NOTE: TIPTOEING THROUGH THE PERIPHERAL MINEFIELD: WHY CATERING TO CONCEPTS OF NOTICE IS MISGUIDED

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I. INTRODUCTION

"Imagine no possessions. I wonder if you can. No need for greed or hunger. A brotherhood of man. Imagine all the people. Sharing all the world."¹

While John Lennon’s sentiment may be rousing to some, the simple truth is that property rights have been—and will continue to be—paramount in establishing a strong economy.² In patent systems, property rights are granted by interpreting one or more claims.³ The way in which a claim is interpreted implicates competing notions of definitional accuracy and notice.⁴ The U.S. system focuses on notice at the expense of definitional accuracy.⁵ This article argues that such a sacrifice is misplaced and that the U.S. system has poor definitional accuracy (relative to other patent systems) and does not realize the promise of improved notice.⁶

A. Why Property Systems Work

In order for any property system—including an intellectual property system—to meet its stated objectives, the system must avoid creating property rights whose validity is uncertain; avoid creating property rights whose investment costs are prohibitive; avoid creating property rights that are not publically accessible; and avoid creating property rights of which the boundaries are not clearly defined or are otherwise unpredictable.⁷ As will be articulated in further detail, the way in which the U.S. achieves notices at the expense of definitional accuracy does not fully support a property system that creates certainty, is accessible, or that is clearly defined.⁸

Coming into possession of a patent confers certain property rights on the holder.⁹ Generally speaking, these property rights extend only as far as can be

¹ JOHN LENNON, Imagine, on IMAGINE (Apple Records 1971).
² See, e.g., JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE 31 (2008) (“Property rights are the cornerstone of a market economy.”).
³ See infra notes 13–16 and accompanying text.
⁴ See infra Part III.
⁵ See infra Part III.
⁶ See infra Part IV.
⁷ BESSEN & MEURER, supra note 2, at 7 (generalizing these criteria to all property systems, not just intellectual property systems and providing examples where violations of these tenants resulted in adverse affects on particular property systems).
⁸ See infra Parts II–IV.
⁹ These rights primarily include the right to exclude others from using, making, or selling the subject matter embodied in the patent. See 35 U.S.C. §§ 154 (a)(1), 271 (2006).
supported by the patent document itself.\textsuperscript{10} To facilitate this function, a patent is comprised of a number of elements including a specification.\textsuperscript{11} The specification must contain one or more claims and a written description.\textsuperscript{12}

Claims define the scope of protection afforded to the inventor under the issuance of the patent.\textsuperscript{13} A claim is a single sentence that includes “three distinct subparts: preamble, transitional phrase, and body, in that order.”\textsuperscript{14} The scope of a patent claim is measured by the Patent and Trademark Office (PTO) during the process by which an inventor procures the patent,\textsuperscript{15} and by the courts when determining whether a patent has been infringed.\textsuperscript{16} There are two primary interpretation paradigms in use today: central claim interpretation and peripheral claim interpretation.\textsuperscript{17} Peripheral claiming endeavors to use the claim language to draw a periphery around the property right.\textsuperscript{18} In essence, the patentee asks for a particular scope of patent protection by the language used in the claim.\textsuperscript{19} Conversely, central claiming uses the claim language to refer back to the written description.\textsuperscript{20} The written description is used to define the scope of protection by providing protection for the embodiments disclosed and their equivalents.\textsuperscript{21}

\begin{footnotesize}
\begin{enumerate}
\item Claims are invalid if not supported by the specification. \textit{See, e.g.}, Consol. Elec. Light Co., v. McKeesport Light Co., 159 U.S. 465, 474 (1895) (“If the description be so vague and uncertain that no one can tell, except by independent experiments, how to construct the patented device, the patent is void.”).
\item \textit{Id.} § 112, ¶¶ 1–2.
\item \textit{Id.} § 112(a)(2), 112 (2006).
\item \textit{Id.} at 373 (quoting McClain v. Ortmayer, 141 U.S. 419, 424 (1891)).
\item \textit{Id.} § 4:8.
\item 
\item \textit{Id.} § 4:8.
\item \textit{Id.} § 4:8.
\end{enumerate}
\end{footnotesize}
Because economic justifications are central to determining whether the patent system is meeting its intended objectives, this article focuses on components of claim interpretation that impact the economic justification of the patent system: definitional accuracy and notice. Herein, definitional accuracy is defined as the ability of a patent to clearly define the contribution of the inventor to the state of the art. Notice is defined as the ability of a patent to clearly define the metes and bounds of the property right conferred by the patent. Under this conception of definitional accuracy and notice, the U.S. system sacrifices too much in the way of definitional accuracy for little or no improvement to the notice that the patent imparts.

B. Policy Justifications of the U.S. Patent System

This sacrifice creates real questions as to whether the U.S. system properly meets its stated policy justifications. The manner in which a claim is interpreted implicates one or more policy justifications over others. There are many articulated justifications for the existence of the U.S. patent system. However, these stated justifications may be more appropriately partitioned into natural rights justifications and economic justifications. “There are essentially two broad justifications for patenting. One is based on the natural right of the inventor. . . . The other [is an economic] view . . . that patenting is a discretionary

\[\text{22 See infra notes 34–38 and accompanying text.}\]
\[\text{23 See infra Part III. Conceptions of whether a particular mechanism provides a greater reward to the inventor are largely ignored. The likelihood that broader patent rights will provide larger rewards for the inventor is merely a secondary purpose. See supra infra notes 24–31 and accompanying text. Furthermore, it is not always clear whether the reward received by the inventor is commensurate with their inventive effort. See, e.g., infra Part III (discussing definitional accuracy and how inventors are not always given a property right over their contribution to the art).}\]
\[\text{24 This is consistent with how others have defined this term. See, e.g., 1 MOY, supra note 14, § 4:9.}\]
\[\text{25 This is also consistent with how others have defined this term. See, e.g., id.}\]
\[\text{26 See infra Parts III–IV.}\]
\[\text{27 See infra Part III.}\]
\[\text{28 See, e.g., Georgia E. Kralovic, Comment, The Principle of Fair Notice: Is It Prudent Guidance For the Future of Patent Law?, 26 PEPP. L. REV. 89, 89 (1999) (presenting the idea that “The United States patent system serves three important objectives: (1) to reward inventors for their efforts in developing innovative technology; (2) to encourage these inventors and others to continue to advance technology; and (3) to disclose to the public the scope of the invention so that the public is put on notice of that which is no longer in the public domain.”). These and other justifications can be applied to virtually any intellectual property system, although this article focuses primarily on the United States patent system. See, e.g., HALPERN, NARD, & PORT, supra note 15, at 1.}\]
act of the sovereign, acting on behalf of the public.” 29 The natural rights justifications focus on Lockean concepts of owning one’s labor. 30

In general, these natural rights justifications encounter what some consider fatal problems. 31 For example, natural rights should last in perpetuity or until the inventor’s death, which is contrasted by a limited period of exclusivity granted by our patent system. 32 Additionally, Lockean Labor Theory cannot be used to justify control over third parties. 33

The economic justifications, on the other hand, essentially amount to the idea that the government offers a patent system in order to increase societal wealth. 34 These economic justifications focus on balancing the social costs of administering the patent system with the social benefits received. 35 Social costs are incurred by the public due to a distortion in the free market 36 and in administration of the patent system. 37 Generally, social benefits ripen from incentivizing the inventive process. 38

Part II describes an historical framework from which the United States first required claims, moved to peripheral claiming, and then allowed a specific form of central claiming. Part II also discusses the role of the PTO and recent judicial decisions that have impacted how claims are interpreted. Part III defines the

29 1 MOY, supra note 14, § 1:26 (footnote omitted).
30 See, e.g., id. § 1:28.
31 Id. ("[T]he attempt to justify the patent system of this country through natural law runs into problems that are probably insurmountable."). As such, framing discussions of the patent system using natural rights justifications appears to be a misguided endeavor. See id. In other words, one should focus on the economic justifications and not the natural rights justifications because “[r]ewarding inventors for their discoveries is a secondary purpose, and merely a means to achieve [the] stated end.” Efthimios Parasidis, A Uniform Framework For Patent Eligibility, 85 Tul. L. Rev. 323, 330 (2010); see also Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 330–31 (1945); United States v. Masonite Corp., 316 U.S. 265, 278 (1942)).
32 See 35 U.S.C. § 154(a)(2) (2006) (“[The patent] grant shall be for a term beginning on the date on which the patent issues and ending 20 years from the date on which the application for the patent was filed in the United States . . . .”).
33 See 1 MOY, supra note 14, § 1:28.
34 Id. § 1:29 (“The sovereign exercises this discretion according to its calculation of how best to increase society’s welfare. Typically, this welfare is viewed in economic terms, with the goal of the patent system said to be the maximization of society’s aggregate wealth.”).
35 Id. ("[T]hese views all involve consideration of the costs and benefits of granting patent rights.").
36 This distortion generally increases the costs of goods because the supply is suboptimal to meet demand. See, e.g., 1 MOY, supra note 14, § 1:32. A supply shortage necessitates that some portion of society is denied the benefit of the invention while it is under exclusive control of the inventor. Id.
37 See id. § 1:30.
38 Namely, by promoting advancement in the overall technical sophistication of society.
benefits and drawbacks of the peripheral claiming paradigm and the central claiming paradigm using the definitional accuracy and notice objectives. Part IV analyzes the peripheral claiming paradigm to determine if improved notice under the doctrine has been realized. In so doing, this article concludes that peripheral claiming’s promise of improved notice has not been realized and discusses what can be done to ameliorate its deficiencies.

II. HISTORY

This section discusses the historical evolution of the patent system vis-à-vis legislative acts adopted by Congress and how the PTO and the courts have been instrumental in sculpting the system we have today.


The United States Constitution endows the Congress with the power to “promote the Progress of Science and useful Arts . . .”39 The first act of Congress to utilize this power was the Patent Act of 1790.40 The Patent Act of 1790 created a review board that would substantively review patent applications.41 The Patent Act of 1790 did not require an invention to be defined in scope by one or more claims.42 During this time, the scope of the invention was determined centrally.43 The Patent Act of 1790 was also unique in that it attempted to define novelty worldwide.44

Apparently, substantive evaluation by a select few was viewed as unworkable because soon thereafter, the patent act of 1790 was replaced by the patent act of

40 Ch. 7, § 1, 1 Stat. 109, 110 (1790) (repealed 1793). See also Edward C. Walterscheid,
[hereinafter Charting a Novel Course]. “No copy specifically identified as H.R. 10 has been
found, and what is known about it comes from indirect sources.” Id. at 462–63.
41 See Charting a Novel Course, supra note 40, at 519–20 (noting that the review board
comprised “the Secretary of State, the Secretary for the Department of War, and the Attorney
General.”). See also Edward C. Walterscheid, To Promote the Progress of Useful Arts 3
(1998) [hereinafter To Promote the Progress of Useful Arts].
42 See Charles W. Adams, The Doctrine of Equivalents: Becoming a Derelict on the Waters of
from the Patent Act of 1790 through the early twentieth century).
43 Id. at 1117 (“In the absence of claims, the invention was defined using a central definition
system.”).
44 To Promote the Progress of Useful Arts, supra note 41, at 14 (“The United States,
however, would become the first country wherein novelty, or more correctly the type of
anticipation that precludes novelty and hence patentability, would be predicated on what was
known or used not merely within its borders but anywhere in the world.”).
The Patent Act of 1793 abolished subjective examination and instead opted for a basic registration system. Another interesting addition to the Patent Act of 1793 was the idea of trebling of damages for patent infringement.

The Patent Act of 1793 generally remained operative until 1836. The Patent Act of 1836 initiated sweeping changes to the patent system. The Act of 1836 created a system that is similar to the one we have today. For example, the Act instituted a Patent Office, reinstated substantive examination, and laid the groundwork for the willful infringement doctrine by making the trebling of damages discretionary. The Patent Act of 1836 is also the first patent act that statutorily required the use of a claim. However, it appears that these claims

45 Ch. 11, 1 Stat. 318 (1793) (repealed 1836). See also To Promote the Progress of Useful Arts, supra note 41, at 15–16. This seems to indicate that the social costs of subjective evaluation by a select few were not justified by the social benefits of the approach.

46 To Promote the Progress of Useful Arts, supra note 41, at 15–16.


48 To Promote the Progress of Useful Arts, supra note 41, at 421–32; Powers & Carlson, supra note 47, at 67–68. Some scholarship exhibits surprise that the 1793 Act remained in effect for as long as it did. See To Promote the Progress of Useful Arts, supra note 41, at 421 (“Perhaps the most remarkable aspect of the Act of 1793 is that it remained the law of the land for as long as it did.”).

49 Ch. 357, 5 Stat. 117 (1836) (repealed 1870).

50 To Promote the Progress of Useful Arts, supra note 41, at 427 (“[T]he Act of 1836 repealed all existing patent laws including the Act of 1793 and replaced them with a patent law that was new in major respects.”).


52 See Patent Act of 1836, ch. 357, §7, 5 Stat. 117, 119–20. See also To Promote the Progress of Useful Arts, supra note 41, at 427 (“[T]he Patent Office was now required to conduct an examination to determine if certain substantive conditions for patentability were met.”).

53 See Patent Act of 1836, ch. 357, § 14, 5 Stat. 117, 123 (“[I]t shall be in the power of the Court to render judgment for any sum above the amount found by such verdict as the actual damages sustained by the plaintiff, not exceeding three times the amount thereof, according to the circumstances of the case . . . .”). The Supreme Court first interpreted this language in Seymour v. McCormick, 57 U.S. 480, 488 (1853). See Powers & Carlson, supra note 47, at 68 (“The Court stated that the mandatory treble damages provision in the 1793 Act resulted in ‘great injustice,’ because ‘[t]he defendant who acted in ignorance or good faith, claiming under a junior patent, was made liable to the same penalty with the wanton and malicious pirate.’” (quoting Seymour, 57 U.S. at 488)).

54 Adams, supra note 42, at 1117 (“The earliest statutory reference to claims appeared in the Patent Act of 1836, which provided that an inventor ‘shall particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery.’” (quoting Patent Act of 1836, ch. 357, § 6, 5 Stat. 117, 119)).
were not used peripherally to determine the scope of the invention, but instead were used centrally to point out specific aspects of the invention. 55

Between the passage of the Patent Act of 1836, and that of the Patent Act of 1952, the Patent Act of 1870 was enacted. 56 However, the more interesting historical events of that time were not statutory in nature. Prior to the 1870s, central claim expressions dominated the claiming landscape. 57 Then, in the 1870s and 1880s, practitioners began using the modern peripheral claiming system. 58 While an explicit rationale for the transition seems to be lost to the ravages of time, 59 it seems fair to assume that practitioners of the era were drawn to peripheral claiming’s putative benefits. 60 While peripheral claiming created a different collection of issues, 61 it has been the preferred method of claiming for at least the last hundred years. 62

In 1952, the Patent Act was again revisited, at which time the means-plus-function claiming was statutorily enabled. 63 The means-plus-function claim construction has been interpreted to be more limited in scope than that of a claim using more general claiming language. 64 Another way to look at means-plus-
function claiming is as “a vestigial form of central claiming.”65 One would think that because there was a departure from central claiming in the 1880s, the use of means-plus-function claiming would be minimal; however, means-plus-function claiming remains widely used.66

B. The Patent and Trademark Office

The Patent Act of 1836 essentially established the PTO.67 Since its inception, the PTO has generally acted as a gateway to the courts.68 While the complicated interplay between administrative agencies and the courts is beyond the scope of this article, decisions by the PTO regarding claim interpretation have been incorporated into the U.S. patent system by holdings of various courts.69

A particular example is how the PTO dealt with the concept of “back-firing.” Back-firing was a central claiming mechanism whereby language such as “substantially as herein described”70 was used to encompass more than what was explicitly recited in the written description, while still reading limitations into the claim from the written description using central claiming principles.71 In 1902, the Commissioner of Patents determined that back-firing expressions could not sustain patentability.72 Shortly thereafter, courts held that back-firing expressions

65 1 MOY, supra note 14, § 4:7.
66 See id. § 4:83 (“means expressions are used . . . extensively in United States patent practice”).
68 As a general matter, without an assigned patent, a putative plaintiff lacks the standing to sue for patent infringement. See 35 U.S.C. § 281 (2006) (“A patentee shall have remedy by civil action for infringement of his patent.”). One well-recognized exception is that exclusive licensees have standing to sue for injuries sustained. See, e.g., Intellectual Prop. Dev., Inc. v. TCI Cablevision of Cal., Inc., 248 F.3d 1333, 1345–46 (Fed. Cir. 2001) (discussing the differences between exclusive licenses and bare licenses, and the implications on the respective licensee’s standing to sue).
69 See, e.g., 1 MOY, supra note 14, § 4:3 (“[T]he Patent Office rendered decisions [during the 1860s and 1870s] that can be taken as signaling an intention to use only peripheral claim interpretation during the examination of patent applications.” (citations omitted)). See also infra notes 72–74 and accompanying text.
70 Another common phrase was “substantially as described.” See Adams, supra note 42, at 1118.
71 See, e.g., Janis, supra note 57, at 252.
72 See Adams, supra note 42, at 1118 (“In 1902, the Commissioner of Patents ruled that [back-firing expressions were] vague, indefinite, and in violation of the requirement to particularly point out and distinctly claim the invention.”).
had no legal effect. The use of back-firing expressions “gradually declined after 1914.”

However, it is important to note that the PTO’s decisions do not always strike a proper balance between social costs and social benefits. In general, many of the PTO’s decisions directly relate to their function as an issuer of patents; i.e., decisions are predicated on ensuring that patents issued by the PTO are valid. The concept of a constructive reduction to practice is one such example. Under section 102, the person who first conceives of the invention and reduces it to practice has inventive priority over all others. However, this creates problems because the PTO does not inquire as to whether an invention has been reduced to practice, and therefore, many patents are issued that are not actually reduced to practice before filing. “Arguably, therefore, the patents should be invalid. This argument is so theoretically attractive, in fact, that it has appeared repeatedly in litigated cases for over a century.”

In an effort to ensure that issued patents are valid, the PTO adopted the rule that “the act of filing a patent application is equivalent to reducing the invention to practice through actual construction and testing, provided that the application both claims the invention at issue and contains a disclosure sufficient to support the claim under rules that relate to adequate disclosure.” In determining that only a filed patent can constitute a constructive reduction to practice, the PTO’s decision went only so far as to ensure that patents issued by the PTO were valid. Typically, balancing the social costs of patenting has been left to the courts.

C. The Courts

The decisions rendered by the courts seem to point to a general erosion of a patent claim’s ability to provide notice. This section briefly presents a few of the most current cases regarding claim interpretation and infringement, Markman v. Westview Instruments, Inc., Vitronics Corp., v. Conceptronic, Inc., Warner-
Jenkinson Co. v. Hilton Davis Chemical Co., 84 and Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki, Co. 85 This section also touches on the articulation of the doctrine of indefiniteness espoused in Exxon Research & Engineering Co. v. United States. 86

1. Markman v. Westview Instruments, Inc.

Markman revolved around whether claim construction was a matter of law for the courts or a matter of fact for the fact finder. 87 Reviewing claim construction as a matter of law was not a new concept. 88 However, Markman’s holding that claim construction was a matter of law 89 still did violence to the concept of notice. For example, Markman provided no guidance as to how a court should interpret the claim language. 90 Without an articulated manner in which to interpret claims, district courts were set adrift in a sea of claims and various interpretive mechanisms. 91

83 90 F.3d 1576 (Fed. Cir. 1996).
84 520 U.S. 17 (1997).
86 265 F.3d 1371 (Fed. Cir. 2001).
87 See Markman, 517 U.S. at 372. See generally Gasparo, supra note 16, at 735–40 (discussing the Supreme Court’s decision and the issue before the Court).
88 Gasparo, supra note 16, at 733–34 (“Interestingly, prior to Markman, for centuries, many courts had treated claim construction as a matter of law. Conversely, some courts decided that there were factual issues within a patent’s claims, so that claim construction was a matter for the jury.” (citations omitted)).
89 Markman, 517 U.S. at 372 (“We hold that the construction of a patent, including terms of art within its claim, is exclusively within the province of the court.”).
90 See Gasparo, supra note 16, at 740 (“Despite the holding in Markman that judges must construe a patent’s claims, nowhere in Justice Souter’s opinion, nor in the concurring and dissenting opinion of the Federal Circuit in Markman, was there any suggestions as to how.” (citations omitted)).
91 Id. at 740–41 (“As a result of the Federal Circuit’s silence in Markman, and the lack of any guidance by the subsequent Supreme Court decision, district courts have formulated three options available to a trial judge for when claims can be interpreted. First, a judge can construe a patent’s claims on the paper record. Second, a judge can hold a separate bench trial, which has come to be known as a Markman Hearing. Third, a judge can wait until all the evidence has been presented at a trial, and prior to instructing a jury, before taking a hiatus to construe a patent’s claims.” (citations omitted)).
2. Vitronics Corp., v. Conceptronic, Inc.

Essentially, Vitronics Corp. begins where Markman ends. The issue before the court was interpreting the meaning of a claim.\(^\text{92}\) The court in Vitronics Corp. details a multi-step approach for analyzing intrinsic evidence:

First, we look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention. . . . Second, it is always necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning. . . . Third, the court may also consider the prosecution history of the patent, if in evidence.\(^\text{93}\)

As the analysis of intrinsic evidence related to the use of extrinsic evidence, the court noted, “[i]n most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence,”\(^\text{94}\) Some have suggested that this implies that it is impermissible to rely on extrinsic evidence for claim construction,\(^\text{95}\) but the Federal Circuit has dispelled that contention.\(^\text{96}\) In light of Markman and Vitronics Corp., courts view issues of claim construction as a matter of law, first using intrinsic evidence. While the Federal Circuit has on numerous occasions given reason why extrinsic evidence should be used sparingly,\(^\text{97}\) extrinsic evidence “may be considered if the court deems it helpful in determining ‘the true meaning of language used in the patent claims.’”\(^\text{98}\)


Warner-Jenkinson Co. dealt with the doctrine of equivalents.\(^\text{99}\) Typically, the doctrine of equivalents is invoked when “accused and patented devices [are]
conceptually similar.”

This is contrasted with literal infringement, where “accused device correspond[s] to the claim language exactly.”

While it is beyond the scope of this article to discuss the Warner-Jenkins Co. decision in great depth, the case is germane to the discussion regarding the concept of notice. In particular, the Court noted “[i]nsofar as the question under the doctrine of equivalents is whether an accused element is equivalent to a claimed element, the proper time for evaluating equivalency—and thus the knowledge of interchangeability between elements—is at the time of infringement, not at the time the patent was issued.”

100 4 MOY, supra note 14, § 13:10.
101 Id.
103 Warner-Jenkinson Co., 520 U.S. at 37.
The “time of infringement” rubric raises a number of questions. At least one commentator argues that these questions are irrelevant, but they have applied those questions to the question of patentability, and not necessarily incorporated those questions into the concept of notice. Viewed from the notice perspective, the Warner-Jenkinson Co. decision is problematic. The general problems with the doctrine of equivalents as it relates to the concept of notice will be described in more detail below.


The Court in Festo Corp. further refined the doctrine of equivalents. The Court in Festo Corp. first discussed the inherent ambiguities present in using language to define the scope of the invention:

[T]he nature of language makes it impossible to capture the essence of a thing in a patent application. . . . The language in the patent claims may not capture every nuance of the invention or describe with complete precision the range of its novelty. If patents were always interpreted by their literal terms, their value would be greatly diminished.
The Court also discussed how the prosecution history can play a role in determining the scope of equivalents:

The narrowing amendment may demonstrate what the claim is not; but it may still fail to capture precisely what the claim is. There is no reason why a narrowing amendment should be deemed to relinquish equivalents unforeseeable at the time of the amendment and beyond a fair interpretation of what was surrendered.

The Court then articulated when the patentee could overcome when the doctrine of equivalents is barred under prosecution history estoppel:

The equivalent may have been unforeseeable at the time of the application; the rationale underlying the amendment may bear no more than a tangential relation to the equivalent in question; or there may be some other reason suggesting that the patentee could not reasonably be expected to have described the insubstantial substitute in question.

If any of these factors are met, then prosecution estoppel does not bar the doctrine of equivalents.

There are a number of potential problems with the doctrine of equivalents, generally. For the purposes of notice, one issue is how putative infringers and patent holders dispense with claims arising under the doctrine of equivalents. While claim construction is a matter of law, literal infringement and the application of the doctrine of equivalents are reserved for the jury. This can be problematic for both sides of an infringement cause of action because the doctrine of equivalents cannot generally be disposed of with a motion for summary

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110 Festo Corp., 535 U.S. at 738. The Court also noted, “[n]or is there any call to foreclose claims of equivalence for aspects of the invention that have only a peripheral relation to the reason the amendment was submitted.” Id.

111 Id. at 740–41.

112 Id. at 741.

113 See Adams, *supra* note 42, at 1136–56 (articulating a number of problems with *Festo Corp.* specifically and the doctrine of equivalents more generally, including the argument that aspects of the *Festo Corp.* decision are counter to the statutory requirements of 35 U.S.C. § 112, first paragraph).

114 See *supra* notes 88–89 and accompanying text.

115 See Adams, *supra* note 42, at 1149.
judgment. This implicates notice, in part because it is difficult for a business to anticipate what will be swept into the claim language as an equivalent.

5. Exxon Research & Engineering Co. v. United States

Exxon Research & Engineering Co. dealt with how a court should handle potentially ambiguous terms in a claim and how that impacts a claim’s validity. In Exxon Research & Engineering Co., the court construed claims that included the language “for a period sufficient” and “to increase substantially.” In reversing the Court of Federal Claims, the Federal Circuit stated:

We have not insisted that claims be plain on their face in order to avoid condemnation for indefiniteness; rather, what we have asked is that the claims be amenable to construction, however difficult that task may be. If a claim is insolubly ambiguous, and no narrowing construction can properly be adopted, we have held the claim indefinite. If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds.

Some have argued that such an approach is damaging to the patent system. Furthermore, while some ambiguity in the claim would not be per se harmful to the concept of notice, the harm to notice is exacerbated by the unpredictable nature of claim interpretation.

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116 Id. (“[I]n the absence of a narrowing amendment, summary judgment is generally not available with respect to claims for infringement under the doctrine of equivalents.”).
117 Id. at 1151 (“[The application of the doctrine of equivalents] can only result in jury confusion and uncertainty as well as anxiety for a patentee’s competitors who cannot tell whether a variation of an invention that is outside the literal scope of the claims is lawful or infringing.”); see also Bessen & Meurer, supra note 2, at 61 (“The doctrine of equivalents corrodes the notice function of patents and increases the risk of inadvertent infringement.”).
118 265 F.3d 1371 (Fed. Cir. 2001).
119 Id. at 1374.
120 Id. at 1375.
121 See, e.g., Bessen & Meurer, supra note 2, at 57 (“[P]atent applicants sometimes game the system by drafting ambiguous patent claims that be read narrowly during examination, such that they avoid a novelty rejection, and broadly during litigation, which supports a finding of infringement.”).
122 See infra notes 147–51 and accompanying text; see also Bessen & Meurer, supra note 2, at 58 (“[D]istrict court judges do a poor job of predicting Federal Circuit claim interpretation. Certainly, it follows that lawyers will have difficulty counseling potential infringers how an ambiguous claim term will be interpreted.”).
Notice is predicated on the ability for the public to comprehend the metes and bounds of the patent right. However, when the scope of the claim is not defined until interpreted by the courts, the language of the claim can itself be ambiguous, and claims can incorporate technology not known at the time of the invention, the metes and bounds of the patent right is anything but clearly defined.

III. THE PERIPHERAL CLAIMING PARADIGM AND CENTRAL CLAIMING PARADIGM

This section briefly touches on the differences of the two claiming paradigms and gives a concrete example of how the same claim language may yield a different scope of protection under each.

A. Peripheral Claiming

Traditionally, the peripheral claiming paradigm has been attributed with poor definitional accuracy, but better notice when compared with its central claiming counterpart. This is because of how the claims are interpreted; a central claim derives its scope from the written description and is tightly coupled with the disclosure, while a peripheral claim derives its scope from the plain meaning of the claim and may not be tightly coupled to what is disclosed in the written description. That being said, the definitional accuracy in the mechanical arts is substantially worse than the definitional accuracy in the chemical arts.

This difference can generally be traced to how the courts interpret mechanical arts claims in light of the specification and how they interpret chemical arts claims in light of the specification. Namely, the broadest chemical arts claims must be supported by a representative number of embodiments in the written description.

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123 Bessen & Meurer, supra note 2, at 8 (“An efficient property system notifies non-owners of property boundaries.”).
124 See supra notes 89–98 and accompanying text.
125 See supra notes 120–21 and accompanying text.
126 See supra notes 103, 116–17 and accompanying text.
127 See 1 MOY, supra note 14, § 4:4 (“While peripheral claiming holds out the promise of improved notice, this improvement comes at the cost of a significant decrease in definitional accuracy. This accuracy exists inherently in central claims, whose scope is defined by the patent disclosure directly. In peripheral claiming, on the other hand, the scope of the claim and the contents of the specification are essentially divorced.”).
128 Id. See also supra notes 18–21 and accompanying text.
129 See, e.g., 2 MOY, supra note 14, § 7:26 (“In the [mechanical] arts it is essentially impossible to associate particular technological configurations uniquely with a single word description. As a necessary consequence, then, it is impossible to limit a peripherally drawn claim to only the disclosed embodiment. Instead, a patent system that issues peripherally drawn claims in the mechanical and electrical arts will always issue coverage that is generic in some respects.”).
description, while the broadest mechanical arts claims need only be supported by a single representative embodiment in the written description.

Some scholars have argued that the disclosed innovation is incapable of teaching the public because the definitional accuracy is generally so poor in peripherally claimed patents. Without a sufficient disclosure of the inventive concepts, i.e., a teaching, one cannot come into intellectual possession of the invention. This is counter to the underlying policy regarding the enablement requirement.

B. Central Claiming

Traditionally, the central claiming paradigm has been attributed with poor notice, but better definitional accuracy when compared with its peripheral claiming counterpart. It seems that the United States, for various reasons, abandoned the central claiming paradigm around the 1880s. The primary difference between the two paradigms can be highlighted using a simple example.

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130 See, e.g., 1 MOY, supra note 14, § 4:65 (“In essence, United States patent law will grant the inventor rights over a genus in [the chemical arts] if he or she has supplied a disclosure that teaches, at least by implication, how to implement all the included species.”); see also Regents of the Univ. of Cal. v. Eli Lilly & Co., 119 F.3d 1559, 1569 (Fed. Cir. 1997), reh’g denied, en banc suggestion declined (Oct. 24, 1997) (requiring a “representative number of species”).

131 See, e.g., Spectra-Physics, Inc. v. Coherent, Inc., 827 F.2d 1524, 1533 (Fed. Cir. 1987) (“If an invention pertains to an art where the results are predictable, e.g., mechanical as opposed to chemical arts, a broad claim can be enabled by disclosure of a single embodiment . . . .”).

132 See Sean B. Seymore, The Teaching Function of Patents, 85 NOTRE DAME L. REV. 621, 621 (2010) (“[W]hen the [patent] document publishes, it can serve as a form of technical literature. Because patents can, at times, communicate knowledge as well as, or better than, other information sources, patents could become a competitive source of technical information. Presently, however, patents are rarely viewed in this manner. There are several reasons for this, including the lack of a working example requirement and the pervasive use of ambiguous or opaque language.”); Jeanne C. Fromer, Patent Disclosure, 94 IOWA L. REV. 539, 561 (2009) (“[A]n indicator of the patent literature’s irrelevance to further technological research is the extremely limited citation of patents in the non-patent scientific literature: only 1.5% of U.S. patents have been cited in the scientific literature—of which only 1.7% are citing U.S. patents—and 73% of these patents are cited merely once.”).

133 See 2 MOY, supra note 14, § 7:31 (“[T]he enablement requirement . . . asks whether the disclosure would have communicated enough knowledge to give intellectual possession of the invention to a typical artisan.”).

134 See 1 MOY, supra note 14, §§ 4:3, 4:9. See also supra note 127.

135 See supra notes 58–62 and accompanying text.

136 This example may be overly simplistic, but it draws into sharp contrast the differences between the two paradigms.
Assume that a claim is directed to a fastener. Under the peripheral claiming paradigm, this language could be used as the basis for patent protection over many different types of fasteners, including screws, staples, nails, brads, and the like. Under the central claiming approach, only those embodiments disclosed would be protected, along with reasonable alternatives.

For example, if only a screw was disclosed, other substantially different types of fasteners such as staples and brads may fall outside the scope of protection. However, most types of screws, such as wood screws, masonry screws, and the like, would fall within the scope of protection.

IV. CAN THE PERIPHERAL CLAIMING PARADIGM DELIVER?  
IF NOT, HOW CAN WE CHANGE IT?

Recall that the definition of notice is the ability of a patent to define clearly the metes and bounds of the property right conferred by the patent. If the primary benefit of the peripheral claiming paradigm over the central claiming paradigm is improved notice, we are paying too great a societal cost for a de minimis benefit. This section discusses why peripheral claiming is not delivering and some of the potential benefits in a change of course.

A. Peripheral Claiming is Yielding Insufficient Notice

There are a number of cases that would seem to indicate that notice in the patent system is not being realized. The mere fact that corporations with massive research and development budgets could be found to infringe a patent would indicate that these organizations are either willful infringers or

137 See generally 1 MOY, supra note 14, § 4:8–9; 2 id. § 7:24 (providing a detailed discussion of this example).
138 1 id. § 4:8.
139 Id.
140 Id.
141 See supra Part I.
142 See infra Part IV.A.
143 See, e.g., Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1329 (Fed. Cir. 2001) “[T]he E-Data dispute arose because hundreds of parties, including some very large companies, ignored, did not see, or misunderstood the boundaries created by the patent in question.” BESSEN & MEURER, supra note 2, at 8. See also Polaroid Corp. v. Eastman Kodak Co., 789 F.2d 1556 (Fed. Cir. 1986). Kodak took “great care” to invent around Polaroid’s patents, but was still slapped with damages totaling approximately $900 million. BESSEN & MEURER, supra note 2, at 48.
144 Certainly, the story surrounding Polaroid Corp. v. Eastman Kodak Co., 789 F.2d 1556 (Fed. Cir. 1986), would seem to counsel against the assumption that these organizations are always willful infringers. If anything, this case, and others, indicates that these companies are spending large amounts of time and resources to determine the scope of a patent, yet are
peripheral claiming as currently implemented by the courts does not provide adequate notice. And while central claiming does not provide improved notice over a peripherally drawn claim, it provides better definitional accuracy with at worst a de minimis reduction in overall notice.

This can be understood by reviewing the current procedures and doctrinal decisions handed down by the Supreme Court—namely the Markman, Warner-Jenkinson Co., and Festo Corp. cases. First, based on Markman and its progeny, holders of a patent and putative patent infringers are not notified of the scope of the litigated claim until the Markman hearing. Under this approach, a first scope of protection is defined during patent prosecution vis-à-vis the filings of the inventor and communications with the PTO. Once a patent is asserted against a putative infringer, the court, construing the claims in light of intrinsic evidence, determines a second scope of protection.

If the court is not satisfied by the informing nature of the intrinsic evidence, it is within the court’s discretion to look at extrinsic evidence to determine the scope of the patent claims. Under this approach, not only does the putative infringer not have notice until the court determines the patent scope, but the putative infringer does not have notice regarding what the court eventually relies on to arrive at that determination. This is contrasted with a centrally drawn claim, nonetheless being ensnared by their claims. See, e.g., Bessen & Meurer, supra note 2, at 50–51 (discussing the great pains that Kodak went to determining the scope of the state of art over the course of some seven years, including reviewing sixty-seven written opinions from a leading patent expert).

One reason for this is that organizations are remaining purposefully ignorant to the existence of patented technology. See infra notes 165–69 and accompanying text. However, this was not the case in Eastman Kodak Co., where the company was anything but purposefully ignorant. See supra notes 143–44.

See generally supra notes 87–117 and accompanying text.

See supra notes 87–91 and accompanying text. In other words, a putative infringer is not provided actual notice of the claim scope until they spend the money necessary to arrive at the Markman hearing.

Here, the PTO looks at the broadest reasonable interpretation of the claim language. See, e.g., In re Hyatt, 211 F.3d 1367, 1372 (Fed. Cir. 2000) (“[D]uring examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.”).

Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996) (“In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence.”).

The court in Vitronics Corp. did give courts guidance regarding how the intrinsic evidence should be applied. See id. at 1583. However, whether there are any remaining ambiguities may still be subjective according to the background and experiences of the trial judge. Furthermore, the skill of the trial attorneys and the scope of the intrinsic evidence may play a role. For example, “computer readable medium” typically is directed to a hard drive or other storage medium. With
where the scope of protection is defined by what is disclosed and equivalents thereof. That is, in the central claiming paradigm, putative infringers lack notice regarding what a court considers to be an equivalent, but not what a court considers in determining the literal bounds of the claim.

Second, even if there is no literal infringement of the claim language, under Warner-Jenkinson Co. and Festo Corp., there may be infringement because one or more of the elements of the allegedly infringing method or article of manufacture is equivalent to a respective claim element. Problematically, the patent at issue does not give a putative infringer notice as to what may be considered equivalent by the court. In essence, the expansion of progress in the art is determinative of equivalency, and not the teaching of the patent document. In other words, what provides notice is not the patent document, but the artisan’s understanding of the art. In general, this understanding cannot be established by a comprehensive reading of related or even relevant patents.

Interestingly, the main reason why central claiming provides poor notice is its reliance on equivalency. If one compares the doctrine of equivalents and central claiming’s use of equivalency, they are essentially the same. The doctrine of equivalents dictates that a claim can be infringed by subject matter falling within the scope of the peripheral claim and equivalents thereof. Equivalency under central claiming, on the other hand, specifies that a central claim can be infringed when subject matter falls within the scope of the embodiments disclosed in the written description and equivalents thereof. In other words, central claiming and peripheral claiming in the U.S. have substantially the same

the advancement of devices capable of reading and interpreting electrical signals originating from the brain, categorizing the brain as a “computer readable medium” is not an entirely specious argument. Depending on how the patent specification defines those terms and how well the attorneys advocate for one position over another, a judge may well indulge extrinsic evidence for a fully informed decision.

152 See supra notes 20–21 and accompanying text.
153 See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 37 (1997) ("[i]nsofar as the question under the doctrine of equivalents is whether an accused element is equivalent to a claimed element, the proper time for evaluating equivalency—and thus knowledge of interchangeability between elements—is at the time of infringement, not at the time the patent was issued.” (emphasis added)).
154 See supra notes 127–33 and accompanying text. The manner in which a claim element may be expanded by the application of the doctrine of equivalents seems to be at odds with previous conceptions of the doctrine. See DELLER, supra note 17, at 18 (“[T]he application of the doctrine of equivalents may render the claim either co-extensive with its terms or narrower. It never broadens the claim.” (emphasis added)).
155 See 1 MOY, supra note 14, §§ 4:3, 4:4, 4:9.
156 See 4 id. § 13:10; see also supra Part II.C.iii.
157 See 1 MOY, supra note 14, §§ 4:2, 4:8, 4:92.
reduction of notice; both systems rely on forms of equivalency, which effectively expands the scope of the patent right in a way that obfuscates the bounds of that right.

To exacerbate the issue, as Markman makes clear, claim construction is a matter of law reviewed de novo by an appellate court. If the patent holder or putative infringer disagrees with the claim construction as interpreted by the district court, there is a strong possibility that the appellate court will find the claim interpretation incorrect. More importantly, the rate of reversal has increased, meaning that notice is an increasingly ephemeral and illusory concept.

In sum, notice as implemented by the U.S. system, is an inadequate barometer for a claiming paradigm. In order, however, to justify why notice is so important, the concept of notice in the patent setting is commonly linked to the traditional property boundary in the real property setting. This analogy is appealing because we want to define a patent boundary in such a way that one can avoid trespassing on the patent of another vis-à-vis notice of the existence of that boundary. However, this analogy does not take into consideration the shifting and discretionary nature of claim interpretation, or the grave consequences of a trespass in a patent setting.

In addition, the idea that one could simply look at a patent claim to determine the metes and bounds of the property right—alogous to determining the metes and bounds of a property right by inspection of a deed—seems inconsistent with

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159 Approximately thirty-five percent of the time, appellate courts find an error in the way the claim was construed below. See David L. Schwartz, Pre-Markman Reversal Rate, 43 Loy. L.A. L. Rev. 1073, 1095 (2010) (“From 1991 through 2008, 28.5 percent of appeals from district courts involving claim construction were reversed, vacated, or remanded. In another 6.6 percent of the cases, the Federal Circuit found a claim construction error by the district court but nonetheless affirmed.”).
160 See id. (“[T]he overall reversal rate clearly increased after [Markman].”)
161 See, e.g., Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 510 (1917) (“The scope of every patent is limited to the invention described in the claims contained in it, read in the light of the specification. These so mark where the progress claimed by the patent begins and where it ends that they have been aptly likened to the description in a deed, which sets the bounds to the grant which it contains.”).
162 See, e.g., Am. Roll Gold Leaf Co. v. W. H. Coe Mfg. Co., 212 F. 720, 723 (1st Cir. 1914) (“The public have a right to rely upon the language of the claims in determining how far the patentee’s rights go.”).
163 See generally supra Part II.C.
164 See supra note 143. There are a vast number of organizations within the United States where a $900 million dollar verdict could potentially bankrupt them.
the law. If one were put on actual notice of the existence of the patent right—for example, by reading the claimed language—one could be found to have willfully infringed the patent. Patents generally, and claims more specifically, cannot put anyone on notice if the conventional wisdom is that their reading should be avoided as a first, and sometimes dispositive, step to avoid trebling of damages.

While the standard for willful infringement has since been modified, the fact that one can come under the umbrella of an award for treble damages for being put on actual notice illustrates the irreconcilable difficulty of catering claim interpretation methodology to notice because it can be too costly for the public to read claims to determine the scope of the patent. In other words, “numerous legal and institutional features of the patent system undermine the notice function of property: the boundaries created by patents are hidden, unclear, or too costly to determine.”

Some have suggested that these numerous institutional features need to be confronted if they plague the concept of notice. That implies, however, that notice is something that can be objectively determined in all circumstances and established before an infringement lawsuit is initiated against an alleged infringer.

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165 Underwater Devices Inc. v. Morrison-Knudsen Co., 717 F.2d 1380, 1389–90 (Fed. Cir. 1983), overruled by In re Seagate Tech., LLC, 497 F.3d 1360 (Fed. Cir. 2007) (“Where . . . a potential infringer has actual notice of another’s patent rights, he has an affirmative duty to exercise due care to determine whether or not he is infringing. Such an affirmative duty includes, inter alia, the duty to seek and obtain competent legal advice from counsel before the initiation of any possible infringing activity.” (citations omitted)).

166 Barring only a few mitigating circumstances, one cannot be put on actual notice of the existence of an invention if they remain purposefully ignorant of its existence. Without the infringer reading a patent or being in possession of a clearly marked patented device, a claimant has a very difficult hurdle to “show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent.” In re Seagate Tech., LLC, 497 F.3d at 1371.

167 Id. at 1371 (“Accordingly, to establish willful infringement, a patentee must show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent.”).


169 Bessen & Meurer, supra note 2, at 147.

170 There are a number of works that explore this concept. See, e.g., Bessen & Meurer, supra note 2, at ch. 11 (suggesting that the Federal Circuit give more deference to the PTO and lower courts when interpreting claims, giving teeth to the concept of indefiniteness by invalidating any claim with more than one plausible interpretation, and suggesting reform to good-faith infringement).
The notice provided in the patent setting, though, is not driven by a universal concept of absolute delineation from the property boundary— as in the property setting—but is instead driven by a general risk-reward calculus that goes into most, if not all, business decisions. For example, if an individual tortuously trespasses on the property of another in a real property setting they may be enjoined from that activity. But generally speaking, the injunction does not have the same economic impact that enjoining a patent infringer may yield. There are very few situations where enjoining a trespasser of real property would lead to the demise of the putative trespasser.

One such situation may be when a particular piece of real property is circumscribed by other pieces of real property not owned by the putative trespasser. However, in such situations the courts—as a matter of equity—likely look to create an easement on the basis of necessity or prior use, among other rationales. In the patent setting, the severe amount of damage that can be incurred by a business found guilty of infringing can cause a mortal wound to the fiscal health of the business entity. Yet, there is no similar notion of an easement on the basis of necessity in the patent realm.

For example, if a corporation spends vast amounts of resources inadvertently developing an infringing product or method of manufacture, it may be unable to recapitalize or otherwise continue to exist when it is enjoined from making or selling the product or using the method of manufacture. As such, the basic trespasser analogy is inapposite.

A more informing analogy would construct an image of the land being littered with land mines, where both the potential trespasser and the landowner are aware of the hazard’s existence. Yet, neither the trespasser nor the owner could be

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172 See Kenneth A. Froot, David S. Scharfstein & Jeremy C. Stein, Risk Management: Coordinating Corporate Investment and Financing Policies, 48 J. Fin. 1629, 1629 (1993) (“Recent surveys find that risk management is ranked by financial executives as one of their most important objectives.”).
174 See, e.g., RESTATEMENT (THIRD) OF PROPERTY (SERVITUDES) § 2.15 (2000) (stating that servitudes (i.e., easements) may be created in favor of a particular piece of land for the purposes of the reasonable enjoyment of the land).
175 Even where an injunction is not granted, the damages that an infringer is required to pay may cause a mortal wound.
176 Here, it is assumed that the potential trespasser is aware that the owner is protected by a patent, but there are numerous situations where a potential trespasser may not even realize they are trespassing. Again, it is considered a sound business practice for employees of organizations not
sure of where the minefield is located because neither has the tools to identify the field’s periphery. The location(s) of these hazards are the trespasser and owner’s respective best guess—which may or may not be accurate—and likely diverges between them.

Using this minefield analogy, the concept of notice changes from a more objective standard to a basic concept of risk adversity, which is more subjective for each trespasser. Here, how close the trespasser gets to the periphery of the property depends solely on how much risk he or she can tolerate. This may be predicated on a number of factors, including the resources available to the business entity, the sophistication of the business entity, and other market conditions. For example, if the trespasser lacks deep pockets, it might stay completely out of sight range from the particular parcel of land. If another more risk-adverse entity had reason to believe the risk-reward ratio was in its favor, then it might approach or even enter the parcel of land.

Regardless of the business entity’s subjective belief—and unlike the trespasser analogy—the business entity could not determine if it had hit a land mine until after it had approached the parcel of land. Notice, while an important aspect of the economic justifications, needs to be tethered to something more substantial than words on a page. The English language is used to read patents in order to be protected from claims of willful infringement, but this process does not shield oneself from infringement, generally. See, e.g., 35 U.S.C. § 271(a) (2006) (stating that an infringement claim can be asserted against anyone whom “without authority makes, uses, offers to sell, or sells any patented invention.” (emphasis added)).

For example, the objective nature of defining the boundaries of real property based on survey information.

Businesses with deeper pockets and more tolerability to risk may be more willing to risk infringement than others because a court’s adverse judgment may not be sufficiently crippling in comparison to the possible financial gain. Conversely, businesses with deeper pockets and less tolerability to risk may be less willing to risk infringement, knowing that their deep pockets bring them within the cross-hairs of patent holders.

Businesses that are more routinely involved with intellectual property disputes may be at an advantage compared to businesses that are not because they may be better able to predict whether the conduct is infringing.

This may be because the entity cannot absorb the litigation costs of defending a lawsuit, or even the costs associated with reaching a settlement.

This may be because the entity has strong reason to believe it is actually a non-infringer, or that the patent in question is invalid under a variety of theories, including being anticipated or obvious in view of the prior art.

In other words, once the claim scope has been determined by a Markman hearing. See supra note 16.

1 MOY, supra note 14, § 1:29; see also supra note 38 and accompanying text.
inherently ambiguous. Each business must engage in a risk-reward type analysis to determine if the research and development costs are warranted, notwithstanding the putative notice provided by the claim language of an identified patent under the peripheral claiming paradigm. And again, this assumes that an organization has determined it is worth the risk to be put on actual notice of the patented technology’s existence, which is not done in all circumstances.

Therefore, sacrificing definitional accuracy for the concept of bolstering notice is misguided. Notice in its current incarnation cannot be used to guide an understanding of the metes and bounds of a patent because those metes and bounds are only determined well into an infringement litigation, and even then, an interpretation decided upon by the district court is reversed in approximately thirty-five percent of cases. Instead, the U.S. claiming paradigm should focus on something that we can and should exert substantially more control: definitional accuracy.

B. Possible Alternatives and Advantages of Relying on Definitional Accuracy

In light of the fact that the peripheral claiming paradigm is not providing the quality of notice that distinguishes peripheral claiming over its central claiming counterpart, it is urged that other alternatives to the peripheral claiming paradigm be explored. In particular, there are perhaps some non-obvious ways to improve the notice present in claims as currently interpreted.

For example, one interesting endeavor is to look to how other professions create the notice that is necessary to their respective professions. One good example is the software engineering profession generally, and the development of critical systems specifically. For instance, the National Aeronautical and Space

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185 See supra notes 165–69 and accompanying text. At least a large subset of situations will lead a business entity to forego the reading of patents. The opportunity to weight the costs and benefits of innovation in a particular technological area under control of a patent holder is likely not worth the risk of being exposed to treble damages.

186 See supra notes 159–60 and accompanying text.

187 See supra Part IV.A.

188 See Critical Systems Labs, Inc., What are Critical Systems?, http://www.criticalsystemsllals.com/pgs/What.html (last visited May 4, 2011) (“Critical systems are systems in which defects could have a dramatic impact on human life, the environment or significant assets.”). Using this definition of a critical system, it is paramount that the software requirements (articulating exactly what the software must do) and the software design (implementation specifics stating exactly how the software meets its stated requirements) notify
Administration (NASA) requires that software requirements can only be designated using the word "shall." There are other limitations that have been adopted by practitioners in the field, including adopting a glossary of terms that specifies standard definitions of terms used in the industry. This ensures that software developers are using a set of pre-defined terms that specify the metes and bounds of the software functionality. Such an approach, however, likely does not work for the patent system because allowing an inventor to act as his own lexicographer allows the inventor to describe something so novel that there are no current words to describe the invention. It still, however, reinforces the point that when things more paramount than monetary loss are at stake, such as human lives, government-funded entities have developed novel approaches for providing notice to those that practice in the art.

Certainly, the most obvious alternative is to embrace a more central interpretation of the claim language. For example, the U.S. patent system already embraces means-plus-function claiming in the mechanical arts. In the chemical arts, to the extent that genus (or broadest) claims are used, claim scope is already limited by the nature of what is disclosed. In essence, if all mechanical arts patents were impliedly analyzed under the mean-plus-function rubric, the U.S. patent system would substantially close the gap between definitional accuracy in

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191 Among other reasons, there is likely far too much momentum for anyone to rationally consider this as an appropriate option, let alone considerations of patent invalidity of already issued patents.
192 See, e.g., 1 MOY, supra note 14, §§ 4:36, 4:38–9.
193 Like the notice of a patent, the notice present in a requirements document and a corresponding design document are presented only through pictures and ambiguous words. It seems NASA has determined one way, and perhaps the only way, to provide sufficient notice when relying on words is to remove much of the ambiguities by a combination of limiting the words that can be used and the definitions associated with those words.
194 See Hofmann & Heller, supra note 64, at 231; 1 MOY, supra note 14, §§ 4:7, 4:83.
195 See 1 MOY, supra note 14, § 4:65; Spectra-Physics, Inc. v. Coherent, Inc., 827 F.2d 1524, 1533 (Fed. Cir. 1987). In essence, genus claims in the chemical arts are already interpreted centrally because in order for the broadest claims to be valid, the specification must disclose a representative number of species, which inherently captures reasonable equivalents of the disclosed species.
196 For example, by limiting the claim scope to what is disclosed, instead of granting broad rights based solely on a single disclosed embodiment and broad peripheral claim language.
the peripheral claiming paradigm and definitional accuracy in the central claiming paradigm while yielding little or no reduction of overall notice.¹⁹⁷

There are a number of advantages to focusing on the definitional accuracy of a patent over its ability to give notice. First, improving the definitional accuracy of a patent will likely necessitate an improvement in the teaching quality of the specification. This is because if we define the scope of the patent based on what is disclosed in the patent, it incentivizes inventors to increase both the scope and quality of what is disclosed. Moreover, if a patent is viewed as being a statement of the art,¹⁹⁸ this approach is appealing.

Improving definitional accuracy may in fact lead to better notice for a subset of society: people of ordinary skill in the art. If we assume that a person of ordinary skill in the art is versed in the art, then it follows that a person skilled in the art would be able to ascertain the metes and bounds of the property right by subtracting their understanding of the state of the art from the information contained in the specification.¹⁹⁹

Second, some inter-disciplinary harmonization can be brought to the U.S. patent system. The broadest claims in the mechanical arts and the broadest claims in the chemical arts are supported by the specification in different ways.²⁰⁰ Namely, a single embodiment must be disclosed in the mechanical art to support a broad claim, while a representative number of embodiments must be disclosed in the chemical art to support a broad claim.²⁰¹ If we always apply a means-plus-function mechanism to constrain the broadest mechanical art claims, inventors and practitioners would be incentivized to disclose a larger number of embodiments in order to carve out the broadest protection possible.

¹⁹⁷ This is not meant to imply that such an undertaking is a mere a trivial change. Anytime you fundamentally change how a patent claim is interpreted, the validity of virtually every issued patent construed under the prior interpretation paradigm is brought into question. However, the longer the system goes unchanged, the more painful the transition, particularly since the rate of patenting is increasing over time. See U.S. PATENT AND TRADEMARK OFFICE, Number of Utility Patent Applications Filed in the United States, By Country of Origin, Calendar Years 1965 to Present tbl.1, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/appl_yr.htm (last visited May 4, 2011) (illustrating an increase from approximately 100,000 filed applications in the 1960s and 1970s to an average of approximately 450,000 filed applications over the last several years).

¹⁹⁸ Many people currently do not view a patent as being a statement of the art. See Seymore, supra note 132, at 621. But that does not mean that they do not believe that it is a worthwhile endeavor. Furthermore, it is not impossible to envision a scenario where the state of the art for many areas of applied technology is defined by what is taught in those patent specifications.

¹⁹⁹ Improved definitional accuracy does nothing to those that remain purposefully ignorant of the contents in issued patents. Little can be done, however, to improve notice when the documents that are designed to give notice are not being read.

²⁰⁰ See supra notes 129–131 and accompanying text.

²⁰¹ Id.
In so doing, a court in its interpretive capacity would analyze mechanical art claims and chemical art claims in substantially the same way. Specifically, a representative number of mechanical art embodiments would need to be disclosed in order to support those broad claims because the representative number of embodiments and their reasonable alternatives would create the same scope of patent protection in the mechanical arts as a current peripherally drawn claim in the chemical arts.

Third, the exploitation of the patent system can be frustrated by those non-practicing entities, pejoratively known as patent trolls. Typically, as a non-practicing business entity, a patent troll does not produce a product, and procures a patent by purchasing the issued patent from another. Some may argue that the exploitation characterization is unfair because we live in a free market. However, because a patent troll does not add anything to the technical sophistication of society and their primary purpose is to extract royalties or settlements from others, patent trolls stifle innovation and unnecessarily burden society by increasing costs of goods. Non-practicing entities can utilize the fact that a single embodiment in the mechanical arts can give rise to a broad genus-type claim with damaging effects.

If patent claims were interpreted more centrally, patent trolling may be affected for a number of reasons. Where patent trolls are asserting rights to patents procured by other non-practicing entities, the patents likely lose at least some of their claim scope in a central claiming paradigm. The narrowing of the scope of the patent is attributable to a limited written description and does not give rise to a genus-type claim by teaching a single representative embodiment. This also allows those practicing entities to more easily design around the described embodiments. In other words, the number of patents with broad scopes

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202 Defending against patent suits may merely be a “cost of doing business.” See, e.g., Elizabeth D. Ferrill, Patent Investment Trusts: Let’s Build a PIT to Catch the Patent Trolls, 6 N.C. J.L. & Tech. 367, 376‒77 (2005). But the costs of doing business are invariably passed on to the consumer as higher costs for those goods.

203 This, however, does not mean to suggest that all patent trolling would disappear in a central claiming system. There are other aspects of the U.S. law that make trolling more viable, such as trebling of damages and the infrequency of courts awarding attorney fees to the prevailing party. See, e.g., Duncan Bucknell, European Patent Troll Boom? – I Think Not, THINK IP STRATEGY (Jan. 9, 2008), http://www.thinkipstrategy.com/ipthinktank/240/european-patent-troll-boom-i-think-not/.

204 As a general matter, it seems reasonable that a non-practicing entity does not have sufficient insight to provide enough embodiments to ensnare a large number of practicing entities with a single patent.
would be reduced, possibly providing practicing entities a respite from suits by non-practicing entities.\textsuperscript{205}

Unfortunately, a simple transition to interpreting claims through the means-plus-function lens gets us only so far. There are a number of jurisprudential issues that would also need to be addressed.\textsuperscript{206} Furthermore, any change to how a claim is interpreted must be weighed cautiously; such a change has numerous complications on previously issued patents.\textsuperscript{207} However, a move towards interpreting claims more centrally provides benefits that should at least be considered.

V. CONCLUSION

Patents are economic instruments. As such, to legitimize their existence, the social benefit of patents must outweigh their social cost. Two ways in which the economic justification is measured is by the patent’s ability to define the inventor’s contribution to the art, and the patent’s ability to inform third parties of the boundaries of the patent right.

By selecting a peripheral claiming paradigm, the U.S. made a conscious decision to promote notice over definitional accuracy. The U.S. patent system does a poor job of defining the inventor’s contribution to the art. Unfortunately, the current U.S. patent system also does a poor job of providing notice. In fact, the U.S. patent system makes use of equivalents that are substantially similar in nature to equivalents that provide poor notice in the central claiming system. Furthermore, the courts have adopted various doctrines that under-cut a patent’s notice-granting function. More importantly, it is not entirely clear whether the inherently ambiguous nature of language can ever give rise to adequate notice, without more. In essence, our decisions have created a system with the worst of both worlds.

In light of the fact that language is inherently ambiguous and generally incapable of providing notice, the patent system should endeavor to promote the

\textsuperscript{205} This would implicate the practice where a patent troll purchases a patent with a broad patent scope supported by only a limited number of embodiments. The patent troll can use the broad claim language to leverage a settlement because the costs and uncertainty of litigation are so high for the accused infringer.

\textsuperscript{206} See, e.g., Janis, supra note 57, at 235–36 (“[M]eans expressions are now subject to bewildering case law under which § 112, P 6 equivalents sometimes borrow characteristics from the doctrine of equivalents and sometimes do not.”).

\textsuperscript{207} For example, both doctrines would need to be applied simultaneously, while issued patents under a former paradigm have a remaining patent term under the previous approach. Simply put, it adds an additional layer of complication to patent litigation proceedings, which are already complex.
aspect of the economic justification it can control in definitional accuracy, and squeeze what little notice it can from such a system. While not a perfect solution, this approach may at bottom lead to inter-disciplinary consistency regarding the interpretation of mechanical and chemical art claims. Such an approach has numerous benefits and may provide some stabilization in an ever-changing area of the law.