bar. *See* Meds. Co. v. Hospira, Inc, 827 F.3d 1363, 1374 (Fed. Cir. 2016) (en banc) ("Though those [on-sale bar] cases are distinguishable on multiple grounds, we find particularly significant the fact that the inventions-at-issue there were processes or methods."); *see also* Minton v. Nat'l Ass'n of Sec. Dealers, Inc., 336 F.3d 1373, 1382 (Fed. Cir. 2003) (Gajarsa, J., concurring) ("[T]he majority . . . also suggests that invented processes warrant different treatment from invented tangible products in an on-sale bar analysis. . . . I write separately because nothing in § 102(b) compels differential treatment between a sale of an invention that is a tangible item and an invention that is a series of steps in a process." (citation omitted)).

230. *NTP, Inc.*, 418 F.3d at 1320 (alteration in original) (quoting 3D Sys., Inc. v. Aarotech Labs., Inc., 160 F.3d 1373, 1379 n.4 (Fed. Cir. 1998)).

231. *Id.* (citing Deepsouth Packing Co. v. Laitram Corp., 406 U.S. 518, 531 (1972) for the proposition that infringement should be narrowly interpreted). *But see* Holbrook, *supra* note 131, at 764 (arguing that narrowly interpreting infringement provisions is inappropriate given Congress's continual expansion of rights).

232. *NTP, Inc.*, 418 F.3d at 1320.

as they are to section 102(b). Moreover, the statement that the court has not imported the on-sale precedent into the section 271(a) is only partially correct: the Federal Circuit at times has relied upon on-sale bar precedent to inform its analysis of infringing offers to sell the invention.[233] Most importantly, there is no discussion as to how, economically speaking, these provisions differ. I have argued elsewhere that economically, the two provisions are the same: the concern is with the economic appropriation of the invention, one before the patent issues and the other after.[234] The only differences are the legal consequences of such activity, invalidity versus infringement.[235] Finally, *Quanta*, decided after *NTP*, provides more weight towards allowing infringement for sales and offers to sell the patented method, particularly where the actual item sold has only one use, to perform the claimed process.

Section 271(a) discusses the infringement of inventions.[236] Yet, the Federal Circuit, through judicial gloss, has singled out process and method claims for unfavorable treatment, seemingly relegating infringement of such claims to uses only.[237] Such exceptional treatment is inconsistent, however, with the treatment of method claims by the Supreme Court and by the Federal Circuit in its own on-sale bar jurisprudence. A number of district courts have begun to recognize this tension and have limited the reasoning of *NTP* to the facts of that case.[238] Others, however, have taken the language of *NTP* at its face and have rejected assertions of infringement of method claims by selling

233. *See* Rotec Indus., Inc. v. Mitsubishi Corp., 215 F.3d 1246, 1254 (Fed. Cir. 2000) (drawing on the on-sale bar to inform the analysis of section 271(a)'s "offer to sell" provision).

234. Holbrook, *supra* note 131, at 778 ("The 'on-sale bar' prevents the patentee from extracting the value of the patent prior to actually receiving the patent, mitigated by the one-year grace period. The economics underlying the two provisions are the same." (citing 5-16 DONALD S. CHISUM, CHISUM ON PATENTS §16.02[5][g], at 25–33 & n.33 (2015))).

235. *See id.* at 778–84 (exploring potential policy differences between invalidity pursuant to the on-sale bar and infringement pursuant to an offer to sell the claimed invention).

236. 35 U.S.C. § 271(a) (2012) ("Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.").

237. *See supra* Part IV.A.

238. *See, e.g.*, WesternGeco L.L.C. v. ION Geophysical Corp., 869 F. Supp. 2d 793, 796–97 (S.D. Tex. 2012) ("Although the Federal Circuit has never found a method claim to infringe under the "sells" or "offers to sell" prongs, it has, contrary to Defendants' contentions, left open the possibility that a method claim could infringe under this prong."); Optigen, LLC v. Int'l Genetics, Inc., 777 F. Supp. 2d 390, 403 n.11 (N.D.N.Y. 2011) (permitting infringement by selling or offering to sell a patented method and noting that the Federal Circuit never actually answered whether such infringement was permitted in *NTP*); CLS Bank Int'l v. Alice Corp., 667 F. Supp. 2d 29, 36 (D.D.C. 2009) ("The Federal Circuit in *NTP* could have held that method patents may never be infringed by sales or offers to sell, but it specifically declined to do so."). Notably none of these cases have actually found infringement on this basis; they have denied summary judgment of non-infringement.

or offering to sell the invention.[239] Even though the district courts are currently split on this issue, the Federal Circuit has yet to squarely address this issue post-*Quanta*.[240]

C. The Federal Circuit Affords Method Claims Narrow Extraterritorial Treatment Under Section 271(a) and (f), in Contrast with Apparatus Claims

In addition to the inconsistent treatment of the commercialization of process and method claims, the courts have treated method claims less favorably with respect to extraterritorial protections under both section 271(a) and (f).

1. Extraterritorial Protection Under Section 271(a) for Sales of, and Offers to Sell, the Patented Invention

Section 271(a) of the Patent Act limits infringement to acts within or importation into the United States.[241] Given this strict territorial language, it may seem odd to talk about the extraterritorial protections afforded to patent holders by that provision. The Federal Circuit and the U.S. Court of Claims, a predecessor court to the Federal Circuit, nevertheless have permitted such protection, at least for patented systems. The Federal Circuit has restricted greatly the scope of any extraterritorial protection for method and process claims, however.

The first way in which the Federal Circuit has provided extraterritorial protection for patent owners is through its interpretation of infringing sales and offers to sell. Although the sales and offers to sell must be "within the United States," the Federal Circuit has made clear that the location of the *ultimate sale* determines whether there is infringement under section

239. *See, e.g.*, Isis Pharms., Inc. v. Santaris Pharma A/S Corp., No. 3:11–cv-2214–GPC–KSC, 2014 WL 2531973, at *4 (S.D. Cal. June 4, 2014) (dismissing claims for selling or offering to sell the claimed method "given the Federal Circuit's near categorical rejection of claims for infringement of a method patent under the 'sale' and 'offers to sale' prongs of § 271(a)"); W.L. Gore & Assocs., Inc. v. Medtronic, Inc., 874 F. Supp. 2d 526, 545 (E.D. Va. 2012) (noting that "the Federal Circuit appears to have concluded that this prong does not apply to method claims"); *In re* Bill of Lading Transmission & Processing Sys. Patent Litig., 695 F. Supp. 2d 680, 688 (S.D. Ohio 2010) ("[T]his Court is persuaded that 'offer to sell' liability does not apply to claims of infringement of a method patent."); Transocean Offshore Deepwater Drilling, Inc. v. GlobalSantaFe Corp., 400 F. Supp. 2d 998, 1011 (S.D. Tex. 2005) ("[T]he court concludes that the prohibition against 'offers to sell' added to § 271(a) in 1994 is not applicable to the method claims for which Transocean seeks summary judgment.").

240. *W.L. Gore & Assocs., Inc.*, 874 F. Supp. 2d at 544 ("Therefore, it remains unclear whether a difference exists between selling the 'performance of a method' and selling a final product that encompasses a method of making that product.").

241. 35 U.S.C. § 271(a) (2012) ("Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.").

271(a).[242] This is true even if an offer is never accepted and the sale is never consummated.[243] For example, negotiations in Norway to sell the patented invention in the United States constitute an infringing offer to sell, even if the sale is ultimately not completed.[244] Interestingly, when the negotiations take place in the United States to sell something abroad, there is no infringement.[245] The result means that there is infringement when potentially no activity takes place in the United States, but there is no infringement even with clear domestic activity.[246] Nevertheless, the Federal Circuit's interpretation of infringing sales and offers to sell provides extraterritorial protection to patent holders.

This protection is not available, however, to process or method claims under present law. Taking the Federal Circuit's language in *NTP* and *Ricoh* seriously means that these types of claims cannot be infringed through sales or offers to sell. *Standard Havens Products, Inc. v. Gencor Industries, Inc.* presents a comparable scenario.[247] In that case, the sale of the plant to perform the patented process took place in the United States, but the plant actually was located overseas.[248] Neither the sale of the plant nor the use of the plant to perform the method overseas triggered liability.[249] As such, these forms of patent claims are denied the extraterritorial protections under section 271(a) afforded all other types of patents. As discussed above, the patent exhaustion and on-sale bar doctrines suggest that such a proscription is not necessary.

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242. Transocean Offshore Deepwater Drilling, Inc. v. Maersk Contractors USA, Inc., 617 F.3d 1296, 1309 (Fed. Cir. 2010) ("The focus should not be on the location of the offer, but rather the location of the future sale that would occur pursuant to the offer.").

243. *Id.* at 1308 ("An offer to sell differs from a sale in that an offer to sell need not be accepted to constitute an act of infringement.").

244. *Id.* at 1310 ("The fact that the offer was negotiated or a contract signed while the two U.S. companies were abroad does not remove this case from statutory liability.").

245. Halo Elecs., Inc. v. Pulse Elecs., Inc., 769 F.3d 1371, 1379 (Fed. Cir. 2014) ("[W]e conclude that, when substantial activities of a sales transaction, including the final formation of a contract on-sale encompassing all essential terms as well as the delivery and performance under that sales contract, occur entirely outside the United States, pricing and contracting negotiations in the United States alone do not constitute or transform those extraterritorial activities into a sale within the United States for purposes of § 271(a)."), *vacated and remanded on other grounds*, 136 S. Ct. 1923 (2016).

246. Timothy R. Holbrook, *Territoriality and Tangibility after* Transocean, 61 EMORY L.J. 1087, 1111–12 (2012) ("[T]wo parties [negotiating in Hungary], but not reaching an agreement, to potentially sell something in the United States could be liable for infringement of a U.S. patent notwithstanding that no actual commercial activity would take place within the United States.").

247. Standard Havens Prods., Inc. v. Gencor Indus., Inc., 953 F.2d 1360 (Fed. Cir. 1991).

248. *Id.* at 1374 ("As to the sale to a foreign customer, Standard Havens asserts that Gencor made the sale in the United States.").

249. *Id.* ("Thus, the sale in the United States of an unclaimed apparatus alone does not make Gencor a contributory infringer of the patented method. Moreover, infringement by the foreign customer has not been shown because there is no evidence of the plant's use in the United States.").

The Federal Circuit may have created an end-run around this dynamic in its law of damages, however. In *Carnegie Mellon v. Marvell*, the Federal Circuit addressed the issue of what damages were appropriate as a remedy for the infringement of a method claim.[250] Under current law, there was only infringement because the method had been used.[251] Nevertheless, the Federal Circuit awarded damages not based on the infringing use, but instead on sales of the product made from the process.[252] The process had been used within the United States, but some sales took place overseas.[253]

The court rejected damages for the foreign sales, although it permitted them for domestic sales, reasoning that:

> Where a physical product is being employed to measure damages for the infringing use of patented methods, we conclude, territoriality is satisfied when and only when any one of those domestic actions for that unit (*e.g.*, sale) is proved to be present, even if others of the listed activities for that unit (*e.g.*, making, using) take place abroad. Significantly, once one extends the extraterritoriality principle to confining how *damages* are calculated, it makes no sense to insist that the action respecting the product being used for measurement itself be an *infringing* action. Thus, here the claim is a method claim, but the damages-measuring product practices the method in its normal intended use, and the hypothetical negotiation would have employed the number of units sold to measure the value of the method's domestic use (before production and after), as discussed above. In these circumstances, the inquiry is whether any of the § 271(a)-listed activities with respect to that product occur domestically.[254]

In this context, although the claim was for a method, damages were based on the sales of a tangible object. This use of remedies ultimately afforded the patent holder protection for something physical and not merely the performance of the steps of the method. It also suggests that the link between the method and something physical may be stronger than critics of method patents contend. Indeed, the Federal Circuit cited *Quanta* to support its argument.[255] Finally, it suggests that the value of the method claim may be more than simply the performance of the steps of the method. Instead, it may be tied to the physical item that performs the method.

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250. Carnegie Mellon Univ. v. Marvell Tech. Grp., Ltd., 807 F.3d 1283, 1306–07 (Fed. Cir. 2015), *reh'g en banc denied in part*, 805 F.3d 1382 (Fed. Cir. 2015).

251. Joy Techs., Inc. v. Flakt, Inc. 6 F.3d 770, 773 (Fed. Cir. 1993).

252. *Carnegie Mellon Univ.*, 807 F.3d at 1307.

253. *Id.* at 1305.

254. *Id.*at 1306–07 (emphasis added) (citation omitted).

255. *Id.* at 1306 (citing Quanta Comput., Inc. v. LG Elecs, Inc., 553 U.S. 617 (2008)).

2. Extraterritorial Protection for Uses Under Section 271(a)

Denial of extraterritorial protection under section 271(a) for methods and processes is not limited to these two forms of infringement. The Federal Circuit in *NTP* also significantly limited protection for infringing "uses" of methods that cross national boundaries.[256] The accused Blackberry system in *NTP* had components in Canada; in particular, the "relay" part of the system was in Canada, even though the owners of the Blackberry units at issue were in the United States.[257] The Federal Circuit had to determine whether there was a "use" of the system and method "within the United States" pursuant to section 271(a).[258] In exploring this issue, courts have bifurcated the analysis, treating the system and method claims differently.[259]

For the system claims, the Federal Circuit held "[t]he use of a claimed system under section 271(a) is 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."[260] Because "RIM's customers located within the United States controlled the transmission of the originated information and also benefited from such an exchange of information," use of the system was in the United States; the existence of the system's relay component did not preclude infringement.[261]

The court reached a dramatically different conclusion as to the method claims, however, concluding that, because the performance of one step—the relay—was outside of the United States, there could be no infringement of the patented method.[262] To infringe a method claim through use, all steps must be performed within the United States.[263] In reaching this conclusion, the court reasoned:

> Because a process is nothing more than the sequence of actions of which it is comprised, the use of a process necessarily involves doing or performing each of the steps recited. This is unlike use of a system

256. *See* NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282, 1318 (Fed. Cir. 2005) ("We therefore hold 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.").

257. *Id.* at 1317.

258. *Id.* at 1316–17.

259. *See* Holbrook, *supra* note 184, at 499–500 (discussing how courts have approached different patent infringement issues).

260. *NTP, Inc.*, 418 F.3d at 1317 (citing Decca Ltd. v. United States, 544 F.2d 1070, 1083 (Cl. Ct. 1976)). For discussion and criticism of this test, and particularly its failure to account for potential conflicts of law, see Holbrook, *supra* note 57, at 2156–62.

261. *NTP, Inc.*, 418 F.3d at 1317.

262. *Id.*

263. *Id.* at 1318 ("We therefore hold 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.").

> as a whole, in which the components are used collectively, not individually.[264]

Effectively, the Federal Circuit adopted a strict rule of extraterritoriality for method claims: if any single step of the method is performed outside of the United States, then there can be no infringement of a U.S. patent.[265] This rule is specific to method claims, precluding any extraterritorial protection for the use of systems that cross national borders.

Such a limitation is particularly striking given that the court, in the same decision, effectively limited method claims to infringing uses only. The reasoning also does not seem terribly persuasive. Why is the use of the system in the United States based on the user, but not the *method*, when it is the user who puts the method into operation?[266] There is no apparent reason why the "control and beneficial use" test could not also apply to method claims. A consistent rule could also be one of strict territoriality: if any part of the system or any step of the method is performed outside of the United States, then there would be no infringement.[267] Regardless of which approach a court were to take—using the beneficial use and control test, or using a strict territorial approach—it is clear that the Federal Circuit created a rule that treats method claims exceptionally with little textual or policy justification.

3. Extraterritorial Protection Under Section 271(f)

That there is any extraterritorial protection afforded under section 271(a) may be surprising given the language of that provision. In contrast, section 271(f) specifically provides extraterritorial protection for U.S. patent holders.[268] It does so by making it an act of infringement to export all or substantially all of the components of the invention, or to export a component of the invention that has no substantial non-infringing use, outside of the United States, intending that the component or components will be assembled outside of the United States in a way that would have infringed if inside the United States.[269] The provision thus creates liability for exportation

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264. *Id.* at 1318.

265. *See* Holbrook, *supra* note 57, at 2151–54.

266. *Id.* at 2152 ("[I]ts differential application of § 271(a)'s provisions to method and system claims runs contrary to the clear language of the statute.").

267. *Id.* at 2153 ("Under a traditional, strict territorial reading of patent rights, the court should have concluded that, as all of the limitations of the claim were not met within in the United States—be they method or systems limitations—there should not have been infringement.").

268. Microsoft Corp. v. AT&T Corp., 550 U.S. 437, 442 (2007) ("[Section] 271(f) is an exception to the general rule that our patent law does not apply extraterritorially . . . ."). Of course, as discussed *supra* at notes 54–60 and accompanying text, section 271(g) also provides extraterritorial protection for U.S. patent holders.

269. 35 U.S.C. § 271(f)(1), (2) (2012). For a discussion of the reasons section 271(f) was adopted, see Holbrook, *supra* note 53, at 719–21.

of parts of the invention and necessarily provides a lever for U.S. patent holders to regulate foreign markets.

As with section 271(a), the language of section 271(f) states that it applies to inventions without delineating which types of inventions it covers. The Federal Circuit has been all over the map as to this section's application to method claims. In *Eolas Technologies Inc. v. Microsoft Corp.*, the court concluded that software could be a component under this provision.[270] The court reasoned that statutory language of section 271(f) "uses the broad and inclusive term 'patented invention,'" and "did not limit section 271(f) to patented 'machines' or patented 'physical structures.'"[271] Instead, "every form of invention eligible for patenting falls within the protection of section 271(f)."[272] In answering whether software could be a "component," the court noted that "[b]y the same token, the statute did not limit section 271(f) to 'machine' components or 'structural or physical' components. Rather every component of every form of invention deserves the protection of section 271(f)."[273]

The language in *Eolas* suggesting that section 271(f) applied to methods was not necessary to the decision and constituted dicta. The Federal Circuit subsequently expressed skepticism as to the applicability of section 271(f) to method claims in *NTP*.[274] In finding that there was no infringement under section 271(f) by the Blackberry system, the court stopped short of holding that the provision was inapplicable to method claims, finding no infringement based on the particular facts of the case.[275] It did note, however, that "it is difficult to conceive of how one might supply or cause to be supplied all or a

270. Eolas Techs. Inc. v. Microsoft Corp., 399 F.3d 1325, 1338–39 (Fed. Cir. 2005).

271. *Id.*

272. *Id.* at 1339.

273. *Id.* The Supreme Court ultimately disagreed with *Eolas* in *Microsoft Corp. v. AT&T Corp.*, holding that software in the abstract could not be a "component" and that a "component" required some physical instantiation. *Microsoft Corp.*, 550 U.S. at 449 ("Until it is expressed as a computer-readable 'copy,' *e.g.*, on a CD–ROM, Windows software—indeed any software detached from an activating medium—remains uncombinable. It cannot be inserted into a CD–ROM drive or downloaded from the Internet; it cannot be installed or executed on a computer. Abstract software code is an idea without physical embodiment, and as such, it does not match § 271(f)'s categorization: 'components' amenable to 'combination.'"). The Supreme Court also declined to answer the question of whether section 271(f) applied to method claims. *Id.* at 452 n.13 ("If an intangible method or process, for instance, qualifies as a 'patented invention' under § 271(f) (a question as to which we express no opinion), the combinable components of that invention might be intangible as well.").

274. NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282, 1322 (Fed. Cir. 2005) (noting that "it is difficult to conceive of how one might supply or cause to be supplied all or a substantial portion of the steps of a patented method in the sense contemplated by the phrase 'components of a patented invention' in section 271(f)").

275. *Id.* at 1322–23 ("By merely supplying products to its customers in the United States, RIM is not supplying or causing to be supplied in this country any steps of a patented process invention for combination outside the United States and cannot infringe NTP's asserted method claims under section 271(f) as a matter of law.").

substantial portion of the steps of a patented method in the sense contemplated by the phrase 'components of a patented invention' in section 271(f) . . . ."[276]

The court subsequently rejected the dicta of *NTP* and held that section 271(f) could apply to method claims. Specifically, in *Union Carbide Chemicals & Plastics Technology Corp. v. Shell Oil Co.*, the court held that there may be infringement when a catalyst used in a patented process was exported for use in that process.[277] The court relied upon the analysis in *Eolas* regarding the broad language used in section 271(f) to support its holding[278] and distinguished *NTP* on the basis of its facts.[279] Thus, the court answered the question of section 271(f)'s applicability to method claims definitively in the affirmative.

This answer was short-lived. Four years later, the Federal Circuit took the issue *en banc* in *Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc.*, overruling *Union Carbide* and holding that section 271(f) was inapplicable to method claims.[280] The court reasoned that a "component" of a claimed method is a step in the given method or process, not a tangible thing.[281] The court viewed this distinction as "critical to the meaning of the statute and doom[ed] [the] argument" that section 271(f) applied to method claims.[282] The court contrasted section 271(f)(2) with its parallel provision, contributory infringement under section 271(c).[283] Section 271(c) defines as an infringer someone who "offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination or composition, *or a material or apparatus for use in practicing a patented process*" where the component or apparatus has no substantial non-infringing use.[284] Section 271(c) specifically contemplates its application to

276. *Id.*

277. Union Carbide Chems. & Plastics Tech. Corp. v. Shell Oil Co., 425 F.3d 1366, 1380 (Fed. Cir. 2005), *overruled by* Cardiac Pacemakers, Inc., v. St. Jude Med., Inc., 576 F.3d 1348 (Fed. Cir. 2009) ("In brief, because § 271(f) governs method/process inventions, Shell's exportation of catalysts may result in liability under § 271(f).").

278. *Id.* at 1379 ("Thus, as *Eolas* explained, the statute makes no distinction between patentable method/process inventions and other forms of patentable inventions.").

279. *Id.* at 1380 ("Under the facts of *NTP*, this court declined to apply § 271(f). . . . *NTP* is different from this case because Shell supplies catalysts from the United States directly to foreign customers.").

280. *Cardiac Pacemakers, Inc.*, 576 F.3d at 1359 (en banc for Part C.2 concerning section 271(f)) ("[W]e reverse and hold that Section 271(f) does not cover method claims . . . .").

281. *Id.* at 1362 ("Thus, a component of a tangible product, device, or apparatus is a tangible part of the product, device, or apparatus, whereas a component of a method or process is a step in that method or process.").

282. *Id.*

283. *Id.* at 1363–64.

284. 35 U.S.C. § 271(c) (2012) (emphasis added).

patented methods and processes, and there is no parallel language in section 271(f).[285]

This distinction led the court to conclude that "Congress clearly believed that a 'component' was separate and distinct from a 'material or apparatus for use in practicing a patented process.'"[286] Considering the components of methods to be intangible steps, the court also reasoned that the requirement for the component to be supplied is a "physical impossibility."[287] The court rejected language from the legislative history suggesting that section 271(f) did apply to methods, and then bolstered its conclusion by applying the presumption against the extraterritorial application of U.S. patent law.[288] The court therefore found that the export of implantable cardioverter defibrillators for use in the patented method did not infringe section 271(f).[289]

Given that the court decided this issue en banc, the inapplicability of section 271(f) remains the law until either the Supreme Court or Congress intervenes, neither of which seems likely in the near term. Consequently, method and process claims have again been treated exceptionally by the court's interpretation of neutral statutory language in ways that undermine the protections afforded to such claims. Indeed, the Federal Circuit had adopted the opposite approach just four years prior.

D. DIVIDED INFRINGEMENT SCENARIOS

Method claims are also treated exceptionally—and afforded less protection—in the context of what has come to be known as "divided infringement" scenarios of infringement.[290] This situation arises when the patented invention is utilized by multiple parties.[291] This scenario can arise easily on the Internet, when the user of an invention may not actually own all the constituent parts of the claimed invention. When multiple-users utilize the invention, the Federal Circuit has again created dichotomous doctrines for system and method claims.

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285. *See Cardiac Pacemakers, Inc.*, 576 F.3d at 1363–64 ("Congress clearly believed that a 'component' was separate and distinct from a 'material or apparatus for use in practicing a patented process.'").

286. *Id.* at 1363–64.

287. *Id.* at 1364.

288. *Id.* at 1365 ("Any ambiguity as to Congress's intent in enacting Section 271(f) is further resolved by the presumption against extraterritoriality.").

289. *Id.* at 1365–66 ("Although the [device] that St. Jude produces can be used to perform the steps of the method . . . Section 271(f) does not apply to method or process patents. As Section 271(f) does not encompass devices that may be used to practice a patented method, St. Jude is therefore not liable for infringement of [the] claim . . . under Section 271(f) for [devices] exported abroad.").

290. *See generally* Mark A. Lemley et al., *Divided Infringement Claims*, 33 AIPLA Q.J. 255 (2005).

291. *Id.* at 256.

To infringe a method claim, generally all of the steps of the method must be performed by a single entity.[292] An exception to this rule is when the acts of third parties can be attributed to a single entity, which would then be liable for patent infringement.[293] Such attribution can arise when one party is the agent of another, when a party is contractually obligated to perform a step or steps of the method, or when there is a joint enterprise among the parties.[294] The courts will look to general tort concepts of vicarious liability to inform this analysis.[295] For example, the Federal Circuit has held that "liability under § 271(a) can also be found when an alleged infringer conditions participation in an activity or receipt of a benefit upon performance of a step or steps of a patented method and establishes the manner or timing of that performance."[296]

In contrast to this approach for method claims, the Federal Circuit has articulated a completely different rule for divided infringement involving patented systems. This scenario arises when the patent claims a system, but the components of that system are operated by, or in the possession of, multiple parties. Instead of focusing on vicarious liability, the court instead articulated a rule that identifies "who" is using the system, relying on *NTP*'s "control and beneficial use" test for determining the locus of infringement.[297] In *Centillion Data Systems, LLC v. Qwest Communications International, Inc.*, the

292. *See e.g.*, Akamai Techs., Inc. v. Limelight Networks, Inc., 797 F.3d 1020, 1022 (Fed. Cir. 2015) (en banc) (per curium) ("Direct infringement under § 271(a) occurs where all steps of a claimed method are performed by or attributable to a single entity."); Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech., 709 F.3d 1348, 1362 (Fed. Cir. 2013) (stating that, to infringe a method claim, all of the steps must be performed by the infringer herself or by someone under her direction or control); Muniauction, Inc. v. Thomson Corp., 532 F.3d 1318, 1329 (Fed. Cir. 2008) ("[W]here the actions of multiple parties combine to perform every step of a claimed method, the claim is directly infringed only if one party exercises "control or direction" over the entire process such that every step is attributable to the controlling party. . . ."); BMC Res., Inc. v. Paymentech, L.P., 498 F.3d 1373, 1378–79 (Fed. Cir. 2007) ("[A] defendant cannot thus avoid liability for direct infringement by having someone else carry out one or more of the claimed steps on its behalf.").

293. *Akamai Techs., Inc.*, 797 F.3d at 1022 ("Where more than one actor is involved in practicing the steps, a court must determine whether the acts of one are attributable to the other such that a single entity is responsible for the infringement. We will hold an entity responsible for others' performance of method steps in two sets of circumstances: (1) where that entity directs or controls others' performance, and (2) where the actors form a joint enterprise.").

294. *Id.* at 1023.

295. *Id.* at 1022 ("To determine if a single entity directs or controls the acts of another, we continue to consider general principles of vicarious liability.").

296. *Id.* at 1023.

297. Centillion Data Sys., LLC v. Qwest Commc'ns Int'l, Inc., 631 F.3d 1279, 1283–84 (Fed. Cir. 2011) ("We hold that to 'use' a system for purposes of infringement, a party must put the invention into service, i.e., control the system as a whole and obtain benefit from it." (citing the test from *NTP, Inc. v. Research In Motion*, 418 F.3d 1282, 1317 (Fed. Cir. 2005) to determine who is a system user)).

Federal Circuit adopted the same rule to discern *who* is using the infringing system, even if that user does not own all of the system's components.[298]

Specifically, the Federal Circuit held "that to 'use' a system for purposes of infringement, a party must put the invention into service, *i.e.*, control the system as a whole and obtain benefit from it."[299] There can be an infringing use of a system, even when the user is not in possession of all of the elements of the patented system, so long as the user was using every element.[300]

Of course, the distinction between infringing uses of process and system claims finds no textual support in the statute. It is far from clear why a method claim could not be infringed under the same reasoning as a system claim—the method is "used" when someone puts it into service by demonstrating control and beneficial use. Indeed, this bifurcation risks a loss of public notice as to what constitutes infringement by adding a level of complexity to the law. The bifurcation assumes actors in the market can discern not only whether they infringe the patent claims as a matter of claim construction but also the distinction between system and method claims as articulated in the case law.[301] Everyday-users of the Blackberry system or the billing system in *Centillion* would not realize that *their very same actions* infringe a system claim but not a method claim. This exceptional treatment of method claims, unsupported by the text of the statute, undermines the interest in public notice that patents are supposed to provide.

E. IGNORING PATENT CLAIM LIMITATIONS FOR DETERMINING SUBJECT MATTER ELIGIBILITY

In the above examples, the court has interpreted the various provisions uniquely for method claims even though the statute is generic to "inventions." In contrast, section 101 of the Patent Act defines eligible subject matter by delineating four categories: processes, machines, manufactures, and compositions of matter.[302] If there was one area of patent law where it seems appropriate to treat the various categories of inventions differently, one would think it would be in assessing patentable subject matter. These four categories suggest that inventions should fall into one of these categorical buckets (although they could fall into more than one).[303]

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298. *Id.* ("[A]lthough *NTP* dealt with the situs of infringement rather than the nature of the infringing act, it interpreted the definition of 'use' under § 271(a).").

299. *Id.* at 1284. The court found a "use" in *Centillion* both for the on-demand and standard versions of the claimed system because the customer initiated use of the system and obtained the resulting benefit. *Id.* at 1285. Qwest, however, did not "use" the system because it never put the system into operation, although it maintained possession of the back-end processing elements of the system. *Id.* at 1286.

300. *Id.* at 1284.

301. Mark D. Janis & Timothy R. Holbrook, *Patent Law's Audience*, 97 MINN. L. REV. 72, 120 (2012).

302. 35 U.S.C. § 101 (2012).

303. *See* Diamond v. Chakrabarty, 447 U.S. 303, 309–10 (1980) (holding that genetically

Prior to the recent onslaught of Supreme Court cases dealing with section 101, the Supreme Court was always careful to place an invention into one of the categories. In *Gottschalk v. Benson*, for example, the Court confronted "a method for converting binary-coded decimal . . . numerals into pure binary numerals."[304] The Supreme Court focused on the nature of the invention as a process, drawing on its process-specific jurisprudence to inform the analysis.[305] The Court expressly wrestled with the nature of process claims in *Parker v. Flook*, where the Court rejected a claim to a method of calculating an alarm limit because it was merely an algorithm.[306] The Court started with the statute itself and explored the meaning of "process," but noted that the statute alone did not answer the question.[307] In *Diamond v. Chakrabarty*, the Supreme Court took care to identify which category the invention fell into.[308] The Court in *Diamond v. Diehr* began with the statutory text of section 101, particularly the term "process,"[309] and then evaluated whether the invention at issue—a method of curing rubber that involved "a mathematical equation and a programmed digital computer"—fell within the statutory category of processes. [310] The Court ultimately concluded that it did.[311]

Even the Federal Circuit in its early case law was careful to denote into which category an invention fell, based on the claim. Aside from some loose language in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* that was later rejected, the court took pains to place an invention into a particular category—that of a machine.[312] This analysis can be seen most clearly in the court's decision in *In re Nuijten*, dealing with the patentability of a water-

modified bacterium is both a manufacture and composition of matter).

304. Gottschalk v. Benson, 409 U.S. 63, 64 (1972).

305. *Id.* at 67–68.

306. Parker v. Flook, 437 U.S. 584, 590 (1978) ("The notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance. A competent draftsman could attach some form of post-solution activity to almost any mathematical formula . . . .").

307. *Id.* at 588 ("The plain language of § 101 does not answer the question. It is true, as respondent argues, that his method is a "process" in the ordinary sense of the word.").

308. *Chakrabarty*, 447 U.S. at 309–10 (discussing whether genetically-modified bacterium qualifies as a "manufacture" or "composition of matter" under 35 U.S.C. § 101).

309. Diamond v. Diehr, 450 U.S. 175, 181–82 (1981).

310. *Id.* at 185.

311. *Id.* at 184 ("[W]e think that a physical and chemical process for molding precision synthetic rubber products falls within the § 101 categories of possibly patentable subject matter.").

312. State St. Bank & Tr. Co. v. Signature Fin. Grp., Inc., 149 F.3d 1368, 1372 (Fed. Cir. 1998) ("[C]laim 1, properly construed, claims a machine, namely, a data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine is made up of, at the very least, the specific structures disclosed in the written description and corresponding to the means-plus-function elements (a)–(g) recited in the claim."), *abrogated by In re* Bilski, 545 F.3d 943, 959–60 (Fed. Cir. 2008).

marked signal.[313] The Federal Circuit went through each of the statutory categories determining whether the claimed signal fit into any of them.[314]

It is not surprising that method claims have caused the greatest consternation in terms of patent eligibility. Because the method covers something intangible, the Supreme Court noted in *Flook* that "[t]he line between a patentable 'process' and an unpatentable 'principle' is not always clear. Both are 'conception[s] of the mind, seen only by [their] effects when being executed or performed.'"[315] Because methods can be removed from some of the physical aspects of other types of inventions, it is unsurprising that many of the Supreme Court decisions on section 101 have involved method and process claims.[316] Indeed, the articulation of concerns with "preemption" of an idea seems well-rooted in the nature of process claims.

Nevertheless, the Supreme Court's methodology in *Alice Corp. v. CLS Bank* effectively rejects any of the distinctions found in section 101. Instead, the Court initially focused on the method claims of the patent at issue, concluding that the claims were directed towards an abstract idea and that they lacked an inventive concept.[317] The Court then, in essence, "lumped and dumped" the system and medium claims, noting that they "are no different from the method claims in substance."[318] The Court warned that treating the claims separately would risk making eligibility depend on how one drafts the claims.[319]

In the context of section 101, however, the distinctions between the forms of inventions can actually matter. Minimally, as a co-author and I have explored elsewhere, the Court's methodology ignores what could be key aspects of the claim that could render it patent eligible subject matter.[320]

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313. *In re* Nuijten, 500 F.3d 1346, 1348 (Fed. Cir. 2007) ("The claims seek to patent any 'signal' that has been encoded in a particular manner.").

314. *Id.* at 1354–57.

315. Parker v. Flook, 437 U.S. 584, 589 (1978) (alteration in original) (quoting Tilghman v. Proctor, 102 U.S. 707, 728 (1880)).

316. *See* Holbrook & Janis, *supra* note 158, at 354–58 (discussing the chronology of Supreme Court cases relating to process claims).

317. Alice Corp. v. CLS Bank Int'l, 134 S. Ct. 2347, 2356–57 (2014).

318. *Id.* at 2360. It would be interesting to explore if there is a certain path dependency to this argument. If the non-process claims were litigated independently of the method claims, would the courts view the apparatus claims as nevertheless ineligible absent an analysis of the method claims?

319. *Id.* ("The method claims recite the abstract idea implemented on a generic computer; the system claims recite a handful of generic computer components configured to implement the same idea. This Court has long 'warn[ed] . . . against' interpreting § 101 'in ways that make patent eligibility "depend simply on the draftsman's art."'" (quoting Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1294 (2012))); *see also Flook*, 437 U.S. at 590 ("The concept of patentable subject matter under § 101 is not 'like a nose of wax which may be turned and twisted in any direction . . . .'" (quoting White v. Dunbar, 119 U.S. 47, 51 (1886))).

320. *See* Holbrook & Janis, *supra* note 158, at 368–69 (reviewing the Federal Circuit's disagreement over claim construction and determinations of subject matter eligibility).

Indeed, the Court's concerns about patent drafters using tricks to satisfy eligibility concerns must have limits. At some level, there must be a way to claim a truly innovative creation that removes it from the "abstract idea" and transforms it, via the inventive concept, into a patent eligible invention. Much of this could be driven by claim drafting, and the Court's analysis should provide a means to allow patent attorneys to coordinate their claim drafting in ways to satisfy patentable subject matter requirements.[321] The Court's claim "deconstruction," however, removes this possibility from explaining the section 101 analysis.[322]

V. PROPOSAL: TREAT METHODS LIKE OTHER CLAIMED INVENTIONS

Where exceptional treatment for patented processes or methods has been needed, Congress has stepped in. When Congress steps in, it generally has provided *greater* protection, not less protection, for processes. The more recent congressional interventions against surgical and business methods were targeted and narrow, suggesting that Congress still values method claims. In contrast, the courts have crafted rules specific to method patents without textual support and with little consideration given to the nature of method claims in a particular technology. Moreover, this exceptionalism has created inconsistencies in the law, particularly with regard to sales of a patented invention. This Part offers a way of reconciling these concerns by eliminating such disparate treatment. It then explores potential justifications for the status quo, as well as objections to the proposal. It ultimately finds these concerns wanting.

A. *SHIFTING PATENT DOCTRINE TO TREAT METHODS AND PROCESSES LIKE OTHER CLAIMED INVENTIONS*

This Article posits that the courts should take the patent statute at its word. When it speaks of "inventions," it means *all* inventions—without judges making idiosyncratic carve outs for processes and methods that are not found in the text. The following analysis explains how this can be done while still policing some of the legitimate concerns surrounding patented methods and processes.

1. Infringement by Making, Importing, Selling, or Offering to Sell the Claimed Process

Section 271(a) defines infringement for all inventions, and it could be interpreted to afford all forms of protection for processes.[323] By considering

321. *See* Timothy R. Holbrook & Mark D. Janis, *Expressive Eligibility*, 5 UC Irvine L. Rev. 973, 995–99 (2015) (arguing that the "eligibility doctrine should be crafted to express affirmative preferences about best practices in claim drafting").

322. Holbrook & Janis, *supra* note 158, at 368 (explaining how abstraction of claim language results in inappropriate patent "claim deconstruction").

323. 35 U.S.C. § 271(a) (2012).

the admittedly antiquated, industrial age view of processes, there could be a simple solution: a process claim can be infringed by a machine that has no substantial non-infringing use other than to perform the patented process. One could say that the making of such a machine is effectively drawing upon the value of the process, rather than drawing upon the value of the machine itself. The reason a party would be interested in the machine is solely for the performance of the method. As such, if the purpose of the machine is almost solely to perform the process, there seems little reason to suggest the patentee should wait for the infringer to "turn the machine on" to infringe.[324] If, however, the machine has substantial non-infringing uses, in a manner akin to the limitations on section 271(c)'s limits on contributory infringement, then there would be no infringement until the machine had performed the patented process, confirming infringement.[325]

Dmitry Karshtedt has also argued for liability in this context. Professor Karshtedt notes that "[t]he law is much tougher on those who execute the steps covered by the method patent—end users—than on those who design the device that enables the infringement—manufacturers."[326] In his view, this is simply wrong because the manufacturer of the machine in many ways is more culpable for the infringement than a downstream user, who is simply buying the machine that performs the process.[327] The manufacturer is likely to be a more sophisticated actor who should be relatively more familiar with the patent system than some users, who may just be members of the general public.[328] It makes no sense, from that perspective, to allow the manufacturer to escape liability because it did not perform the steps while holding its customers liable because they did.[329] Of course, the manufacturer could be liable for inducing infringement or contributory infringement, but only if it has the necessary knowledge of the patent and of infringement.[330] That situation seems odd. If the apparatus basically has one purpose—to perform the method—then the apparatus alone would be sufficient to constitute a

324. Of course, if the machine itself is novel and non-obvious, the patentee could claim both the machine and the process.

325. 35 U.S.C. § 271(c).

326. Dmitry Karshtedt, *Causal Responsibility and Patent Infringement*, 70 VAND. L. REV. (forthcoming 2017) (manuscript at 4), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2744427.

327. *Id.*

328. *See id.* ("To win a case against Microsoft, Lucent had to prove that someone in the appropriate position at that company knew of the [relevant] patent . . . and intended to infringe it. In contrast, to win against individual users of Outlook, Lucent would have to show only that they performed the claimed steps . . . .").

329. *See id.* at 21 ("But the difficulty of establishing this form of liability [for indirect patent infringement] can prevent patentees from vindicating their rights even in cases where it seems intuitively clear that the non-performer is truly responsible for the infringement.").

330. *See id.* at 22–23 (discussing the knowledge and intent requirements for indirect infringement).

"making" of the claimed invention and, if brought into the United States, importation.[331]

This doctrinal shift would have some important temporal dynamics. It would allow the patentee to enforce their rights earlier in time, avoiding the need to wait for the process to be performed. This temporal aspect of the proposal is similar to the argument that the expansion of infringement to include "offers to sell" permits patentees to assert claims of infringement earlier.[332] As a result, patentees can prevent future acts of infringement that could create more concrete harm.[333]

Permitting infringement of a method claim based on an apparatus whose only substantial function is to perform the patented method affords similar benefits. Patentees can seek injunctive relief at an earlier point in time.[334] Of course, this early dynamic can work some hardship on patentees, such as triggering the potential for a laches defense, particularly given the presumption of laches after six years from the date of infringement.[335]

In some ways, this approach acts in a manner akin to the relatively rare act of a patentee seeking a declaratory judgment of infringement prior to an actual act of infringement. Although rare, patentees do have the ability to bring a declaratory judgment for imminent infringement.[336] The patent holder would have to satisfy the requirements of Article III to bring the suit.[337] The use of the apparatus to perform the method suggests, similar to the declaratory judgment context, that there is an immediate threat of infringement. The key difference would be that the apparatus itself would be

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331. This expansion could also require marking for all inventions under the marking statute: patentees selling a machine with no substantial non-infringing use other than to perform the patented method should be required to mark or forfeit pre-notice damages. *See supra* Part IV.A.

332. *See* Thomas L. Irving & Stacy D. Lewis, *Proving a Date of Invention and Infringement After GATT/TRIPS*, 22 AIPLA Q.J. 309, 352 (1994) ("The main consequence of requiring an actual sale during the patent term in order to make the offer for sale an act of infringement appears to be that the date of infringement will reach back to the date of the original offer.").

333. *Id.* ("A patentee who can prove loss of sales to customers who accepted the offers for sale of a patented invention from another source may be entitled to relief, such as interest, from the date of the original offer for sale rather than the eventual delivery date.").

334. *Id.* ("Further, where an offer for sale specifies a delivery date within the term of an unexpired patent, a declaratory judgment action may be maintained, and injunctive relief awarded.").

335. *See* SCA Hygiene Prods. v. First Quality Baby Prods., LLC, 807 F.3d 1311, 1317 (Fed. Cir. 2015) (en banc) (retaining the presumption of laches six years from date patentee knew or should have known of infringement), *cert. granted*, 136 S. Ct. 1824 (2016).

336. Lang v. Pac. Marine & Supply Co., 895 F.2d 761, 763 (Fed. Cir. 1990) ("Declarations of infringement sought by patentees against parties who will allegedly infringe in the future have been less frequently requested, but have nevertheless been allowed to proceed.").

337. *Id.* at 764 ("If the controversy requirement is met by a sufficient allegation of immediacy and reality, we see no reason why a patentee should be unable to seek a declaration of infringement against a future infringer when a future infringer is able to maintain a declaratory judgment action for noninfringement under the same circumstances."). To be clear, the patentee failed to establish the controversy requirement in the case. *See generally id.*

viewed as an actual form of infringement, not merely a potential one, so long as there are no substantial non-infringing uses of the apparatus. Nevertheless, the availability of declaratory relief for patent holders shows that concerns with expanding this form of infringement should not be troubling.

To the extent that someone may be concerned with overbreadth of this proposal, there are a number of pragmatic limits. As the claims still relate to processes, there may be difficulties in patentees discovering that a machine is likely to perform the process. The presumptions adopted by Congress demonstrate the information asymmetry that patent holders face in enforcing method claims, so it may be difficult for patentees to enforce the method claims against machines or plants designed to perform the process as well. The complications of enforcing a method claim in this way should not mean that such protection should be categorically denied to the patent holder.

Most important would be the requirement that the apparatus have no substantial non-infringing uses other than to perform the method. This requirement provides technological context to the patented method. As discussed above, industrial processes tended to have a closer nexus to the physical apparatus, so the gap between the process and the machine was much smaller. These processes tend to be narrower and not face the "breadth" issue that has concerned many, particularly Congress, with more modern, digital methods. For these methods, the requirement that there be no substantial non-infringing uses likely will preclude infringement for most software and business method inventions. Generally, these innovations are implemented on general purpose computers or over the Internet.[338] General purpose computers by definition can be altered to perform other processes, which would mean that the machine would have ample non-infringing alternatives. In this context, the process claim generally would only be infringed when the process is performed by the general purpose computer. In this way, protection is effectively cabined based on the nature of the technology, a tailoring that the courts have failed to utilize in their generally categorical treatment of processes and methods.

Turning to the commercialization-based forms of infringement—selling or offering to sell the claimed invention—there would be little shift required. The court could turn simply to the on-sale bar jurisprudence: the same conditions that trigger the on-sale bar for patented methods would also trigger liability if performed post-issuance.[339] Similarly, circumstances that trigger exhaustion of patent rights under *Quanta*[340] could serve as a model for

338. *See* Alice Corp. v. CLS Bank Int'l, 134 S. Ct. 2347, 2357 (2014) (noting that "the method claims . . . merely require generic computer implementation . . . ").

339. Holbrook, *supra* note 131, at 799–801 (advocating treating "offer to sell" infringement the same as the on-sale bar).

340. Quanta Comput., Inc. v. LG Elecs., Inc., 553 U.S. 617, 638 (2008) (holding chips that are combined to perform the patented process substantially embodies the claimed invention and their sale exhausted the method claims).

the commercial activity that would constitute sales or offers to sell the claimed method. Moreover, sales and offers to sale an apparatus with no substantial non-infringing uses, per the above analysis, would also be sufficient as a sale of the process. Indeed, much of the on-sale bar jurisprudence has this flavor to it.

2. Consistent Treatment for Extraterritorial Reach

The courts should also provide the same extraterritorial protection for method claims as other types of inventions. This dynamic can be most readily seen in the Federal Circuit's case law regarding section 271(f). Prior to *Cardiac Pacemakers*, the Federal Circuit *had* applied that provision to method claims. For instance, the court in *Union Carbide* linked the tangible aspects of the method at issue—the use of a catalyst—to find that there was infringement under section 271(f).[341] To the extent there is concern about whether a "component" or "components" of an invention under section 271(f) should be tangible, the line drawn by *Union Carbide* can be helpful. The component was tangible and thus clearly part of a more traditional industrial process. Courts could maintain that line and thus offer a narrower construction of this provision.[342] The Supreme Court itself, however, appeared to reject such a constrained interpretation of "component" by rejecting the argument that software would be *per se* excluded as constituting a component.[343] Software components clearly could be incorporated not only into apparatuses but also potentially into broader methods. Consequently, there seems no reason to categorically exclude methods from this form of protection, and the requirement for components affords constraints.

In addition to section 271(f), courts should harmonize the extraterritorial protection afforded under section 271(a). As for the extraterritorial reach afforded sales and offers for sale—where the location of the sale defines the locus of the infringing activity—opening method claims to infringing sales and offers to sell, per the above recommendation, solves the problem.[344] By affording equal treatment for infringement of method

341. Union Carbide Chems. & Plastics Tech. Corp. v. Shell Oil Co., 425 F.3d 1366, 1380 (Fed. Cir. 2005) ("In brief, because § 271(f) governs method/process inventions, Shell's exportation of catalysts may result in liability under § 271(f)."), *overruled by* Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 576 F.3d 1348 (Fed. Cir. 2009).

342. This approach could be consistent with the presumption against extraterritoriality as well. *See Cardiac Pacemakers, Inc.*, 576 F.3d at 1365 ("Any ambiguity as to Congress's intent in enacting Section 271(f) is further resolved by the presumption against extraterritoriality.").

343. Microsoft Corp. v. AT&T Corp., 550 U.S. 437, 447 (2007) ("As to the first question, no one in this litigation argues that software can *never* rank as a 'component' under § 271(f)."). This is true even in the face of the presumption.

344. *See* Halo Elecs., Inc. v. Pulse Elecs., Inc., 831 F.3d 1369, 1376–77 (Fed. Cir. 2016) (offering that in the United States to sell the invention abroad is not infringement); Transocean Offshore Deepwater Drilling, Inc. v. Maersk Contractors USA, Inc., 617 F.3d 1296, 1309 (Fed. Cir. 2010) ("In order for an offer to sell to constitute infringement, the offer must be to sell a

claims by sales and offers to sell, the extraterritorial reach will also be harmonized.[345]

The law regarding the extraterritorial definition for uses of patent inventions would need to be changed as well. Under *NTP*, we have the bifurcated approach to transnational infringement of patented systems and methods. System claims can be infringed if the control and beneficial use lies within the United States, where process claims can only be infringed if every step of the method is performed within the United States.[346] The interest in treating method and systems claims the same does not answer the question of which approach should be used: require all components and steps be in the United States for infringement, or permit some level of extraterritorial protection if the use is primarily in the United States? Thus, at one level, the argument here is indifferent to which approach the courts should adopt. That choice would depend on the decision maker's normative perspective on the costs and benefits of such extraterritorial protection. Given my own work, I would support treating methods and systems in the same way by affording extraterritorial protection, though I would do so through an express consideration of potential conflicts with the law of the country in which part of the system is located or some of the steps are performed.[347]

3. Consistent Treatment for Divided Infringement Scenarios

Resolution of the disparate treatment of patented methods and apparatuses in the divided infringement scenario would face the same resolution as the extraterritorial reach of such uses, which is unsurprising because *NTP* is the genesis of much of this divide. Like extraterritoriality, the interest in treating method claims like other inventions does not answer the question of which approach the courts should adopt. Divided infringement

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patented invention within the United States. The focus should not be on the location of the offer, but rather the location of the future sale that would occur pursuant to the offer.").

345. Of course, one could object to the scope of extraterritorial protection afforded by this provision, preferring a strict territorial approach. *Cf.* Holbrook, *supra note* 57, at 2129–44 (exploring the advantages and disadvantages of strict territorial rule). I personally support extraterritorial protection, but only if accompanied by an express consideration of potential conflicts with foreign law. *See id.* at 2163–85 (articulating method for assessing conflicts by, essentially, requiring infringement be proven both in the United States and any relevant foreign country); *see also* Holbrook, *supra* note 246, at 1115–21 (comparing the facts of *Transocean*, 617 F.3d at 1296 to *Steele v. Bulova Watch Co.*, 344 U.S. 280 (1952), which explicitly considered conflicts of law).

346. NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282, 1317, 1318 (Fed. Cir. 2005) (requiring assessment of the "control and beneficial use" of a system to determine the locus of infringement and requiring all steps of a method be performed within the United States for infringement).

347. *See* Holbrook, *supra* note 51, at 512 ("A final approach to cabining the extraterritorial reach of induced infringement would be to expressly consider the law of the countries in which the activities take place. The baseline principle would be as follows: If there would not be infringement of the patent in the foreign country, then there would be no infringement of the United States.").

scenarios for method claims are now controlled by *Akamai*'s rule, particularly the "direction and control" or "joint enterprise" rules.[348] In contrast, the use of a system whose components are dispersed across multiple actors is governed by the "control and beneficial use" test.[349] Ultimately, the choice between these options matters less than simply treating both types of inventions in the same way.[350] I tip in favor of the "control and beneficial use" test. Although I have criticized this test elsewhere,[351] the benefit of adopting it here would be to maintain consistency between the rule for divided infringement and the rule for assessing the location of infringement for extraterritorial purposes. Having a consistent test between these two situations—both variations of divided infringement scenarios—would be beneficial for the development of the law.

4. Paying Attention to Patent Claims for Eligibility Analysis

Finally, the courts should return to a system that treats claimed methods and processes differently from associated apparatus and other claims. As demonstrated by *Alice*, once the Court found the method claims to cover ineligible subject matter, the Court almost summarily disposed of the other, non-method claims.[352] As Mark Janis and I have argued elsewhere,[353] the suggestion by the Supreme Court that the law should not "make the determination of patent eligibility 'depend simply on the draftsman's art'"[354] is simply wrong-headed. The *Alice* approach "encourages an eligibility analysis that need not engage overly much with the claim language and analysis that presupposes that differences in claim format are mere drafting tricks without any substantive significance."[355]

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348. Akamai Techs., Inc. v. Limelight Networks, Inc., 797 F.3d 1020, 1022 (Fed. Cir. 2015) (en banc) (per curiam) ("We will hold an entity responsible for others' performance of method steps in two sets of circumstances: (1) where that entity directs or controls others' performance, and (2) where the actors form a joint enterprise.").

349. Centillion Data Sys., LLC v. Qwest Commc'ns Int'l, Inc., 631 F.3d 1279, 1284 (Fed. Cir. 2011) ("We hold that to 'use' a system for purposes of infringement, a party must put the invention into service, *i.e.*, control the system as a whole and obtain benefit from it." (citing *NTP, Inc.*, 418 F.3d at 1317)).

350. *See* Janis & Holbrook, *supra* note 301, at 120 ("This bifurcated approach does little to afford better notice to the public. It assumes that the public would be aware not only of the dichotomous case law but also of whether the claims in a particular patent cover a method or system.").

351. Holbrook, *supra* note 57, at 2158–59 (noting the ambiguity of a test where, for example, control of a system may be by owner in one country and beneficial use flows to users in the United States).

352. Alice Corp. v. CLS Bank Int'l, 134 S. Ct. 2347, 2360 (2014) ("Petitioner's claims to a computer system and a computer-readable medium fail for substantially the same reasons.").

353. Holbrook & Janis, *supra* note 321, at 996 ("[C]ourts should not fashion eligibility rules whose primary effect is to make claim drafting more difficult (and costly). Courts should not create eligibility rules for the purpose of condemning particular claim forms ex post.").

354. *Id.* at 2359.

355. *Id.* at 994.

The Court itself recognized that its language regarding drafting gamesmanship cannot be accurate, when it noted "all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas."[356] If taken too far, "this exclusionary principle could eviscerate patent law."[357] As such, a patent attorney should be able to draft claims that distinguish the underlying natural phenomena from what the invention actually is. The claim language can—and indeed must—do this work. Subject matter eligibility law, and a focus on the claim, has the potential to establish norms upon which patent drafters could rely to ensure that they are crafting appropriate claims.[358]

Yet the Supreme Court has rejected this opportunity and rejected this potentially important tool in mitigating the potential evisceration of patents on large swaths of technology.[359] Focusing on the nature of the claims can offer some guideposts in ways that applicants can craft applications to claim appropriate subject matter.[360] In this area, treating method claims exceptionally would seem vital. Unfortunately, the Supreme Court has sent the patent system down a path that is antithetical to this potential.

B. In Defense of the Status Quo and Possible Objections to this Proposal

While the above suggestions would bring method claims back into the fold in patent law (and treat them distinctly for eligibility purposes), one could raise objections to this idea. After all, process and method claims have a long, complicated history in patent law. The distinctions drawn by the courts have roots in some of these difficulties. One such concern that has always been expressed is the intangible, expansive nature of method claims.[361] The nature of these claims can create scope and notice problems, particularly in the area of business methods, computer software, and at times, the biological sciences.[362]

While these concerns may be legitimate, they do not justify the categorical treatment of all processes as the law has presently developed. The manner by which process patents operate will vary from technology to technology. In the pharmaceutical sector, method claims are second-best

356. Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1293 (2012).

357. *Id.*

358. *See* Holbrook & Janis, *supra* note 321, at 995 ("[E]ligibility doctrine should be crafted to express affirmative preferences about best practices in claim drafting.").

359. *See* Holbrook & Janis, *supra* note 158, at 373 ("Unfortunately, by treating all of the three different types of claims in *Alice* as effectively the same, the Supreme Court left the lower courts with nearly untrammeled discretion to embrace or ignore claim language in formulating their eligibility analyses.").

360. *See* Holbrook & Janis, *supra* note 321, at 997 ("[C]ourts should attempt to go further by signaling their general preferences for claiming approaches (perhaps even claiming safe harbors) in specified technology areas.").

361. *See supra* notes 40–47 and accompanying text.

362. *See supra* notes 40–47 and accompanying text.

options for protection, and are viewed generally as weaker.[363] That contrasts with other areas, such as business and financial methods, where such claims have been criticized for their overly broad scope.[364] But treating all methods from all fields as suffering from the same flaw is vastly over-inclusive.

Moreover, patent law has a variety of tools to deal with these issues on a technology-specific level. This Article's proposal highlights some of those nuances, such as the safety valve on requiring no substantial non-infringing uses for an apparatus to be deemed infringement of a process claim. Breadth and notice issues can also be addressed by other doctrines. Patent law has a variety of nuanced levers to deal with these concerns.[365] If the fear is that method claims cover too much subject matter, then such scope can be addressed through requiring more robust disclosures in the patent to appropriately tailor the scope of the patent.[366]

Concerns have also been raised about the functional claim limitations found in many software claims, which essentially cover any means of performing that function.[367] Such concerns, however, can be addressed through other avenues aside from treating method claims categorically differently. Mark Lemley has proposed that "the problem [of functional claiming] could be solved simply by applying the rules of means-plus-function claims to software."[368] Moreover, courts could more robustly enforce the requirement that the patent application contains "claims particularly pointing out and distinctly claiming" the invention.[369] Enforcement of the definiteness requirement can counter both overly broad claims and the lack of notice that

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363. *See supra* notes 35–36 and accompanying text.

364. *See* Lemley, *supra* note 32, at 908 (noting patent holders in the computer software space have "have effectively captured ownership not of what they built, but of anything that achieves the same goal, no matter how different it is. They claim to own the function itself"); Mark A. Lemley & Mark P. McKenna, *Scope*, 57 WM. & MARY L. REV. 2197, 2242 (2016) ("Patentees in computer software . . . have sought broader and broader interpretations of their patent claims, to the point where many claims are not limited either to a particular computer algorithm or approach or to a particular hardware implementation. Rather, they claim any computer configured in any way to achieve a particular result.").

365. *See generally* Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575 (2003) (discussing various doctrines to permit technology-specific tailoring of patent law).

366. *See id.* at 1593–94 ("[T]he permissible breadth of a patent will be determined by how much information the court determines must be disclosed to enable one of ordinary skill in the art to make and use the patented invention."); Timothy R. Holbrook, *Equivalency and Patent Law's Possession Paradox*, 23 HARV. J.L. & TECH. 1, 11 (2009) ("[T]he scope of the claim is closely linked to the extent of the patent's disclosure, limiting the patent to that which the inventor objectively possessed."); Sean B. Seymore, *Heightened Enablement in the Unpredictable Arts*, 56 UCLA L. REV. 127, 129–30 (2008) ("Thus, the scope of the claims is closely tied to the amount of information that the applicant discloses in the patent application.").

367. *See* Lemley, *supra* note 32, at 908 ("It is broad functional claiming of software inventions that is arguably responsible for most of the well-recognized problems with software patents.").

368. *Id.* at 909.

369. 35 U.S.C. § 112(b) (2012).

many fear attends method claims.[370] In short, the concerns about the nature of method claims can be addressed by a myriad of other tools. There is no need to discount them across the board.

Another objection could be that this proposal will inject a level of uncertainty into the law. At present, many of the exceptional rules are fairly bright line—method claims are simply ineligible for certain forms of protection. Allowing the protection for these methods to vary to some degree by the nature of the technology adds a layer of complexity that is unnecessary. Of course, the response to this critique is that, while these rules are clear, they are only so if one is able to parse the density of cases articulating those rules. These prohibitions are contrary to the clear language of the statute so that, as a textual matter, they lack an antecedent basis in the statute. Moreover, that bright line comes at the expense at reducing the value of these types of inventions.

Finally, one could argue whether the offered expansion of protection for method claims is even needed. For some method claims, an applicant may be able to draft attendant apparatus or system claims that provide the sort of protection this proposal would afford. Similarly, one could question the extent to which these types of claims have now lost value and the impact these rules may have on innovation incentives. This question is legitimate, but it is also empirically unanswerable. These protections would also avoid the types of gamesmanship that the Supreme Court has decried in the section 101 context, but here it is far more salient. Applicants should not have to jump through drafting hoops merely to give themselves a certain form of protection unavailable to process and method claims. Drafting around these limits may be difficult. Method claims are vital to the pharmaceutical industry, even though they constitute second-best protection, and methods of use may be the only form of protection available. For software claims, methods may be the only avenue for protection, so there is a reduction in the value of these inventions if they are not afforded the full panoply of rights under the patent statute. As such, if one believes that patents are valuable, providing consistent protection to all forms of inventions.

VI. CONCLUSION

Claims to inventive methods and processes have a long, fairly tortured history in patent law. This history has come to the fore in the information age as concerns with scope and notice with such claims have reared their heads again. Unfortunately, the courts have relied upon these concerns to exclude process claims from a variety of protections notwithstanding the statutory text. It is clear that Congress can and will address concerns with method claims when needed. The courts, therefore, should be more faithful to the text of

370. Nautilus, Inc. v. Biosig Instruments, Inc., 134 S. Ct. 2120, 2123 (2014) ("[A] patent must be precise enough to afford clear notice of what is claimed . . . .").

the statute and protect method claims just as other inventions. Method claims cannot be treated uniformly as bad (or good for that matter). Context matters. And context is lacking from the current jurisprudence. This Article suggests a balanced way for courts to offer protection for patented methods that is faithful to the statutory language, creates consistency in the law, and affords technology-specific nuances to allow courts to address the possible negative aspects of patent methods. It is time for the courts to bring method claims out of the cold and back into the fold of other inventions.