

THE FAILURE OF PUBLIC NOTICE IN PATENT PROSECUTION

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I. INTRODUCTION

Inventions are often difficult to describe in words,¹ and patents often contain technical information intertwined with legal meaning,² making patent claims more difficult to interpret than other legal documents. Despite complex interpretive rules, patent law has failed to accomplish one of its essential missions: allowing interested parties to understand a patent's scope in a consistent and predictable manner.³ This Article argues for the abandonment of the “broadest reasonable construction” rule for interpreting claims in pending patent applications in order to enhance certainty in claim construction for those who rely on patents. Instead, pending applications should be construed using the same rule used in litigation, while patent examiners can use other methods to increase the clarity of claim meaning.

Patents are currently interpreted using different rules at different stages in the legal process. During the patent application or “prosecution” stage, the United States Patent and Trademark Office (“USPTO”) examiner, who determines whether a patent should issue, gives the proposed patent claims their “broadest reasonable construction.” In litigation, however, courts interpret issued claims the way a person with ordinary skill in the invention's subject matter — the patent's “art” — would interpret such claims.

Neither patent applicants nor patent examiners — two of the parties with the most appropriate means to clarify patent claims — have an incentive to create certainty in claim meaning. Patent applicants have an incentive to keep issued patent claims vague because vagueness allows for ex post gaming. Patent examiners have an incentive to issue valid patents; since the question for examiners is whether the claims are valid, they have no incentive to clarify vague patents if the

1. *Autogiro Co. of Am. v. United States*, 384 F.2d 391, 396–97 (Ct. Cl. 1967).

2. *See Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 389 (1996).

3. These interested parties include patentees, potential and actual licensees, patent infringement defendants, future patent applicants, courts, and even the U.S. Patent and Trademark Office.

claims otherwise appear valid. They understand that, if the patent claims are litigated, courts will attempt to resolve any ambiguity. Moreover, examiners know they will not be called upon to testify about their interpretation of the patent's claims.

The broadest reasonable construction rule is supposed to compensate for the lack of other incentives to produce precise patent claims.⁴ In theory, the rule is supposed to create incentives for providing public notice in three ways: (1) by creating an iterative process that clarifies claims through amendments to the claims and the corresponding generation of a public record, (2) by encouraging more precise claiming by applicants in their initial application, and (3) by setting an outer boundary on the meaning of patent claims during prosecution to minimize the likelihood that potential infringers will be unfairly ensnared by a new and broader interpretation in litigation.⁵ In this Article, these ways of creating clarity will be called the three "methods" of enhancing public notice.

While the broadest reasonable construction rule sometimes works as designed, it can fail in both theory and practice:⁶ vague claims may not be rejected during prosecution; applicants may not have sufficient incentives to write clear claims; and the USPTO's interpretation of claims may not provide an outer boundary because courts often interpret claims more broadly than the USPTO. Indeed, the broadest reasonable construction rule often imposes costs without corresponding benefits. It harms potential competitors by leaving uncertain what inventions may infringe vague patents until it is too late and the competitor is sued for patent infringement. Even patentees may be harmed by the rule if it allows courts to interpret vague patents in a way that conflicts with the patentee's original understanding of the patent.⁷

More certainty could be achieved by having patent examiners interpret patent claims using the same rule that courts use during litigation: as a person having ordinary skill in the art ("PHOSITA") would interpret them. This approach is referred to in this Article as the "PHOSITA rule." The cost of this change would be minimal; examiners could easily read patent claims in context but are currently barred from doing so by the broadest reasonable construction rule.

4. See *In re Zletz*, 893 F.2d 319, 321–22 (Fed. Cir. 1989).

5. See *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997); *In re Yamamoto*, 740 F.2d 1569, 1571–72 (Fed. Cir. 1984).

6. See *In re Trans Tex. Holding Corp.*, 493 F.3d 1290 (Fed. Cir. 2007) (holding that the USPTO is not bound by the district court's claim construction, which results in different claim meanings at different times in different venues).

7. Harm to patentees may be less of a concern for policymakers, as patentees have more control over the application process. See *In re Morris*, 127 F.3d at 1057 ("Nonetheless, when the examiner renewed the rejection the applicants had an obligation to either demonstrate that the examiner's interpretation of the claim language was unreasonable or amend their claim to distinguish the prior art.").

Furthermore, the patent prosecution and litigation processes can be adjusted to fill any void created by the abandonment of the broadest reasonable construction rule. In particular, this Article argues for the following changes: First, patent examiners should more vigilantly reject claims that are not supported by the patent's specifications. Second, examiners should require the patentee provide disclaimers or definitions to clarify vague claims. Third, examiners should have more leeway to reject obvious claims in order to limit the outer bounds of patent claims.⁸

Part II of this Article outlines claim interpretation.⁹ Part III describes the history and goals of public notice in claim interpretation and describes this Article's three-method theoretical framework for increasing claim clarity and, thus, public notice. Part IV explains why the broadest reasonable construction rule fails to promote the three methods of increasing clarity and public notice. Part V proposes abandoning the broadest reasonable construction rule in favor of the PHOSITA rule because the PHOSITA rule better fosters the three methods of enhancing public notice. Part VI proposes three supplemental approaches that would further the goals embodied in the three methods of enhancing public notice.

II. THE WHEN AND HOW OF PATENT INTERPRETATION

This Part discusses three situations in which patents are formally interpreted: prosecution, litigation, and post-grant review. Each of these situations will also affect the informal interpretation of patents, such as is done by potential licensees. As discussed below, the primary policy goal of the interpretive rules used in these situations is the creation of clear claims.

A. Patent Prosecution and the Broadest Reasonable Construction Rule

A valid patent application must contain several different, statutorily defined elements. First, the patent application must describe the nature of the claimed invention and enable a PHOSITA to recreate

8. *Cf.* KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1740 (2007) (broadening the standard of obviousness). Under the broader standard of obviousness, patent examiners and district courts now have more discretion to invalidate patent claims on this basis. *See id.*

9. This Article is not about claim interpretation per se. There are several maxims relating to claim interpretation that will affect a patent's scope. *See, e.g.*, Christopher A. Cotropia, *Patent Claim Interpretation Methodologies and Their Claim Scope Paradigms*, 47 WM. & MARY L. REV. 49 (2005) (discussing claim interpretation rules as they affect a patent's scope). This Article does not review all the rules of claim interpretation.

and use the invention.¹⁰ This description is called the “specification.”¹¹ Following the specification there must be a list of “claims” to the invention “particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.”¹²

During prosecution, a patent examiner¹³ determines whether the application meets the criteria for patentability.¹⁴ In order to do so, the examiner must discern what the proposed claims mean. The examiner determines a particular claim’s meaning by giving the claim its “broadest reasonable construction in light of the specification.”¹⁵

The examiner uses the broadest reasonable construction of the claims for several purposes during prosecution. The examiner uses this construction to determine what is considered “prior art,” the pre-existing information that relates to the proposed patent claims.¹⁶ This construction also affects the direction and scope of the examiner’s search for prior art. Although prior knowledge or use of an invention can be prior art, patent examiners only conduct prior art searches for printed materials.¹⁷ Patent applicants also assist with the prior art search. However, they are only required to submit printed information

10. See 35 U.S.C. § 112 (2000). The patentee must also disclose the “best mode” known to the patentee for carrying out the invention. *Id.*

11. The specification usually includes an abstract, a description of the field of the invention, and a description of the invention and how to make it (including drawings if necessary). See *id.*; see, e.g., U.S. Patent No. 5,626,505 (filed Feb. 6, 1996). Biotechnology patents also often include experimental data; chemical patents may include formulas; mechanical patents usually include drawings; and software patents usually include flowcharts.

12. 35 U.S.C. § 112. A claim limitation is an element that must be present in order for the claim to be infringed. For example, consider a claim for a light bulb. A second claim might add the limitation that the light bulb be the color blue. A red light bulb would infringe the first claim but not the second claim because it is missing the “blue” limitation of the second claim. Claims can be either independent or dependent. A dependent claim starts with a prior claim and adds an additional limitation — like the blue light bulb claim. See generally Gretchen Ann Bender, *Uncertainty and Unpredictability in Patent Litigation: The Time Is Ripe for a Consistent Claim Construction Methodology*, 8 J. INTELL. PROP. L. 175 (2001).

13. The USPTO employs more than 4,000 examiners in hundreds of subject matter areas. See USPTO, PERFORMANCE AND ACCOUNTABILITY REPORT FISCAL YEAR 2006, at 150 tbl.28 (2006) [hereinafter USPTO REPORT], available at <http://www.uspto.gov/web/offices/com/annual/2006/2006annualreport.pdf> (indicating number of examiners); USPTO, MANUAL OF PATENT EXAMINING PROCEDURE § 902.01 (8th ed., rev. 6 2007) [hereinafter MPEP], available at <http://www.uspto.gov/web/offices/pac/mpep/index.html> (listing subject matter areas). As a result, examination decisions are often made by a very diverse group of people, and the examination procedure varies by field. See Douglas Lichtman, *Rethinking Prosecution History Estoppel*, 71 U. CHI. L. REV. 151, 155 (2004). Uniform rules of construction are intended to minimize differences among fields.

14. See 35 U.S.C. § 131 (2000). The general criteria are novelty and nonobviousness. See *id.* §§ 102–103.

15. E.g., *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000); *In re Prater*, 415 F.2d 1393, 1404–05 (C.C.P.A. 1969); MPEP, *supra* note 13, § 2111.

16. See 35 U.S.C. § 102 (defining prior art which may bar a patent). In general, information known before the invention date or more than one year before the patent application date can be used. See *id.*

17. See MPEP, *supra* note 13, §§ 704.1, 904–904.03; see also 35 U.S.C. § 301 (2000).

they know about; they need not conduct an independent search for prior art.¹⁸

After completing the prior art search, the examiner compares the proposed claims to any located prior art. If any claims are not novel or are obvious in light of the prior art,¹⁹ the examiner sends a notice of rejection of those claims. To overcome such a rejection, the applicant may amend the patent application by clarifying or narrowing the claims at issue.²⁰ To “narrow” a claim means to add some new claim element (or “limitation”) not present in the prior art. The applicant may also explain why the prior art is not the same as the proposed claim. The record of communications between the examiner and the applicant is called the “prosecution history” and is publicly available.²¹

If the examiner issues a final rejection and the applicant chooses not to amend the patent application or cannot convince the examiner to allow the claims, the applicant may appeal to the Board of Patent Appeals and Interferences (“BPAI”). If the patentee loses his appeal before the BPAI, he may appeal the BPAI’s decision to the Federal Circuit. Both the BPAI and the Federal Circuit review claim construction *de novo*, considering the broadest reasonable construction of the claims without deference to the factual findings of the patent examiner.²² Thus, the Federal Circuit can determine its own broadest reasonable construction, which may conflict with the patent examiner’s understanding.

B. Litigation and the PHOSITA Rule

Patents are also interpreted in litigation. In order to determine if an accused device infringes the patent or if prior art invalidates the patent, the court and/or jury must know what the claims in the patent mean. In litigation, courts apply rules of interpretation different from the broadest reasonable construction rule used by the USPTO.²³

18. See 37 C.F.R. § 1.56 (2007).

19. See 35 U.S.C. §§ 102–103.

20. See 37 C.F.R. § 1.111 (2007). Claims may also be rejected on other grounds, and the same amendment procedure would apply.

21. The prosecution history for many patents is available on the USPTO website. See USPTO, Patent Application Information Retrieval, <http://portal.uspto.gov/external/portal/pair> (last visited Dec. 1, 2007).

22. See *SRAM Corp. v. AD-II Eng’g, Inc.*, 465 F.3d 1351, 1359 (Fed. Cir. 2006) (citing *Cybor Corp. v. FAS Techs.*, 138 F.3d 1448, 1456 (Fed. Cir. 1998)).

23. See *In re Etter*, 756 F.2d 852, 858–59 (Fed. Cir. 1985) (holding that courts should apply different interpretive rules during infringement litigation than those applied by patent examiners). To the extent that broad meaning is gathered from dictionary sources, such meaning will not be based on the described invention. *Cf. Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) (en banc) (“Thus, there may be a disconnect between the patentee’s responsibility to describe and claim his invention, and the dictionary editors’ objective of aggregating all possible definitions for particular words.”). Courts often hold

Courts usually give claim terms what their “ordinary and customary” meaning would be to a PHOSITA at the time of the application.²⁴ Ordinary meaning is generally informed by the patent’s specification as well as the prosecution history;²⁵ it may also include the context of other claims in the same patent application.²⁶

Ordinary and customary meaning is not always used, however.²⁷ If the patent provides specific definitions in its specification, those definitions will be applied to claim terms; the inventor is thus allowed to be his own lexicographer.²⁸ Disclaimers of meaning and of prior art are excluded from the definitions.²⁹ Further, claims must be construed in light of the prosecution history and the prior art; accordingly, claims in litigation cannot be construed to mean something that had been rejected or eliminated through amendments during the patent prosecution process.³⁰ If ambiguity persists after applying these techniques, the Federal Circuit has indicated that extrinsic evidence, such as technical dictionaries or expert testimony about the meaning of a term, may be used to elucidate how a term would have been understood by a PHOSITA at the time of the patent application.³¹ If a claim is still unclear after all of the above claim construction rules are applied, a court should construe the claim so as to be valid if possible.³² This usually results in a more narrow construction than the interpretation under the broadest reasonable construction rule.

“*Markman* hearings” to determine the meaning of claim terms. *See* *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996) (holding that claim construction is a matter of law to be determined by the judge). A relatively complete recitation of the formal standards for construing claims is provided in the Federal Circuit’s recent en banc opinion in *Phillips v. AWH Corp.* However, courts depart from the formal rules often enough to lead to confusion.

24. *Phillips*, 415 F.3d at 1312–13. In some cases, the time of the ordinary meaning can differ — usually it is the time of filing, but sometimes it is the time the patent issues or the time of the infringement. Mark A. Lemley, *The Changing Meaning of Patent Claim Terms*, 104 MICH. L. REV. 101, 102–03 (2005).

25. *See Phillips*, 415 F.3d at 1313–15.

26. *See id.* at 1325 (holding that the term “interlock” in the dependent claim suggests that the term “baffles” in the independent claim did not refer to interlocking baffles). This contextual analysis is called “claim differentiation” and is based on the principle that different claims should not be construed so as to mean the same thing.

27. The doctrine of equivalents as well as the application of “equivalent structures” in means-plus-function claims may enlarge the scope of claims after patent issuance, but these doctrines are usually fact-based. Equivalents are not discussed in this Article.

28. *See Phillips*, 415 F.3d at 1315–16, 1319.

29. *See id.* at 1316.

30. *See Graham v. John Deere Co.*, 383 U.S. 1, 33 (1966). This might even include consideration of the prosecution history of different but related patents. *See* *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1350 (Fed. Cir. 2004).

31. *See Phillips*, 415 F.3d at 1317–18. However, intrinsic evidence takes precedence over extrinsic evidence. *See id.* at 1318–19.

32. *See id.* at 1327.

Since claim construction is a legal question,³³ a district court's claim construction is reviewed by the Federal Circuit de novo with no deference given to the lower court's factual findings.³⁴

C. Post-Grant Review

In certain instances, the USPTO can reconsider a patent that has already been issued. Post-grant review of patent claims may be initiated through three processes: reexamination, reissue, and interference.³⁵ In each of these processes, the USPTO examiner again applies the broadest reasonable construction rule to the patent.³⁶

The Commissioner for Patents, the patentee, or any member of the public can initiate reexamination.³⁷ During reexamination, the USPTO reconsiders whether a patent should be granted again or invalidated. A reexamination almost always occurs so the application can be reevaluated in light of published prior art that was not brought before the USPTO during the initial prosecution.

A patentee is the only party that may request reissue, which is essentially a reapplication for the same invention but with modified claims.³⁸ Reissue may be requested when the patentee has either obtained a patent but made a mistake in claiming the invention³⁹ or when a court has found a claim invalid.⁴⁰ Reissue and reexamination are almost always ex parte.⁴¹

An interference proceeding arises when two different applicants claim the same invention.⁴² During such a proceeding, the USPTO

33. See *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388–90 (1996).

34. See *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc).

35. Interference is not always post-grant because it may involve two pending applications. See MPEP, *supra* note 13, § 2301.

36. See, e.g., *In re Yamamoto*, 740 F.2d 1569, 1571–72 (Fed. Cir. 1984); *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 500 (Fed. Cir. 1997).

37. See 35 U.S.C. §§ 301–303 (2000). The USPTO must find there is a substantial new question of patentability prior to proceeding with reexamination. See *id.* § 303(a).

38. See *id.* § 251.

39. See *id.* § 252. For example, a specification may describe a newly invented rocket ship that runs on a newly invented fuel, but the inventor may have mistakenly claimed the rocket ship only and not the fuel even though both could have been patented. The patentee must swear that he did not realize the full potential of the invention when originally writing the claims or must propose narrower claims that are not disclosed in the prior art.

40. See *id.* This process usually occurs after a claim is fully litigated, so the patentee can enforce the newly reissued and presumably valid claim against new infringers.

41. The exception is a procedure for inter partes reexamination. See *id.* § 311. Due to procedural and substantive rules, most parties would rather rely on the courts than on inter partes procedures. See Mark D. Janis, *Inter Partes Patent Reexamination*, 10 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 481, 498 (2000); see also USPTO REPORT, *supra* note 13, at 133 tbl.13.

42. See 35 U.S.C. § 135 (2000).

determines the proper owner of the contested patent claims based on who invented the subject matter of the invention first.⁴³

III. THREE METHODS OF ENHANCING PUBLIC NOTICE IN CLAIM CONSTRUCTION

One of the primary functions of a patent is to provide public notice about the claimed invention.⁴⁴ This goal has been a primary rationale underlying patent jurisprudence for at least 150 years, and it is of growing importance in claim construction.⁴⁵ The importance of certainty in claim scope was long ago recognized by the Supreme Court: “[P]atent law . . . leave[s] no excuse for ambiguous language or vague descriptions. The public should not be deprived of rights supposed to belong to it, without being clearly told what it is that limits these rights.”⁴⁶ Allowing an inventor to claim ownership of a discovery that was not set forth in a patent would be unjust to the public.⁴⁷ Thus, information disclosed in a patent but not claimed as the invention remains in the public domain for use by anyone without any risk of infringement.⁴⁸

Modern claim construction jurisprudence also reflects the public notice purpose of patent claims.⁴⁹ The Supreme Court has emphasized that “a patent must describe the exact scope of an invention . . . ‘to apprise the public of what is still open to them.’”⁵⁰ Unclear claims — that is, claims with terms whose meanings cannot be easily discerned — are undesirable and harmful to the public because they fail

43. *See id.*

44. *See, e.g.,* *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996).

45. *See generally* Lemley, *supra* note 24, at 101–02 (noting that claims define patent scope). For an interesting discussion of certainty in patent scope, see Craig Allen Nard, *Certainty, Fence Building, and the Useful Arts*, 74 *IND. L.J.* 759, 785–95 (1999).

46. *Merrill v. Yeomans*, 94 U.S. 568, 573 (1877). The quote continues: “It seems to us that nothing can be more just and fair, both to the patentee and to the public, than that the former should understand, and correctly describe, just what he has invented, and for what he claims a patent.” *Id.* at 573–74.

47. *See Shaw v. Cooper*, 32 U.S. 292, 321 (1833) (“[A discoverer’s] right would be secured by giving public notice that he was the inventor of the thing used . . . [W]ould any thing short of this, be just to the public?”).

48. *See Mahn v. Harwood*, 112 U.S. 354, 361 (1884) (“[T]he claim actually made operates in law as a disclaimer of what is not claimed . . .”); *see also* *Johnson & Johnston Assocs. v. R.E. Serv. Co.*, 285 F.3d 1046, 1055 (Fed. Cir. 2002) (en banc) (noting that patentee cannot invoke doctrine of equivalents to cover substance disclosed in the patent but not claimed); *In re Graff*, 111 F.3d 874, 877 (Fed. Cir. 1997) (holding that patentee must give clear notice within statutory time period that claims will be broadened).

49. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 33–34 (1997) (“The presumption we have described . . . gives proper deference to the role of claims in defining an invention and providing public notice, and to the primacy of the [US]PTO in ensuring that the claims allowed cover only subject matter that is properly patentable . . .”).

50. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 373–74 (1996) (quoting *McClain v. Ortmayer*, 141 U.S. 419, 424 (1891)).

to apprise the public of the scope of the invention and what is left in the public domain. A patent system without certainty in claim scope encourages gaming,⁵¹ increases uncertainty,⁵² retards free competition,⁵³ fails to encourage invention properly,⁵⁴ and discourages the use of unprotected ideas.⁵⁵

Unfortunately, the two parties with the most appropriate means to influence certainty in claim scope, patent applicants and patent examiners, have little incentive to improve claim certainty. Patent applicants have an incentive to allow claims to remain vague so that they can mold the claims to fit the future product of a currently unknown, potential infringer or to avoid invalidation if previously undiscovered prior art comes to light.⁵⁶ Patent examiners cannot devote much time to each patent,⁵⁷ and the time they do spend reviewing the patent is focused on their primary goal, which is to issue patents whose claims meet the standards for patentability. The examiner will perceive his role as fulfilled if he determines that a patent is valid in light of the information available to him, even if there is the possibility that some patent claims will be considered vague during future litigation.⁵⁸

The lack of incentive to create clear claims is exacerbated by the fact that unclear claims present an evidentiary hindsight problem: during infringement litigation, arguments about what claim terms meant when the patent application was filed years before the litigation began are too easily influenced by intervening events. For example, patent-

51. "Gaming the system" refers to the practice of obtaining rights to inventions that are broader than those the patentee actually invented or obtaining patents specifically directed at competitors' technologies. See Lemley, *supra* note 24, at 112–14.

52. See *id.*

53. See Joseph Scott Miller, *Enhancing Patent Disclosure for Faithful Claim Construction*, 9 LEWIS & CLARK L. REV. 177, 186–87 (2005); Carl Shapiro, *Patent System Reform: Economic Analysis and Critique*, 19 BERKELEY TECH. L.J. 1017, 1019 (2004) ("Questionable patents can harm competition and hinder innovation by forcing market participants to pay licensing royalties, incur substantial legal expense to defend against infringement claims, [and] engage in design-around efforts that raise costs and/or hinder product performance.").

54. See Shapiro, *supra* note 53, at 1019.

55. See *id.* ("[A] patent holder can have real power even without being a true inventor because the systems for patent issuance and patent litigation are tilted in favor of patent applicants and patent holders.").

56. See Bender, *supra* note 12, at 210–11 (noting that patent applicants and their lawyers are counseled to keep claim language as vague as possible in order to leave future options open).

57. See Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1500 (2001) (reporting that the average time spent per patent is eighteen hours over several years).

58. See, e.g., USPTO REPORT, *supra* note 13 (showing that the USPTO measures quality of examiner performance by invalid patents and compliance with guidelines, not by claim clarity); USPTO, Enhance Current Quality Assurance Program by Integrating Reviews to Cover All Stages of Examination, <http://www.uspto.gov/web/offices/com/strat21/action/q1p17.htm> (last modified Sept. 20, 2007) (indicating USPTO quality assurance measures are based on novelty and obviousness, not on claim certainty).

ees may later argue for an overly broad interpretation of claims in order to encompass emerging technology.⁵⁹

Because the patent document is supposed to give notice and because witnesses may change their stories over time, courts often do not hear testimony from the people who know the most about what the claims are supposed to mean. For example, the patentee's testimony is given very little weight in interpreting the claims,⁶⁰ and the patent examiner almost never testifies.⁶¹ Additionally, while testimony regarding how a PHOSITA might have interpreted a claim at the time of application is allowed, such evidence is considered extrinsic and, thus, disfavored.⁶²

Instead of relying on witness testimony, courts have developed three approaches to claim interpretation that, theoretically, aid public notice. The first approach is to use the public record to determine what the patent does *not* claim and to determine the meaning of vague terms.⁶³ The second approach is to interpret claims in a manner that incentivizes the type of drafting precision in the initial patent applications that removes or reduces uncertainties in claim scope.⁶⁴ The third approach is to apply a presumption that ambiguous claims should not be construed broadly to ensnare unwary infringers⁶⁵ or to invalidate patents.⁶⁶

These three interpretive approaches used by courts led to the development of the broadest reasonable construction rule during patent prosecution. The rule was intended to compensate for the lack of incentives that patentees and examiners otherwise have at the prosecution stage to create claim certainty.⁶⁷ That is, the broadest reasonable

59. See Matthew Sag & Kurt Rohde, *Patent Reform and Differential Impact*, 8 MINN. J. L. SCI. & TECH. 1, 13–14 (2007).

60. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1327–28 (Fed. Cir. 2005) (en banc); *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 986–87 (Fed. Cir. 1995).

61. See *W. Elec. Co. v. Piezo Tech., Inc.*, 860 F.2d 428, 431 (Fed. Cir. 1988) (noting that examiners cannot be compelled to testify about their expertise or knowledge); MPEP, *supra* note 13, § 1701.01 (“It is the policy of the [USPTO] that its employees, including patent examiners, will not appear as witnesses or give testimony in legal proceedings . . .”).

62. See *Phillips*, 415 F.3d at 1318; see also *id.* at 1319 (“[U]ndue reliance on extrinsic evidence poses the risk that it will be used to change the meaning of claims in derogation of the ‘indisputable public records consisting of the claims, the specification and the prosecution history,’ thereby undermining the public notice function of patents.” (citation omitted)). More practically, evidence of what a PHOSITA might have understood is almost never given by an actual PHOSITA. Rather, it is usually given by an expert who attempts to explain what a PHOSITA might have understood.

63. See *Phillips*, 415 F.3d at 1319; Cotropia, *supra* note 9, at 64.

64. See *In re Zletz*, 893 F.2d 319, 322 (Fed. Cir. 1989).

65. See *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996).

66. See *Phillips*, 415 F.3d at 1327.

67. See *Miel v. Young*, 29 App. D.C. 481, 484 (D.C. Cir. 1907) (“This claim should be given the broadest interpretation which it will support, and we should not strive to import limitations from the specification to meet the exigencies of the particular situation in which

construction rule was created to encourage three processes during patent prosecution: generation of clarifying amendments and a developed record through iterative rejections, increased precision of initial claim drafting, and fixation of an outer limit for patent claims. These three prosecution processes correspond with each of the three claim construction approaches used by courts. They form the three “methods” of enhancing public notice in claim construction discussed in this Article.

A. Iterative Improvements

First, the broadest reasonable construction rule purportedly results in the rejection of claims that are imprecise when they are broadly construed. According to the rationale underlying the broadest reasonable construction rule, this result encourages the clarification of claims through amendments and the development of a public record regarding the meaning of claim language:

The process of patent prosecution is an interactive one. Once the [US]PTO has made an initial determination that specified claims are not patentable, the burden of production falls upon the applicant to establish entitlement to a patent. This promotes the development of the written record before the [US]PTO that provides the requisite written notice to the public as to what the applicant claims as the invention.⁶⁸

Theoretically, if a proposed claim is vague and the examiner gives it a broad construction, the broader construction will make it more likely that prior art will render the claim unpatentable.⁶⁹ A broad construction of patent claims should therefore result in rejection of vague claims that forces the applicant to amend his claim and thereby avoid imprecision.

the claim may stand at a given time.”); *In re Kebrich*, 201 F.2d 951, 954 (C.C.P.A. 1953). The Patent Act does not mention the standard for interpretation.

68. *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997) (citations omitted); see *Zletz*, 893 F.2d at 322 (“An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process.”). See generally 37 C.F.R. § 1.14 (2007) (detailing public record of prosecution).

69. See *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1480 (Fed. Cir. 1998) (“[C]laims may be no broader than the supporting disclosure . . .”).

B. Ex Ante Incentives for More Precise Claiming

Second, one might predict that the iterative process would induce applicants to draft precise claims; ex ante, applicants wishing to avoid the cost of multiple amendments would want to make their initial claims clearer. This has effects similar to those of a penalty default.⁷⁰ A penalty default is intended to incentivize ex ante clarity by creating a high cost ex post if clarity is absent.⁷¹ In this view, to the extent that the broadest reasonable construction rule functions like a penalty default, it creates incentives for the applicant to enhance public notice by increasing the chances of rejecting imprecise claims.

C. Definition of the Outer Limits of Claims

Third, the broadest reasonable construction rule “serves the public interest by reducing the possibility that claims, finally allowed, will be given broader scope than is justified.”⁷² In theory, if ambiguous claims are truly given the broadest reasonable construction possible by the USPTO during prosecution, they could not ever be interpreted more broadly. Therefore, potential infringers would never be ensnared by a new and broader interpretation in litigation.⁷³

Because litigation occurs after the patent issues, the court hearing a patent infringement case cannot rely on the iterative process or the penalty default to clarify a claim at issue. To enhance public notice during litigation, courts can only rely on the third interpretive method because they cannot change the prosecution record. Under the third interpretive method, patent claims in litigation are initially presumed to be valid and are construed more narrowly than they were during prosecution to avoid a finding of invalidity.⁷⁴ This narrowed construction in litigation prevents unwary infringers from being caught in an overly expansive claim scope.⁷⁵ Courts have cited their limited ability

70. See, e.g., Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 *YALE L.J.* 87, 97–100 (1989).

71. See *id.* at 97–98.

72. *In re Yamamoto*, 740 F.2d 1569, 1571 (Fed. Cir. 1984).

73. In theory, if a claim is susceptible to two meanings, during infringement litigation the court should choose the narrower interpretation. See *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996) (“Where there is an equal choice between a broader and a narrower meaning of a claim . . . we consider the notice function of the claim to be best served by adopting the narrower meaning.”). As discussed in Part IV.C, this does not always happen.

74. See *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (“[I]n litigation, where a patentee cannot amend his claims, or add new claims, the presumption and the rule of claim construction (claims shall be construed to save them if possible), have important roles to play.”).

75. See *Athletic Alternatives*, 73 F.3d at 1581; cf. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) (en banc) (rejecting claim construction methodology that allows overly expansive claim scope).

to clarify claims during litigation as the justification for using rules of interpretation during litigation that are different from those used during prosecution.⁷⁶

IV. THE BROADEST REASONABLE CONSTRUCTION RULE: THE FAILURE OF PUBLIC NOTICE IN PATENT PROSECUTION

This Article asks, in the context of the three methods of enhancing public notice in claim construction outlined above, (1) whether the broadest reasonable construction rule provides incentives for clearer claims *ex ante* and (2) whether this rule results in improved certainty *ex post*. The answers to these two questions indicate whether the rule enhances public notice. This Article concludes that, while application of the rule does produce an iterative process that corrects some vague claims, the process fails to eliminate many types of ambiguous claims. Further, the cost of the iterative process does not create a sufficient incentive for clear claiming at the time of the initial application. Finally, in practice, the rule does not create an outer boundary for claim construction because courts can, and do, interpret claims more broadly than the USPTO does during patent prosecution. The notoriously high rate of appellate reversal or modification of district court claim constructions — estimated to occur more than thirty percent of the time⁷⁷ — suggests that claim language is indeed uncertain.⁷⁸

A. Effects of the Rule on Iterative Improvements

1. Intended Effects

The broadest reasonable construction rule might increase the likelihood of iterative improvements in claim certainty if it results in clarifying amendments and the creation of a public record that can later be used to aid interpretation of disputed claims. The likelihood of improving certainty is greatest when application of the broadest rea-

76. See *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997) (“It would be inconsistent with the role assigned to the [US]PTO in issuing a patent to require it to interpret claims in the same manner as judges who, post-issuance, operate under the assumption the patent is valid.”).

77. See Kimberly A. Moore, Markman *Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 239 (2005) (reporting that the Federal Circuit found wrongly construed terminology in 37.5% of all cases requiring claim construction and reversed or vacated the district court’s judgment in 29.7% of such cases); see also Christian A. Chu, *Empirical Analysis of the Federal Circuit’s Claim Construction Trends*, 16 BERKELEY TECH. L.J. 1075, 1104 (2001); Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 HARV. J.L. & TECH. 1, 11 (2001).

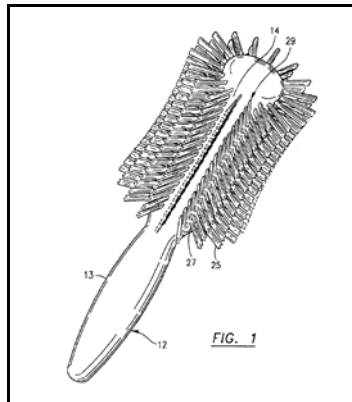
78. Of course, there may be other reasons for reversals, such as district courts’ lack of skill in claim construction. However, a clear record and precise claims can mitigate other sources of incorrect construction.

sonable construction rule has exaggerated vagueness or ambiguity in the claim language. In theory, the additional breadth in claims resulting from the application of the broadest reasonable construction rule should result in the examiner rejecting vague claims and the applicant clarifying the rejected claims in an amendment. This process of rejection and amendment leads to the creation of a record that shows not only what the applicant and examiner think the claims mean but also what they think the claims do *not* mean.

However, in practice, examiners may still allow extremely broad claims for a variety of reasons, such as a lack of adequate prior art or simply a different understanding of the words at issue. Thus, the broadest reasonable construction “rule” actually functions much more like a standard because examiners must use their judgment to determine what words mean.⁷⁹

The case of *In re Bigio* provides an example of the iterative effect intended by the broadest reasonable construction rule.⁸⁰ As discussed below, however, even at its best the rule has deleterious consequences. In this case, the applicant, Bigio, sought a patent for a “hair brush” with a bristle substrate shaped like an hourglass.⁸¹

Figure 1: Proposed Hair Brush in Bigio’s Patent⁸²



The examiner rejected certain claims in the application based on a combination of prior patents relating to toothbrushes.⁸³ Both the BPAI

79. Cf. Duncan Kennedy, *Form and Substance in Private Law Adjudication*, 89 HARV. L. REV. 1685, 1685 (1976) (addressing “the problem of the choice between rules and standards as the form for legal directives”).

80. 381 F.3d 1320 (Fed. Cir. 2004).

81. *Id.* at 1323. The bristle substrate is the portion of the hair brush handle to which the bristles are attached. The hour-glass shape of the bristle substrate gives the bristles the appearance of different lengths. See Figure 1, *infra* Part IV.A.1.

82. U.S. Patent No. 6,739,016 fig.1 (filed Sept. 17, 2001).

83. See *Bigio*, 381 F.3d at 1323.

and the Federal Circuit affirmed the examiner's rejection on the basis of obviousness.⁸⁴ Although the specification only described a brush for hair on the scalp, under the broadest reasonable construction rule, the term "hair brush" as employed in the application's claims was not limited to scalp hair. Under the rule, the scope of prior art included a brush for *any* hair on the body of humans or animals.⁸⁵ Because a toothbrush was analogous to a small brush that could be used to comb body hair, such as the eyebrows, the Federal Circuit found the examiner acted properly in applying prior art relating to a toothbrush to deny patentability.⁸⁶

The court's determination that a toothbrush used for cleaning fell under the claims of a hair brush used for grooming may seem like an absurd result.⁸⁷ The result did, however, serve the purpose of the broadest reasonable construction rule: Bigio filed an amended application that clarified his claim. The new proposed claim covered a "hair brush for a person's head or scalp."⁸⁸ Thus, public notice was enhanced, because Bigio was forced to amend his claim to limit the scope of his invention to scalp hair brushes specifically.⁸⁹

The positive effect of the broadest reasonable construction rule on public notice should not be overstated, however. Another part of Bigio's situation demonstrates that the broadest reasonable construction rule will not necessarily lead to more certainty. Although one of his patents on hair brushes required Bigio to amend the claims before the patent could issue, Bigio obtained other patents claiming hair brushes from the same patent application — claims that issued without any iterative process.⁹⁰ Although this one claim was made clearer, the broad construction of the term "hair brush" means that Bigio's other claims using the term "hair brush" might cover products that were not part of the invention. Based on the ruling in this case, whether Bigio could now claim that brushes designed for other parts of the body infringe his patent is unclear — perhaps even toothbrushes might infringe. Neither Bigio nor potential infringers will know the answer to that question with certainty until after poten-

84. *See id.* at 1324–26.

85. *See id.* at 1324–25. While the Federal Circuit reviewed the claim construction de novo, it applied the broadest reasonable construction and agreed with the BPAI's broad construction. *See id.*

86. *See id.* at 1326 ("Flemming's [prior art] toothbrush may easily be used for brushing hair (e.g., human facial hair) in view of the size of the bristle segment and arrangement of the bristle bundles described in the reference.").

87. *See id.* at 1327–28 (Newman, J., dissenting) ("A brush for hair has no more relation to a brush for teeth than does hair resemble teeth.").

88. U.S. Patent App. No. 10/691,000 col.5 l.1 (filed Oct. 22, 2003).

89. The ultimate effect of this amendment is limited because the claim was later abandoned.

90. *See, e.g.*, U.S. Patent No. 6,739,016 (filed Sept. 17, 2001); U.S. Patent No. 7,210,186 (filed Oct. 22, 2003).

tially expensive litigation. Thus, the rule achieved public notice for one claim at the cost of uncertainty in other claims. A better outcome would have been a determination that, based on the specification, *all* of Bigio's claims were for scalp hair brushes.

Despite its partial success in *Bigio*, the broadest reasonable construction rule does not necessarily ensure that more rejections will lead to *clearer* amendments rather than just a greater number of *unclear* amendments. This possible result is due to the nature of the application process. Only the inventor suggests language, with no input or opposition from potentially affected parties.⁹¹ The examiner does not usually suggest or require modified language as part of a rejection.⁹² Instead, the applicant must determine what corrective action should be taken, if any, in order for the patent to issue, and this may not yield precise claims. As noted previously, the broadest reasonable construction "rule" is much more like a standard: rather than providing a bright line, it merely creates a framework in which examiners have wide latitude *ex post* to use their judgment to construe claim terms. As a result, *ex ante*, patent applicants must guess how examiners will construe the words in the patent claims. This uncertainty introduced by the broadest reasonable construction "rule" reflects the general problem that standards are notoriously uncertain.⁹³

2. Additional Barriers

The theory that the broadest reasonable construction will lead to rejection of more vague claims incorporates several implicit assumptions about the prosecution process that may not be warranted. First, the theory assumes that the examiner's search of prior art is adequate to result in rejections of otherwise broad claims. Second, it assumes that the broadest reasonable construction rule will lead to a more rigorous evaluation of vague claim terms. Both assumptions are tenuous in practice.

91. As a result, patent applicants and their lawyers have a heightened duty of candor to the USPTO. *See* 37 C.F.R. § 1.56 (2007). Intentional failure to cite material prior art in order to deceive the USPTO can render a patent unenforceable, even if the prior art would not have caused the patent to be rejected. *See Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc.*, 326 F.3d 1226, 1233–34 (Fed. Cir. 2003).

92. *But see* 37 C.F.R. § 1.121(g) (2007) ("Changes to the specification, including the claims, of an application . . . may be made by specific instructions to insert or delete subject matter set forth in the examiner's amendment . . ."); MPEP, *supra* note 13, § 714(II)(E) (allowing examiner's amendments without applicant's permission only if changes are "not substantive"); *id.* § 1213.01 (allowing applicant to amend claim in conformity with a BPAI statement on how to overcome specific rejections); Lichtman, *supra* note 13, at 155 ("[W]hile some examiners routinely insist on significant language alterations, others regularly leave the original claim language largely intact.").

93. *See* Kennedy, *supra* note 79, at 1698 (arguing that standards are dynamically unstable because they can be over- and underinclusive).

Inadequate Searches. Broad construction will not necessarily lead to more rejections of vague claims because patent examiners often perform inadequate searches of prior art. A high-quality prior art search is difficult because of resource and time limitations.⁹⁴ Additionally, there is a fundamental disconnect between the patentability standard in the patent statute and the search method used by patent examiners when considering patent applications. The statute denies patentability if “the invention was known or used by others in this country,”⁹⁵ but examiners limit their searches to printed publications only.⁹⁶ Indeed, the examiner is not to use “[c]ommon knowledge and common sense.”⁹⁷ The examiner is also barred from searching for claim-specific prior art on the Internet before a patent application is published.⁹⁸ As the BPAI has pointed out, this is doubly problematic because USPTO “has no facility for calling its own expert to balance expert testimony” submitted by the applicant.⁹⁹

The end result is that many patent claims issue without the benefit of a complete prior art search. An incomplete search is especially troublesome because of the presumption during prosecution that a patent is allowable unless the examiner can show by a preponderance of evidence that a claim is not patentable — thus, merely filing a patent application is sufficient to claim patentability.¹⁰⁰ This leads to the granting of claims that are vague but still “valid.” Thus, an inadequate search can result in a broad claim that covers an invention already widely used by others, unbeknownst to the applicant or the examiner.¹⁰¹ Given that inadequate searches are inevitable, a narrow construction may be preferred over the broadest reasonable one.

94. See Lemley, *supra* note 57, at 1500 (“[M]uch of the most relevant prior art isn’t easy to find — it consists of sales or uses by third parties that don’t show up in any searchable database and will not be found by examiners in a hurry.”). See generally Julie E. Cohen, *Reverse Engineering and the Rise of Electronic Vigilantism: Intellectual Property Implications of “Lock-Out” Programs*, 68 S. CAL. L. REV. 1091, 1178 (1995) (“[I]n the field of computers and computer programs, much that qualifies as prior art lies outside the areas in which the [US]PTO has traditionally looked”); Lee Petherbridge, *Positive Examination*, 46 IDEA 173, 187 (2006) (discussing information costs of future inventors).

95. 35 U.S.C. § 102(a) (2000).

96. See MPEP, *supra* note 13, § 706.02(a) (providing procedures for prior art rejections based on printed publications); *id.* § 904 (instructing examiner to search “the prior art as disclosed in patents and other published documents”); *cf.* 35 U.S.C. § 301 (2000) (allowing members of the public to file printed publications of prior art but not providing for the submission of descriptions).

97. *In re Lee*, 277 F.3d 1338, 1345 (Fed. Cir. 2002).

98. See MPEP, *supra* note 13, § 904.02(c) (limiting Internet searches to general art, and not specific claims, until the patent application is published, usually after 18 months).

99. *Ex parte Isaksen*, No. 91-2308, 1991 Pat. App. LEXIS 35, at *44 (B.P.A.I. Dec. 13, 1991).

100. See MPEP, *supra* note 13, § 706; see also 37 C.F.R. § 1.56(b) (2007); *cf.* *In re Etter*, 756 F.2d 852, 858 (Fed. Cir. 1985) (en banc) (“[T]he [US]PTO examiner has the burden of showing a basis . . . for each rejection”).

101. See Dan L. Burk & Mark A. Lemley, *Is Patent Law Technology-Specific?*, 17 BERKELEY TECH. L.J. 1155, 1169–70 (2002) (“We agree with these commentators that the

Incomplete Review. Use of the broadest reasonable construction rule fails to encourage complete review of the specification, dependent claims, and prosecution history, all of which affect the patent's scope. Because the rule mandates reading claims as broadly as possible, the examiner often fails to identify ambiguous disclaimers of meaning in the specification or prosecution history. Furthermore, the rule results in the assumption that a dependent claim is patentable if the parent independent claim is patentable. This assumption arises because the dependent claim adds limitations to — and is thus narrower than — its parent claim.¹⁰² If the prior art does not invalidate a broader independent claim, then it also will not invalidate a narrower dependent claim. Dependent claim language thus receives much less scrutiny, so any ambiguity in such claims often remains untested until litigation.¹⁰³ Furthermore, the presumption that dependent claims are valid ignores the fact that new language not found in the parent claim could affect the scope of the prior art search.

One example of such untested vagueness is *Inpro II Licensing, S.A.R.L. v. T-Mobile USA, Inc.*¹⁰⁴ The patent in *Inpro* was for a credit card-sized personal digital assistant (“PDA”) that could be connected to a “host” computer in order to transfer data.¹⁰⁵ The patent claimed “a *host interface* adapted so as to provide communications between the digital assistant module and the host computer upon docking with the host computer.”¹⁰⁶ On appeal, the question before the Federal Circuit was how “host interface” should be defined: T-Mobile argued that its device did not use a connection that was a “host interface” as the term was used in the patent.¹⁰⁷ *Inpro* countered that “host interface” could mean *any* type of connection to a computer (parallel,¹⁰⁸ serial,¹⁰⁹ or otherwise), including the type used by T-Mobile’s device.¹¹⁰

[US]PTO is issuing bad software patents, in part because it cannot find relevant prior art. . . . The probable result is that, while numerous software patents will issue, a large number of those actually litigated will be found obvious and thus invalid.”). Even if the examiner could find every publicly available document, the USPTO may never find secret uses that might still render a search inadequate. *See, e.g., Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1570 (Fed. Cir. 1997) (noting that “critical aspects” of a travel reservation system were not publicly accessible at the time of the patent but were later used to invalidate an issued patent with broad claims); *Ultratech, Inc. v. Tamarack Sci. Co.*, 2004 U.S. Dist. LEXIS 21393, at *22 (D. Cal. Oct. 12, 2004) (concluding that “secret” prior art can be used to invalidate a patent). The author represented the plaintiff in *Ultratech*.

102. *See supra* note 12 (explaining dependent claims).

103. *Cf. Pfizer, Inc. v. Ranbaxy Labs. Ltd.*, 457 F.3d 1284, 1291–92 (Fed. Cir. 2006) (invalidating dependent claim that survived prosecution). Examiners do look for dependent claims that are improperly drafted, but such impropriety is different from a lack of clarity.

104. 450 F.3d 1350 (Fed. Cir. 2006).

105. *See id.* at 1352.

106. *Id.* at 1353 (emphasis added).

107. *See id.* at 1353–54.

108. *See id.* at 1353 n.2. A parallel interface is one where multiple chunks of data are sent at the same time, also known as “in parallel.” An advantage is that the data is transferred more quickly.

The court construed “host interface” to be limited to a parallel interface because the specification only disclosed parallel interfaces and stated they were preferred over serial interfaces.¹¹¹ While the court’s construction was likely proper under the PHOSITA rule,¹¹² the plaintiff did not explicitly disclaim serial interfaces.¹¹³ Because serial interfaces were not expressly disclaimed, under the broadest reasonable construction rule, the term would have included them. Thus, Inpro was neither required nor encouraged to address the ambiguity at the time of prosecution. Inpro likely undertook expensive litigation based on the false expectation that its claims would be given a broad construction, just as they had been given during prosecution.

One might argue that the broadest reasonable construction rule is not to blame for this wasteful litigation; rather, Inpro is at fault. If Inpro had invested more in quality drafting, then the claim would have been clearer. The rules should not require the USPTO to spend more time and money trying to determine exactly what Inpro intended in its claims. Under this view, the broadest construction rule is a cost-minimization strategy for the broad mass of patents: the “litigation market” can handle previously unaddressed clarifications for those patents actually valuable enough to assert in the marketplace.¹¹⁴

This “litigation market” argument is unsatisfying for several reasons. First, Inpro had an incentive to leave the claim vague in order to capture the largest claim scope possible. That the vagueness persisted meant that the broadest reasonable construction rule failed as a penalty default.¹¹⁵ Second, the penalty was not just borne by Inpro. The defendant was an unwilling participant — one who had no ability to influence claim precision during prosecution.¹¹⁶ As a result of this

109. *See id.* A serial interface is one where each chunk of data is sent one at a time, also known as “serially.” The data is transferred with a lower error rate, but the transfer is slower.

110. *See id.* at 1353.

111. *See id.* at 1354, 1357.

112. *See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001) (“Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.”).

113. *See Inpro*, 450 F.3d at 1354.

114. This argument assumes that there is no cost to leaving unlitigated patents unclear. This assumption may not necessarily hold true. *See generally* Kimberly A. Moore, *Worthless Patents*, 20 BERKELEY TECH. L.J. 1521, 1522–24 (2005) (discussing the uses and values of unlitigated patents).

115. A penalty default encourages parties to clarify the claim in order to avoid an unwanted alternative that may be imposed on them. *See supra* notes 70–71 and accompanying text.

116. *See* R. Polk Wagner, *Reconsidering Estoppel: Patent Administration and the Failure of Festo*, 151 U. PA. L. REV. 159, 222 (2002) (“Thus, this information cost — which includes both the costs of actually producing the information plus the costs of uncertainty or error that accrue as a result of missing or inaccurate information — is borne by the public, first in the form of the [US]PTO and later by the public more generally.” (citation omitted)).

externality, Inpro did not have a sufficient incentive to make an investment in clarifying the patent for the benefit of the public.¹¹⁷ Third, this argument assumes that increasing clarity would have been costly during prosecution and that clarity was solely in Inpro's control. However, the cost of a patent examiner requesting a specific disclaimer of serial interfaces would have taken little additional time. Fourth, the argument absolves the USPTO of its responsibility to issue patents that satisfy the statutory requirement that claims be definite.¹¹⁸ Allowing the USPTO to avoid that responsibility by delegating it to another party is contrary to the original purpose of the broadest reasonable construction rule — to enhance public notice at the time of a patent grant.

B. Effects on Ex Ante Incentives for More Precise Claiming

The broadest reasonable construction rule does not necessarily lead to ex ante incentives for more precise initial drafting. One roadblock to the rule's effect on ex ante incentives is the lack of consensus over what the rule actually means and requires of patent examiners.¹¹⁹ For example, in the Federal Circuit's recent en banc decision in *Phillips v. AWH Corp.*,¹²⁰ one topic at oral argument was whether patent examiners ever refer to dictionaries to determine the broadest reasonable construction of claim terms.¹²¹ If dictionaries are not used, then some other method of determining the broadest scope must be used; by and large, the method used to determine the broadest reasonable construction of the claims will depend on the individual examiner.¹²² Thus, in practice, patent applicants are not influenced greatly by the interpretive rule because the applicants do not know with certainty what the rule requires in any given case.

Irrespective of the interpretive rule, other barriers can prevent patentees from drafting precise claims. The patentee may not write well,¹²³ may not have the funds to invest in a more specific application, or may not believe that the patent is worth the investment even if

117. Perhaps mandatory fee-shifting would rectify this issue.

118. See 35 U.S.C. § 112 (2000).

119. Professor Lemley suggests that applying the broadest reasonable construction rule is not claim construction at all. See Lemley, *supra* note 24, at 117. By contrast, the examples used in this Article suggest that the USPTO and Federal Circuit do construe claims during patent prosecution.

120. 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

121. See HAROLD C. WEGNER, FOLEY & LARDNER IP ROUNDTABLE, THE PHILLIPS CLAIM CONSTRUCTION ORAL ARGUMENT 21–22 (2005), http://www.foley.com/files/tbl_s88EventMaterials/FileUpload587/256/March%2016%20Roundtable.pdf (reprinting an excerpt of, and discussing, the oral argument).

122. See Lichtman, *supra* note 13, at 154–55 (explaining that examiner practice in patent prosecution varies greatly by individual and subject matter).

123. See Petherbridge, *supra* note 94, at 186 (describing how patentees can have trouble conveying knowledge of the boundaries of the patent to the examiner).

funds are available.¹²⁴ Moreover, because the applicant is not required to search for prior art, the initial claims represent what the patentee thinks *might* be novel and nonobvious.¹²⁵ Before attempting to clarify the claims, the applicant will wait for and rely on the results of the examiner's prior art search. The true scope of the patentable invention, if anything in the application is patentable at all, is understandable only after the prior art search. If the search reveals something similar but not identical to the claimed invention, then the applicant may amend the patent to narrow the scope of the claims.¹²⁶ Under any interpretive rule, the examiner's prior art search will always help the patentee define what he has invented.¹²⁷ Because applicants rely on the results of prior art searches before attempting to clarify claims and because examiners can only conduct searches *after* applications have been submitted, the broadest reasonable construction rule can have little *ex ante* effect on the clarity of claims in initial applications.

This analysis does not mean that patentees will always avoid drafting precise claims. Patentees may very well invest resources in searching for prior art and defining claims more precisely because doing so can reduce the time period from application to issuance of the patent and decrease the risk that the patent will be found invalid in the future.¹²⁸ However, these incentives are independent of the broadest reasonable construction rule.

C. Effects on the Definition of the Outer Limits of Claims

In theory, the broadest reasonable construction rule can define the outer limits of claims if the USPTO's understanding of claims' meanings is clearly stated and if courts interpreting the patent never construe claims more broadly than the USPTO. However, this intended effect of the broadest reasonable construction rule is generally limited for three reasons.

First, the prosecution history does not always reveal what the examiner thought was the broadest construction of the claim. Because

124. Cf. John R. Allison et al., *Valuable Patents*, 92 GEO. L.J. 435, 441 (2004) ("Most patents are worth very little to their owners . . .").

125. This is one reason for the practice of dependent claiming: applicants use more narrow dependent claims in case the broader independent claim was already invented by another.

126. See 37 C.F.R. § 1.111 (2007).

127. The current rule that a search should be based on a broad construction of the claim is beneficial because it tends to reveal more prior art and thus aid in shaping the claim scope. However, this benefit could be achieved independently from the interpretive rule, such as by having a separate procedure that requires the examiner to search more broadly. For example, a claim relating to disposable diapers might imply a search for all "diaper" technology without having to determine what the term "disposable" means.

128. See, e.g., Allison et al., *supra* note 124, at 438 (stating that valuable patents tend to cite more prior art).

examiners have technical knowledge of the subject matter covered by the patent, examiners and applicants “speak the same language” and, thus, may share unspoken assumptions about the invention that are not readily apparent in the specification, claims, or resultant prosecution history.¹²⁹ Further, appeals occur only if the application is rejected, not if the patent is issued.¹³⁰ As a result, a large portion of issued patents are never subject to any sort of review that would require the patentee, examiner, BPAI, or court to explain how it construed certain terms. Examiners almost never testify,¹³¹ so if an interpretation is not clear in the public record, then it will not become clearer during later infringement litigation.

Second, even if the examiner discloses his understanding of the claims,¹³² courts do not give deference to that understanding at any stage.¹³³ Under the current interpretative rules applied by the courts, such a disclosure by the examiner cannot absolutely define the outer bounds of the patent.

Third, if those reading a patent rely on the USPTO’s use of the broadest reasonable construction rule, then they may believe that the patent’s legally-enforceable scope is broader than it really is — which is determined by how the patent will be construed by a court in litigation.¹³⁴ The difficulty is that the parties usually do not know in advance which words the court will eventually construe narrowly. For example, in *Rexnord Corp. v. Laitram Corp.*, the court applied a broad construction of a claim term in part because the patent examiner

129. See USPTO, Enhance the Reviewable Record, <http://www.uspto.gov/web/offices/com/strat21/action/q7p40.htm> (last modified Sept. 20, 2007) (“[N]umerous assumptions made by the examiner may be absent from the file wrapper record, leaving others to only surmise what these might have been; leaving a vague and uncertain record. Some examples of these assumptions are the scope of various claim limitations . . .”). However, because potential licensees and infringers speak the same language as the patentee, failure to define each and every word in the patent is not necessarily a failure of public notice.

130. On appeal, there are some opportunities to learn the examiner’s or the BPAI’s interpretations. See 35 U.S.C. § 143 (2000 & Supp. IV 2004) (requiring written submission of basis for USPTO’s decision); 37 C.F.R. § 41.39 (2007) (providing examiner opportunity to submit written answer to appeal). Additionally, the Federal Circuit will usually provide its interpretation as part of its decision on appeal.

131. See *W. Elec. Co. v. Piezo Tech., Inc.*, 860 F.2d 428, 431 (Fed. Cir. 1988) (“[A] patent examiner cannot be compelled to testify . . .”); MPEP, *supra* note 13, § 1701.01 (stating that the patent examiner “will not be permitted to give testimony in response to questions that the Office determines are impermissible”).

132. Sometimes, as part of issuance of a patent, the examiner will issue a detailed “Statement of Reasons for Allowance” to describe why the examiner thinks the patent is novel and nonobvious. See, e.g., *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1344–45 (Fed. Cir. 2005); see also 37 C.F.R. § 1.104(e)(3) (2007).

133. See *SRAM Corp. v. AD-II Eng’g, Inc.*, 465 F.3d 1351, 1359 (Fed. Cir. 2006); *Salazar*, 414 F.3d at 1347; *ACCO Brands, Inc. v. Micro Sec. Devices, Inc.*, 346 F.3d 1075, 1079 (Fed. Cir. 2003).

134. Cf. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321–22 (Fed. Cir. 2005) (en banc) (instructing trial courts not to use broadest dictionary definition in construing terms).

applied such a construction during prosecution.¹³⁵ However, the broadest reasonable construction rule was never intended to define claim terms during patent enforcement.¹³⁶ The result in *Rexnord* was a patent interpreted far more broadly than what the patentee actually described.

In *SRAM Corp. v. AD-II Engineering, Inc.*,¹³⁷ the Federal Circuit went further than it had in *Rexnord*, and made clear that the USPTO's understanding of claim terms would not be considered the broadest limit of claim scope.¹³⁸ The court found that the USPTO had not properly applied the broadest reasonable construction rule despite three separate reexaminations.¹³⁹ The court then held that the USPTO's determination of a claim's meaning is not entitled to automatic deference and that a court could construe a claim more broadly than the USPTO had if the court believed such a construction was warranted.¹⁴⁰

In *Eolas Technologies Inc. v. Microsoft Corp.*, the Federal Circuit again interpreted a claim more broadly during infringement litigation than the USPTO had during prosecution.¹⁴¹ In this case, however, the court of appeals did not so expressly overrule the USPTO's narrower claim construction. The plaintiff claimed a method and apparatus for including executable "plug-ins" in an Internet web browser based on file-type information.¹⁴² While the term "plug-in" is generic, a "plug-in" in the context of web browsers is a mechanism that integrates the functionality of non-browser programs into the browser.¹⁴³ For example, the popular website YouTube combines a video in a small sub-window with text that describes the video.¹⁴⁴ The sub-window is controlled by a video-playing plug-in application.

In *Eolas*, the patent's claims were for a computer program that automatically loaded plug-ins based on the type of file embedded in a web page.¹⁴⁵ For example, the file "music.mp3" would have the file

135. See *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1347–48 (Fed. Cir. 2001). *But see* *Inpro II Licensing, S.A.R.L. v. T-Mobile USA, Inc.*, 450 F.3d 1350 (Fed. Cir. 2006) (construing a broad claim more narrowly during infringement litigation).

136. See *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (describing reasons why litigation claim construction is narrower).

137. 465 F.3d 1351 (Fed. Cir. 2006).

138. See *id.* at 1359.

139. See *id.*

140. See *id.*

141. 399 F.3d 1325 (Fed. Cir. 2005).

142. See *id.* at 1329.

143. A plug-in, also known as an "add-in," is "[a]n accessory software program that extends the capabilities of an existing application." The Free Dictionary, Definition of Add-in, <http://www.thefreedictionary.com/add-in> (last visited Dec. 1, 2007).

144. YouTube, <http://www.youtube.com> (last visited Dec. 1, 2007).

145. U.S. Patent No. 5,838,906, col.18 l.19–22 (filed Oct. 17, 1994) (providing in claim 6, "said object has *type information* associated with it *utilized by said browser to identify and locate an executable application*" (emphasis added)).

type “mp3,” which is associated with WinAmp Media Player.¹⁴⁶ Thus, inclusion of “music.mp3” in a web page’s source code would cause the browser to automatically load WinAmp in order to play the file.

One of the key issues in *Eolas* was the amount of information that was necessary to comprise the file type for identifying and locating the appropriate application. Microsoft, the defendant, contended that Internet Explorer, the software accused of infringing Eolas Technologies’ patent, did not use file type information to identify and locate an application to load the file.¹⁴⁷ Microsoft claimed that Internet Explorer required direct identification of the plug-in application; therefore, the software did not use “type information” because the application was already identified and located.¹⁴⁸ Using the above example, Microsoft’s argument would mean that Internet Explorer does not use the “.mp3” file type to identify and locate WinAmp. Instead, the web page must identify and locate the application for Internet Explorer by including the explicit application information. The district court disagreed, ruling that a reference to the application directly in the web page inherently included information about the file type.¹⁴⁹ This ruling implied the district court had read the claim broadly enough to read out the “identifying and locating” limitation. On appeal, the Federal Circuit did not address this claim term and instead reversed the case on other grounds.¹⁵⁰

During reexamination, however, the USPTO considered a new prior art reference — an early web browser called “Viola” that also loaded plug-ins when external applications were directly referenced in the web page.¹⁵¹ The examiner determined that the Eolas patent was novel despite this prior art and made the express interpretation that the complete path and file name to a plug-in was not the same as the “type information” claimed in the patent.¹⁵²

146. Winamp, Winamp Media Player Features and Other Winamp Releases, <http://www.winamp.com/player/features> (last visited Dec. 1, 2007).

147. *See Eolas Techs., Inc. v. Microsoft Corp.*, No. 99 C 0626, slip. op. at 26 (N.D. Ill. May 2, 2001), available at <http://www.nysd.uscourts.gov/courtweb/pdf/D071LNC/00-13016.pdf> (construing claim terms).

148. *See id.* (“For example, according to Microsoft, type information cannot be ‘WinAmp,’ it must be ‘.mp3.’ If the type information tells the browser what application to use, then the browser has very little left to do in identifying and locating the application.”).

149. *See id.* (“The claim says type information is associated with the object — both application names and data types can be associated with objects and both can convey useful information to the browser for it to use in identifying and locating the executable application.”).

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

151. *See* Notice of Intent to Issue Ex Parte Reexamination Certificate, Control No. 90/006,831, at 2 (Sept. 27, 2005).

152. *See id.* at 51–52 (“The Viola <VOBJF> tag simply loads the Viola script using the path and filename specified In contrast, . . . the instant ‘906 patent uses a type element associated with the external object (i.e., ‘type information’ as claimed) to identify and locate an executable application”).

Eolas is an example of a failure in all three methods of enhancing public notice. First, the USPTO failed to find and apply the Viola prior art during prosecution. Had Viola been before the examiner, the iterative process may have been more effective and narrowed the scope of the patent prior to litigation. Second, the *Eolas* inventors had no incentive to precisely claim “type information” in the initial application because they wanted a broad construction from which *Eolas* could (and did) obtain a large jury verdict.¹⁵³ Third, the broadest reasonable construction rule did not define the outer bounds of the patent, even after reexamination. The examiner’s construction on reexamination is not only directly contrary to the finding of the district court, it is actually narrower than the district court’s construction. This outcome cannot simply be attributed to the fact that the reexamination came after the court’s construction. The very same arguments, including reference to the Viola prior art, were made before the district court, and the district court still construed the claim more broadly than the USPTO.

V. CHANGING THE INTERPRETIVE RULE: THE PHOSITA RULE SHOULD BE USED IN PROSECUTION

The USPTO should abandon the broadest reasonable construction rule for both pre-grant prosecution and post-grant review. In its place, the USPTO should adopt the interpretive rule used by courts — the PHOSITA rule. That is, patent examiners should interpret proposed claims as a PHOSITA would have interpreted them at the time of the application’s filing in light of the specification and the prosecution history.¹⁵⁴ Dictionary definitions that imply a broader interpretation should not be used if a narrower meaning is clear from the specification.¹⁵⁵ Using the PHOSITA rule during patent prosecution makes intuitive sense.¹⁵⁶ Patents are written, read, and examined by those skilled in the art.¹⁵⁷ The statute even requires that the patent be addressed to a PHOSITA.¹⁵⁸

153. A jury awarded *Eolas* \$520,562,280 in its infringement suit against Microsoft. *See Eolas*, 399 F.3d at 1332.

154. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc) (explaining the PHOSITA rule). Claims are given their meaning as of the date of filing because patent claims are usually written at approximately the time of their filing. *See id.* at 1313.

155. *See id.*

156. *See generally* Cotropia, *supra* note 9, at 93–94 (discussing benefits of unified rules for claim construction).

157. *See In re Nelson*, 280 F.2d 172, 181 (C.C.P.A. 1960) (“The descriptions in patents are not addressed to the public generally, to lawyers or to judges, but, as section 112 says, to those skilled in the art to which the invention pertains or with which it is most nearly connected.”).

158. 35 U.S.C. § 112 (2000).

The goals of a rule change are twofold. First, the change is intended to improve certainty in claim construction. It is also intended to limit the costs caused by the use of different rules at different times. While it is impossible for applicants to write completely unambiguous claims¹⁵⁹ that do not require interpretation,¹⁶⁰ abandoning a standard that fails to improve certainty is a good place to start.

Indeed, to some extent this shift from the broadest reasonable construction rule to a more PHOSITA-like rule has already begun.¹⁶¹ Courts seem more willing in recent years to allow the USPTO to consider the specification during patent prosecution, which is a key interpretive guide under the PHOSITA rule but not the broadest reasonable construction rule.¹⁶² This trend has become explicit after *Phillips*, which emphasized:

The pertinence of the specification to claim construction is reinforced by the manner in which a patent is issued. The [USPTO] determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction “*in light of the specification as it would be interpreted by one of ordinary skill in the art.*”¹⁶³

It is ironic that *Phillips* relies on *In re American Academy of Science Tech Center*¹⁶⁴ to support this proposition because, in that case, the Federal Circuit actually ignored the specification.¹⁶⁵ The specifica-

159. Incentives for vagueness will prevail in some cases. For example, applicants may be incapable of drafting precise claims given search costs and the inherent difficulties of technical language.

160. See *Autogiro Co. of Am. v. United States*, 384 F.2d 391, 396 (Ct. Cl. 1967) (“Claims cannot be clear and unambiguous on their face. . . . The very nature of words would make a clear and unambiguous claim a rare occurrence.”); see also *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 732 (2002) (“The scope of a patent is not limited to its literal terms. . . . [U]ncertainty [is] the price of ensuring the appropriate incentives for innovation.”).

161. See Susan Perng Pan, *Appealing a Rejection at the Patent Board of Appeals: Analysis of Recent Board Decisions and Non-Appeal Alternatives*, 10 RICH. J.L. & TECH. 3, ¶¶ 13–15, 19–21 (2003), <http://law.richmond.edu/jolt/v10i1/article3.pdf>.

162. See *In re Johnston*, 435 F.3d 1381, 1384 (Fed. Cir. 2006) (“It is well established that dictionary definitions must give way to the meaning imparted by the specification. . . .”); *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997) (“[T]he [US]PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words . . . taking into account whatever enlightenment . . . may be afforded by . . . the applicant’s specification.”); *In re Donaldson Co.*, 16 F.3d 1189, 1194–95 (Fed. Cir. 1994) (“[T]he [US]PTO may not disregard the structure disclosed in the specification corresponding to [means-plus-function] language when rendering a patentability determination.”).

163. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (emphasis added) (quoting *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004)).

164. 367 F.3d 1359 (Fed. Cir. 2004).

165. *American Academy* is discussed in detail *infra* Part V.E.

tion of the patent at issue in *American Academy* explicitly described the invention as one that solved a problem associated with mainframe computers through the use of smaller personal computers. However, the court nevertheless construed the claim term “user computer” much more broadly than the specification’s description so that it included a mainframe computer, the exact type of computer that the patentee had criticized in the specification.¹⁶⁶ *Phillips* and its revisionist interpretation of *American Academy* could be read as an effort by the Federal Circuit to unify the claim construction rules used during prosecution and litigation.

Abandonment of the broadest reasonable construction rule is not warranted, however, unless the PHOSITA rule will be at least as beneficial to patentees and other parties interpreting the patent claims. As discussed in the subsequent Parts, application of the PHOSITA rule standing alone will produce some benefits, but the benefits may not be greater than those provided by the broadest reasonable construction rule. Even so, change would still be appropriate if costs are sufficiently reduced.

A. Effects of the New Rule on the Three Methods of Enhancing Public Notice in Claim Construction

An analysis of the benefits of applying the PHOSITA rule during patent prosecution and reexamination should begin with the three methods of enhancing public notice outlined in Part III: iterative improvements, more precise initial claiming, and defined outer limits of the patent. Under this framework, the proposed rule should be at least as beneficial as the current rule.

1. Iterative Improvements

The PHOSITA rule should affect the iterative process in a different way than the broadest reasonable construction rule. The PHOSITA rule will probably cause examiners to more closely scrutinize how the specification affects the interpretation of patent claims. Changing the emphasis of the interpretive rule to include consideration of the specification should result in more rejections of patents with claims that are vague in light of the specification. The *Inpro* case

166. See *In re Am. Acad.*, 367 F.3d at 1365–66. In fact, the *Phillips* quote is even more ironic because *American Academy* also ignored a district court’s ruling more narrowly defining “user computer” in conjunction with the specification. See *id.* at 1369. Disparagement of a particular structure will usually lead to exclusion of that structure. See, e.g., *Inpro II Licensing, S.A.R.L. v. T-Mobile USA, Inc.*, 450 F.3d 1350 (Fed. Cir. 2006) (narrowly construing a claim for a “host interface” to exclude serial interfaces because the specification described deficiencies in serial interfaces).

is an example of this effect.¹⁶⁷ However, the PHOSITA rule may reduce the number of rejections based on obviousness in light of the prior art. Because the scope of the prior art search is determined by the interpretation of the claims, adoption of the PHOSITA rule will reduce the scope of prior art considered by the examiner. Claims that would have been rejected on the basis of prior art under the broadest reasonable construction rule could then survive under the PHOSITA rule.

The public record created under the PHOSITA rule will also be far more useful to courts and litigants. While the current iterative process generates a public record, the record relates only to the broadest reasonable construction of the patent's claim terms. Courts should not rely on this record to determine how a PHOSITA would interpret the claims because the discussion of claims in the prosecution history often bears no relationship to how a PHOSITA would interpret the patent. Unfortunately, courts frequently must rely on the prosecution record during litigation.¹⁶⁸ The PHOSITA rule would change the type of evidence incorporated in the prosecution history. Unlike under the broadest reasonable construction rule, a prosecution history developed under the PHOSITA rule is much more likely to contain information that a court would find relevant when the court is required to interpret the patent claim. Under the proposed rule, the public record will reflect a discussion of the ordinary meaning of claim terms rather than just their broadest meaning.

2. Ex Ante Incentives for More Precise Claiming

Even though the PHOSITA rule has some iterative benefits, it may not encourage any more precision in initial claim drafting. If patent applicants desire vague claim language, a shift to the PHOSITA rule would not change ex ante precision. Further, because the PHOSITA rule will not necessarily lead to any more rejections than the broadest reasonable construction rule currently does, it is unlikely that patent applicants will be any more or less influenced by the potential cost of the rejection and amendment cycle. Applicants who would have had an incentive to avoid such costs under the broadest

167. See *Inpro*, 450 F.3d at 1357. For an extended discussion of *Inpro*, see *supra* Part IV.A.2.

168. For the same reason, there is little support for proposals to have district courts refer patents to the USPTO during litigation to construe claims on the theory that examiners have greater expertise. See, e.g., John F. Duffy, *On Improving the Legal Process of Claim Interpretation: Administrative Alternatives*, 2 WASH. U. J.L. & POL'Y 109, 136–47 (2000). Under the broadest reasonable construction rule, examiners have no experience or expertise in construing claims the way a court must.

reasonable construction rule will continue to have such incentives under the PHOSITA rule.¹⁶⁹

3. Defining the Outer Limits of Claims

Like the broadest reasonable construction rule, application of the PHOSITA rule will not allow the examiner to explicitly prescribe the outer scope of claims at the time of prosecution for two reasons. First, unless the PHOSITA rule leads more examiners to disclose how they are construing each term, courts will, as before, rarely be aware of the examiner's interpretation.¹⁷⁰ Second, courts often disregard the examiner's interpretation regardless of the interpretive rule used. Thus, a change in the rule will probably not have any effect on the number of claims found to be unexpectedly broad during litigation or licensing.

However, some patent applicants may desire broad claims. Because the PHOSITA rule requires that patent examiners construe claims more narrowly during prosecution, applicants who desire broader claims will probably respond by drafting their claims so that the claims are clearly broader. This behavior relates to patentees' ex ante incentives for precise claiming, the second method of enhancing public notice. This response to the rule change results in the applicant, and not the examiner, more clearly defining the outer bounds of the patent claim. Under the broadest reasonable construction rule, patentees do not have an ex ante incentive to clearly draft broad claims because ambiguous claims are construed broadly whether claimed precisely or not.

This analysis suggests that, although the net public notice benefits of a rule change are uncertain, the proposed rule appears to be no worse than the current rule.

B. Elimination of the Harm Caused by Conflicting Rules

Although the benefits of adopting the PHOSITA rule cannot be predicted with certainty, a change in the interpretive rule used by the examiner is justified because it eliminates the harm caused by the use of different interpretive rules at the different stages of a patent's term. Despite lip service to the importance of "uniformity" in the interpretation of a patent over time,¹⁷¹ courts have accepted — indeed man-

169. Initially, examiners may issue fewer rejections under the PHOSITA rule. However, this effect on whether a given patent application is approved is probably inconsequential because other difficulties associated with claim drafting, such as the search for prior art, still strongly favor the drafting of vague claims.

170. See USPTO, *supra* note 129.

171. See *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996) ("Finally, we see the importance of uniformity in the treatment of a given patent as an independent reason to allocate all issues of construction to the court.").

dated — non-uniform interpretation because they do not use the same standard as the USPTO.¹⁷² Time, energy, and money must be expended prosecuting patents under the broadest reasonable construction rule, despite the real possibility that litigation will yield a different construction under the PHOSITA rule, which will dramatically affect the outcome.¹⁷³ Both interpretive rules claim to balance the needs of patentees with those of the public, but the combination of very different interpretative standards is a whipsaw for all parties involved. It creates the very “zone of uncertainty” around patents that the Supreme Court cautioned against,¹⁷⁴ and it imposes costs that could be avoided by courts and the USPTO using a single rule of construction. If public notice is to remain a goal in patent interpretation, then the meaning of patent claims should not vary with time or audience.¹⁷⁵

1. Prosecution

A lack of clarity in patent claims affects the patent system as a whole. Unclear claims arising from the broadest reasonable construction rule can create three kinds of costs related to patent prosecution. The first cost is the additional time required to interpret prior patents. When searching for prior art during patent prosecution, the USPTO searches for, reads, and interprets more issued patents than any other person or company.¹⁷⁶ Lack of clarity increases the costs of this process because it makes understanding the invention and determining what prior art to search for more difficult.¹⁷⁷ To have a corps of skilled examiners disregarding their skill in the art in favor of a rule

172. See *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997) (holding that the Supreme Court’s *Markman* decision did not change the broadest reasonable construction rule).

173. See, e.g., *In re Trans Tex. Holding Corp.*, 498 F.3d 1290 (Fed. Cir. 2007) (stating that the USPTO is not bound by a district court’s claim construction from litigation and that the USPTO may apply the broadest reasonable construction even if it results in a different meaning).

174. *Markman*, 517 U.S. at 390 (quoting *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236 (1942)).

175. Cf. Lemley, *supra* note 24, at 103–04 (noting that technological terms change meaning over time, even to the same people). Professor Lemley proposes that claims should be construed consistently using the meaning they had at the date of filing. See *id.* at 110–13, 118–19. However, he does not include the broadest reasonable construction rule as part of his suggestion, except to say that the meaning of a term should be fixed at the time of filing if the rule ever changes. See *id.* at 117. For the purposes of this Article, the date used as a reference for determining claim meaning is irrelevant so long as it is ascertainable and unchanging. The date of filing appears to be a date that is easily fixed in time and also tied directly to the examiner’s understanding of the claims.

176. Costs imposed on the USPTO, therefore, may be the most important. See Lemley, *supra* note 57, at 1501, 1507 (noting that a relatively small percentage of patents are ever subject to litigation or licensing for a royalty). But see R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105, 1118 (2004) (arguing that court’s construction is most important).

177. See generally Petherbridge, *supra* note 94, at 182–83 (discussing the USPTO’s information costs).

that results in claim meaning divorced from “ordinary meaning” is wasteful.¹⁷⁸ Second, if examiners consistently misconstrue prior art patent claims, then either too many new patents will issue if the prior art is construed too narrowly or too few new patents will issue if prior art is construed too broadly. One would expect that, in general, previously issued prior art patents will be construed too broadly because examiners are most acquainted with using the broadest reasonable construction rule. Third, because a pending application’s claims are shaped by the prior art, the lack of clarity in already issued patents can perpetuate lack of clarity in new claims.¹⁷⁹

2. Litigation

Conflicting standards might not be a problem if courts always interpreted patents more narrowly than the USPTO interpreted them. One could then argue that patentees and litigants understand that patents will be interpreted more narrowly during litigation, which would provide certainty to both parties. However, as discussed in Part IV.C, courts do not always adopt narrower interpretations of patent claims. Patents are sometimes interpreted more broadly by the court during litigation than they were by the USPTO during prosecution.¹⁸⁰ For example, recall that in the *Eolas* case, the district court interpreted a claim very broadly, such that Microsoft infringed the patent even though the USPTO did not believe that the patent should be so broad.¹⁸¹ In fact, it was not until *Phillips v. AWH Corp.* in 2005 that the Federal Circuit expressly criticized and discouraged the use of dictionary definitions as a first source of meaning, the reliance on which had resulted in some courts giving broader meanings to claim terms than the USPTO during prosecution.¹⁸² The Federal Circuit in *Phillips* also encouraged courts to use the specification, although the court acknowledged that using the specification for context without overly narrowing the claims is difficult¹⁸³ and cautioned that narrow

178. *But see* Duffy, *supra* note 168, at 127 (arguing that the USPTO will interpret prior art using the PHOSITA rule).

179. *See* Merrill v. Yeomans, 94 U.S. 568, 573 (1876) (arguing that inventors of improvements should not be restrained by vague and indefinite descriptions in existing patents).

180. *See, e.g.*, SRAM Corp. v. AD-II Eng’g, Inc., 465 F.3d 1351, 1359 (Fed. Cir. 2006).

181. *See* Eolas Techs., Inc. v. Microsoft Corp., No. 99 C 0626, slip op. at 26 (N.D. Ill. May 2, 2001), available at <http://www.nysd.uscourts.gov/courtweb/pdf/D07ILNC/00-13016.pdf> (construing claim terms); *see also supra* Part IV.C (discussing *Eolas* in detail).

182. *See* Phillips v. AWH Corp., 415 F.3d 1303, 1321 (Fed. Cir. 2005) (en banc).

183. *See id.* at 1323 (“Moreover, we recognize that the distinction between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim can be a difficult one to apply in practice.”).

interpretations of a patent should only be used as a last resort in order to preserve the patent's validity.¹⁸⁴

Prior to *Phillips*, some courts simply discarded the PHOSITA rule altogether. For example, in *Rexnord Corp. v. Laitram Corp.*, the Federal Circuit construed the litigated patent claim broadly, relying on the assumption that the patent examiner had done so as well.¹⁸⁵ Interpreting a claim more broadly than it would be interpreted under the PHOSITA rule may ensnare more potentially infringing products than such claims otherwise would or should.

Further, a lack of clarity with respect to even one claim term can lead to disparate beliefs between the parties about the likely outcome of any litigation. For example, an unclear term may lead a patentee to believe that the patent will be broadly construed in litigation and a defendant to believe the patent will be narrowly construed.¹⁸⁶ Where the patentee's perception of the likelihood of winning a case is greater than the potential licensee's or defendant's perception of those odds, negotiations and settlement discussions may break down even if the efficient outcome would be settlement.¹⁸⁷

Patent litigation is notoriously costly; some studies estimate that the median cost is as much as \$4 million dollars for a case in which the stakes are between \$1 million and \$25 million dollars.¹⁸⁸ At least some part of this cost can be attributed to extensive time spent on claim construction.¹⁸⁹ To prepare for the *Markman* hearing at which the court considers evidence and arguments that it uses to construe the claims, the patentee will spend time carefully reviewing all prior art in order to propose a construction that avoids the prior art and encompasses the accused product. The defendant will also review the prosecution history to determine what interpretations the patentee has disclaimed. In addition, the defendant will review the prior art in order to propose a construction that encompasses the prior art and avoids

184. See *id.* at 1328 (“The applicability of the doctrine in a particular case therefore depends on the strength of the inference that the [US]PTO would have recognized that one claim interpretation would render the claim invalid, and that the [US]PTO would not have issued the patent assuming that to be the proper construction of the term.”).

185. See *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1348 (Fed. Cir. 2001); see also *supra* Part IV.C (discussing *Rexnord* in detail).

186. See generally Petherbridge, *supra* note 94, at 184 (discussing competitors' information costs).

187. The probability of settlement increases when parties have the same perception of the likelihood of success. RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 554–60 (4th ed., Little, Brown & Co. 1992). Of course, there are other factors to consider, such as whether the parties disagree about the likely damages, whether attorneys' fees will be shifted, and whether sufficient uncertainty will also lead to settlement.

188. See, e.g., Miller, *supra* note 53, at 198.

189. See Petherbridge, *supra* note 94, at 186 (discussing information costs of courts and parties).

the accused product.¹⁹⁰ The *Markman* hearing and resulting claim construction ruling by the court is the most important part of most cases.¹⁹¹

After the court issues a claim construction ruling, the parties must proceed based on that ruling. If, as happens in a substantial percentage of all reported appeals, the Federal Circuit reverses the district court based on the claim construction ruling,¹⁹² the parties must repeat all of their trial preparation and, perhaps, even the trial. This can substantially increase litigation costs and is, at least in part, attributable to differing claim construction standards.

Even if one believes that uncertainty can encourage settlement rather than litigation,¹⁹³ the gamesmanship by the patentee preceding settlement can be quite costly. For example, if an injunction is far more costly than settlement, a patentee may have more bargaining power in negotiations with potential infringers than the value of the patent should support. This disparity can lead to inefficiently high production costs.¹⁹⁴

3. Scope of the Harm

Professor Lichtman argues that poor public notice may not be a large problem “because someone skilled in the relevant art can often correctly interpret a patent claim despite some number of literal imperfections.”¹⁹⁵ This may be true for some categories of patent readers, such as investors. As a general rule, the larger the company, the less the specific meaning of a patent claim will matter to an investor.¹⁹⁶ Additionally, as a result of other difficulties in the patent sys-

190. Cf. Bender, *supra* note 12, at 210–11 (noting that patentees may want claims to remain vague so they can modify their meaning as new prior art comes to light).

191. See Lemley, *supra* note 24, at 101–02.

192. See *supra* note 77 and accompanying text.

193. See, e.g., Kimberly A. Moore, *Judges, Juries, and Patent Cases — An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 378 (2000) (“Because the patent holder stands to lose more than the defendant, the patent holder will be more risk-averse to trial. Hence, the patent holder will settle close cases (to avoid bad precedent or an invalid patent) and try only those cases it estimates it will win.”).

194. See Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 2163 (2007).

195. Doug Lichtman, *Substitutes for the Doctrine of Equivalents: A Response to Meurer and Nard*, 93 GEO. L.J. 2013, 2023 (2005) (providing analysis of the doctrine of equivalents); see also Cotropia, *supra* note 9, at 102 (arguing that certainty should not be overemphasized because it does not help distinguish between methodologies and that methodologies should be considered based on their “claim scope paradigm”).

196. Where the company’s sole asset is a patent to be enforced in litigation, as with a defunct start-up company or a prospector, understanding the claims may be paramount to an investment decision. See Allison et al., *supra* note 124, at 466 (noting that small entity patents are more likely to be litigated). Where the company is small and faces competition, the actual scope of a patent may be less important — the investor may only need to know that a patent exists for the protection of the company against future competition. The investor will

tem, patent clarity may have little effect on inventors' and competitors' ultimate behavior.¹⁹⁷ For example, knowledge of a patent can lead to a finding of willful infringement, so there is a disincentive for competitors to review others' patents to learn of the latest technology.¹⁹⁸ Furthermore, ambiguities can actually help a competitor avoid a finding of willful infringement because an attorney's opinion letter may adopt different meanings.¹⁹⁹

Even if public notice were not of general importance, predictability is quite important in those few situations where detailed claim construction is necessary, such as litigation.²⁰⁰ When infringement is asserted against a would-be competitor, claim clarity is paramount. Upon receiving a demand letter, potential defendants will attempt to understand the asserted patent in order to determine whether its claims are valid and whether the accused device infringes.²⁰¹ Companies attempting to modify their products so as to avoid infringement (that is, design around a patent) must understand what changes will avoid the

want to know that the patent generally covers the business model or product. Where the company is large, investors are less likely to be interested in any specific patent and more likely to be interested in whether the overall patent portfolio is one that will maximize revenues and minimize expenses over time. *See generally* Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 16, 31 (2005) (noting that individual patents may have low value but can be valuable in a portfolio).

197. *See* Petherbridge, *supra* note 94, at 187 (discussing future inventors' information costs); John R. Thomas, *Claim Re-Construction: The Doctrine of Equivalents in the Post-Markman Era*, 9 LEWIS & CLARK L. REV. 153, 163–65 (2005) (discussing difficulties relating to searching for relevant prior patents). *See generally* Note, *The Disclosure Function of the Patent System (or Lack Thereof)*, 118 HARV. L. REV. 2007, 2017–18 (2005).

198. *See* Mark A. Lemley & Ragesh K. Tangri, *Ending Patent Law's Willfulness Game*, 18 BERKELEY TECH. L.J. 1085, 1102 (2003); Lichtman, *supra* note 195, at 2022–23; Note, *supra* note 197, at 2018. In industries where inventions are well known and published, such as pharmaceuticals, other inventors may have no choice but to look at other patents. In other industries where patented inventions are not so clear, such as electronic commerce methods, it is unlikely that inventors will scour patent files, which means that simply seeing a patent may no longer be sufficient to create willfulness. However, a recent Federal Circuit decision suggests that simply seeing a patent may no longer be sufficient to create willfulness in any industry. *See In re Seagate Tech., LLC*, 497 F.3d 1360 (Fed. Cir. 2007) (en banc) (holding that willful infringement requires at least reckless behavior).

199. Opinion letters may help avoid infringement but are not required. *Cf. Seagate*, 497 F.3d at 1360; Joshua Stowell, *Willful Infringement and the Evidentiary Value of Opinion Letters After Knorr-Bremse v. Dana*, 2005 DUKE L. & TECH. REV. 5 (2005), <http://www.law.duke.edu/journals/dltr/articles/PDF/2005DLTR0005.pdf>.

200. *See, e.g., In re Translogic Tech., Inc.*, No. 2006-1192, 2007 WL 2965979 (Fed. Cir. Oct. 12, 2007); *Translogic Tech., Inc. v. Hitachi Ltd.*, No. 2005-1387, 2007 WL 2973955 (Fed. Cir. Oct. 12, 2007). In these two cases, the Federal Circuit determined that the patent-in-suit was invalid using a broader construction than the district court determined. The invalidity rendered moot a jury verdict in Translogic's favor and its associated appeal. What the result would have been if the PHOSITA rule had been applied during reexamination is unclear, but most outcomes would have been less costly than a wasted jury trial.

201. Professor Lichtman argues, however, that the doctrine of equivalents will provide clarity even if claims are unclear. *See* Lichtman, *supra* note 195, at 2023 (“Yes, the doctrine of equivalents will sometimes surprise infringers by embracing unexpected inventions. But in many conflicts the scope of the relevant claim is painfully obvious, despite some clumsy words and a scope that is literally too narrow.”).

scope of the patent claims prior to avoid wasting time and money making excess or, worse, ineffective design changes. The fact that only a portion of issued patents require detailed claim construction does not constitute a compelling reason to reject a mostly costless change to the interpretive rule that could help minimize notice problems if and when they do occur.

C. The Broadest Reasonable Construction Rule Should Not Be Used in Litigation

If different interpretive standards are harmful, then an alternative solution to the one advocated in this Article is to use the broadest reasonable construction rule in both litigation and prosecution. One could argue that, because the PHOSITA rule requires that patent claims be given their ordinary meaning as of the time of *application*, a court will face difficulties in determining claim meaning several years later. The broadest reasonable construction rule would instead allow courts to dispense with having to determine what artisans knew in the (sometimes distant) past. Adopting the broadest reasonable construction rule during litigation would therefore be more efficient.

However, in addition to the fact that the change to the broadest reasonable construction rule would not enhance public notice, using this rule during litigation would be ill-advised for two primary reasons. First, this broader interpretive method would conflict with the general interpretative presumption that “[w]here there is an equal choice between a broader and a narrower meaning of a claim . . . we consider the notice function of the claim to be best served by adopting the narrower meaning.”²⁰² This presumption supports the policy underlying the third method of enhancing public notice in claim construction.²⁰³ Adopting the broadest reasonable construction of a patent claim in litigation would be contrary to the policy of narrowly interpreting ambiguous terms to avoid ensnaring unwary infringers.

Second, patentees with true inventions will be less successful in enforcing their patents under the broader rule. The broadest reasonable construction rule is more likely to — in fact is designed to — invalidate patents using prior art that is not necessarily the same invention as that described in the patent.²⁰⁴ In other words, while it may be acceptable to “over-reject” patent applications during prosecution, where amendments can be made, invalidation of non-amendable patent claims would be directly contrary to the Patent Act’s directive that

202. *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996).

203. *See id.*

204. *See supra* Parts II.A, IV.A.

novel and nonobvious inventions shall be patentable.²⁰⁵ Use of a rule which has a primary purpose of rejecting patents is contrary to the long-standing justification for using a narrower rule in litigation: a patent should be construed narrowly to *preserve* validity.²⁰⁶ Thus, interpreting claims more broadly in litigation could paradoxically deny true inventors the fruits of their statutorily allowable patents.²⁰⁷ Even assuming a lack of improvement in claim clarity, use of the PHOSITA rule during prosecution would reduce the risk that truly inventive claims might be invalidated through an artificially broad construction.

D. The New Rule Will Not Increase Costs

The proposal in this Article almost exclusively addresses interpretation rules, which will minimize implementation costs for both the USPTO and patentees.²⁰⁸ The cost of implementing the proposal is primarily the increased time it will take examiners to review or otherwise process a patent application. Changing the interpretive rule should not add a significant amount of time because interpretation must occur in any event and because the parties who will implement the PHOSITA rule are already skilled in the art.

Before discarding the broadest reasonable construction rule, however, its cost-savings benefits should be considered. One might argue that, since so few patents are litigated, using the broadest reasonable construction rule during prosecution and letting litigants and the courts sort through issued patents later may be economical. However, there are three problems with this efficiency argument. First, it is at odds with the policy of hiring skilled examiners to perform the USPTO's administrative function. Why have skilled examiners if they are not allowed to consider claims as they are understood by those skilled in the art?²⁰⁹ If the reasoning of the efficiency argument were

205. See *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985); see also 35 U.S.C. §§ 102–103 (2000).

206. See *id.* (“In litigation, where a patentee cannot amend his claims, or add new claims, the presumption, and the rule of claim construction (claims shall be construed to save them if possible), have important roles to play.”). *But cf.* *Phillips v. AWH Corp.*, 415 F.3d 1303, 1327 (Fed. Cir. 2005) (en banc) (noting that preservation of validity is a last resort in construing claims).

207. On the other hand, if a broadly construed claim survives prosecution and no additional prior art is located, then the claim would continue to be valid, but “ensnaring” concerns would still apply.

208. *But see* Lichtman, *supra* note 195, at 2023–24 (arguing that costly changes to improve public notice may be inefficient).

209. While the level of skill of those in the USPTO is debatable, examiners are nevertheless tasked with evaluating the merits of patents rather than merely registering them like copyrights. See Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577, 606–07 (1999).

taken to its limit, less skilled and less costly examiners would suffice; the USPTO could simply hire patent examiners with degrees in unrelated fields and train them to look up claim terms in a technical dictionary.²¹⁰ Second, any presumption of patent validity would lack credibility if the examiners were simply using an expedient rule. Third, for the efficiency argument to support continued application of the broadest reasonable construction rule, the current rule must result in shorter examination times than the proposed alternative. However, where the resulting claim construction is broader, the prior art search must be broader; this broad search and the analysis of its results is what takes time. Searching for prior art that anticipates a claim's meaning when that claim may not be given such a meaning after issuance is inefficient. Yet this type of searching is exactly what the broadest reasonable construction rule requires. There is no reason to believe that an examiner would take longer to discern the ordinary meaning of a term to a PHOSITA, a person like the examiner himself, than to discern the broadest meaning from a dictionary. In either case, the examiner must read the specification to understand the claim.

It is also important to consider the costs of the new rule: even adding a small amount of time to the prosecution of a patent can have large effects. Consider that, in 2005, the USPTO received 417,508 patent applications.²¹¹ At the current application rate, a rule change that adds one hour to every patent examined would add more than 400,000 person-hours for each year's filings. This would require a staff increase of approximately 200,²¹² which is equal to more than 5% of the current examiner corps.²¹³ Such costs impact patentees as well, given that only a small fraction of the patents issued each year are litigated or licensed for a royalty.²¹⁴ Because so many patents are considered by the USPTO, but so few patents actually require detailed claim construction in a litigation or licensing context, the cost of any

210. An even more extreme way to achieve this type of cost savings would be to dispense with examiners altogether and have a registration-based patent system. *But see, e.g.*, Lemley, *supra* note 57, at 1527 (arguing against a pure registration system). Such a system might be extremely low-cost, but it would swing the public notice pendulum in the opposite direction — the value of prior art searches and file histories would be lost.

211. USPTO, U.S. Patent Statistics Summary Table, Calendar Years 1963–2006, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm (last visited Dec. 1, 2007).

212. This calculation assumes that each examiner works two thousand hours a year and that each filed application is considered during the year in which it is filed. More likely, the additional time spent considering each application would simply extend the amount of time each application is pending before issuance.

213. *See* USPTO REPORT, *supra* note 13.

214. *See* Lemley, *supra* note 57, at 1501 (“The limited data we have suggest that the overwhelming majority of patents are neither litigated nor licensed.”); *id.* at 1507 (“My sense, however, is that a relatively small percentage of the 150,000 or so patents issued each year are actually licensed to third parties in exchange for royalties. As we have seen, only about 1.5% of patents are litigated at all.”); Petherbridge, *supra* note 94, at 178 (“[V]ery few patents are actually litigated . . .”).

rule that applies to all patents should be minimized. A change in the interpretive rule is therefore preferable to other solutions that would result in more substantial increases in the time spent by applicants and examiners on every patent during patent prosecution.

Even if the PHOSITA rule does not increase prosecution costs, some may be concerned that it would lead to more issued patents than otherwise would be allowed under the broadest reasonable rule because narrower patent claims are usually more likely to be valid.²¹⁵ In this view, this result may allow more societal patent protection than is optimal to encourage innovation.²¹⁶ Instituting some of the supporting recommendations discussed in Part VI should help limit the issuance of patents that might have otherwise been rejected under the broadest reasonable construction rule. Alternatively, issuing more patents may be viewed as a benefit and not a cost, because issued patents and their prosecution histories become easily searchable prior art.²¹⁷ That issuing more patents could help weed out “bad” patents may seem counterintuitive; however, the more prior art there is, the more likely it is that the USPTO or even litigants can invalidate weak patents based on prior disclosures.²¹⁸

E. Application of the New Rule

One example of a patent claim that might have issued if the PHOSITA rule were applied during prosecution is discussed in *Ex parte Motoyama*.²¹⁹ In *Motoyama*, the claims taught a system that included a device designed to monitor the status of another device, such as a printer, by transmitting a status request via “electronic mail.”²²⁰ The BPAI ruled that the invention was novel and nonobvious for the transmission of electronic mail messages between machines over the Internet for the purpose of monitoring devices.²²¹ However,

215. See, e.g., *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1480 (Fed. Cir. 1998) (“[C]laims may be no broader than the supporting disclosure . . .”). Also, narrower claims will usually have less prior art available to invalidate them.

216. Whether the current construction rules lead to optimal investment in innovation or whether claim construction rules even have an effect on such decisions is not clear.

217. See, e.g., *Bruckelmyer v. Ground Heaters, Inc.*, 445 F.3d 1374, 1378 (Fed. Cir. 2006).

218. Issuing a patent would only provide a net benefit over the status quo for applications that would otherwise remain unpublished because published applications become prior art whether or not they issue. See 35 U.S.C. § 102(e) (2000). In other words, the value of prior art might be maximized by publishing all patent applications but issuing no patents. However, applicants who only file in the U.S. may opt out of publication. See *id.* § 122(b). Assuming small inventors with less valuable inventions tend to avoid international filings, society might benefit from the issuance of such low value patents solely for their use as prior art.

219. No. 2002-0867, 2003 Pat. App. LEXIS 36 (B.P.A.I. June 12, 2003).

220. *Id.* at *1-2.

221. See *id.* at *6.

the BPAI rejected the claims for the very same status messages transmitted over a local network. Referring to several dictionary definitions, the BPAI did not restrict the meaning of “electronic mail” to any particular format or protocol.²²² As such, a prior patent that included the sending of electronic data packets from a personal computer to a networked printer anticipated the claimed invention, even though the prior patent did not teach the use of “electronic mail” as that phrase is commonly understood.²²³

The court’s ruling is problematic. The invention was clearly for the use of a specific type of message, electronic mail, and not for generalized data transmission. The broad definition of “electronic mail” used by the court would include any data communication, whereas the ordinary meaning of “electronic mail” is quite distinct from other data transmissions.²²⁴ The BPAI’s ensuing construction is too broad and too narrow at the same time: It is too broad because the patentee could now assert that any device-monitoring data communication sent over the Internet infringes the claim, which is not what the patentee invented. It is too narrow because the final patent does not cover device-monitoring electronic mail sent over a local network, which is something the patentee did invent. Indeed, the owner of the prior printer-monitoring patent might now claim that any monitoring using electronic mail over a local network infringes that patent, despite the fact that this claim was not disclosed in the prior patent.

If the broadest reasonable construction rule were abandoned, “electronic mail” would have been understood differently in *Motoyama*; a PHOSITA would know that “electronic mail” is the type of message that is sent and received by a common electronic mail program.²²⁵ The patent application could then be compared to the appro-

222. See *id.* at *9–10 (emphasizing that “[c]laims are to be given their broadest reasonable interpretation during prosecution”). Some of the cited dictionary definitions for “electronic mail” were: “the electronic transmission of letters, messages, and memos through a communications network,” “the generation, transmission, and display of correspondence and documents by electronic means,” and, most broadly, “the transmission of messages over a communications network.” *Id.* at *8–9.

223. See *id.* at *11–12 (recognizing that the common use of the term “electronic mail” is more limited than the broad definitions obtained from dictionaries).

224. Electronic mail is a very specific type of data format: it follows particular data organization rules, has specific addressing protocols, typically includes larger amounts of data, has differing fields, is human readable, etc. This format is quite different from less structured data formats which are only machine readable, addressable only through a specific host interface (such as a printer parallel port), do not include separate fields, and may only be binary. Cf. Computer Dictionary Online, Electronic Mail (July 14, 2002), <http://www.computer-dictionary-online.org/?q=electronic%20mail>.

225. See, e.g., *id.* (“A message, especially one following the common RFC 822 standard, begins with several lines of headers, followed by a blank line, and the body of the message.”). In fact, the BPAI recognizes that the “ordinary meaning” of “electronic mail” is contrary to its broad reading, but maintains that “the technical dictionary definitions of the relevant term do not require so narrow an interpretation.” *Motoyama*, 2003 Pat. App. LEXIS 36, at *11–12.

priate prior art — electronic data packets sent to a printer — in order to determine whether or not converting such data packets to “electronic mail” would have been obvious and, further, whether sending such messages over the Internet would have been obvious. If the patent issued, the claim would then have been interpreted consistently during both prosecution and any future litigation. Moreover, the patent would still have received a rigorous comparison to the prior art.

Using the PHOSITA rule would not necessarily guarantee that a patent claim will issue. In *In re American Academy of Science Tech Center*,²²⁶ the Federal Circuit considered a patent rejected by the BPAI on reexamination. The patent at issue concerned what is now commonly called “client-server” technology.²²⁷ The claims covered “general purpose user computers” that connected to a “data center computer.”²²⁸ The claimed invention allowed multiple users to run applications, such as an airline reservation program, on individual computers, where those computers would access data, such as flight information, from a single database on a central server.²²⁹ An existing prior art reference taught a multi-user program running on one mainframe computer that accessed data stored in a single database on a separate computer.²³⁰

American Academy’s specification clearly stated that multi-user mainframes were not contemplated as part of the invention and even described how the claimed invention was an improvement over mainframes.²³¹ By the time of the appeal to the BPAI, the examiner was convinced that the patent was limited to single-user computers and that the prior patented multi-user system was not sufficient to bar issuance of the patent.²³² The BPAI disagreed and broadly construed the claim term “user computer” to include any computer “capable of running application programs for a user.”²³³ Under this definition, the

226. 367 F.3d 1359 (Fed. Cir. 2004).

227. U.S. Patent No. 4,714,989, col.2 1.14–22 (filed Oct. 20, 1986) (discussing the separation of user functions from the storage of data).

228. *In re Am. Acad.*, 367 F.3d at 1362.

229. *See id.* at 1361.

230. *See id.* at 1362 (“In such back-end systems, several mainframe computers interface with a single database or ‘back-end’ computer. The mainframe computers run user applications and communicate with the database computer to store and retrieve data from a database that resides on the database computer.”). A mainframe is a centralized computer with sufficient resources to serve multiple users at the same time. Users connect to the mainframe using a “dumb terminal,” which is essentially a video screen that shows the user his portion of the remote mainframe’s computing resources, while all the processing is done on the mainframe.

231. *See id.* at 1365–66. The primary improvement is that “single user” (that is, desktop) computers allow the user to use all of the resources of the computer, whereas mainframe computers have fewer resources available to each user as the number of users increases.

232. *See id.* at 1362.

233. *Id.*

prior art was sufficient to bar patentability because mainframes are capable of running application programs for a user.²³⁴

The Federal Circuit upheld the BPAI's ruling²³⁵ and adopted a claim construction that directly contradicted the district court's claim construction in a patent infringement action brought by American Academy against Novell.²³⁶ The district court in the related litigation construed the claims as a PHOSITA would have — to include single user computers and not mainframes.²³⁷ The Federal Circuit refused to address the reasoning behind the district court's construction because a court's analysis from litigation is irrelevant to the broadest reasonable construction used during prosecution.²³⁸ Under the proposed PHOSITA rule, the Federal Circuit would have considered and possibly applied the narrower claim construction used by the district court; the PHOSITA rule would have led the Federal Circuit to conclude that a "user computer" did not include a mainframe with shared users, because the patentee had disparaged such a meaning. This would have allowed for consistency in claim construction across all cases concerning the same patent.²³⁹

However, using the narrow construction would not necessarily have saved the patent in this case. As recognized by the BPAI, even under a narrow construction, "it would have been obvious to replace the mainframe computers of the prior art with personal computers."²⁴⁰ However, whether the invention was obvious still should have been considered against the backdrop of a consistent claim construction. If the claim was nonobvious, then American Academy was denied a patent on a real innovation. The broadest reasonable construction rule required that the claims be interpreted so broadly as to cover something that American Academy never argued it invented and in fact distinguished and disclaimed in its patent application.²⁴¹

234. *See id.* at 1363.

235. *Id.* at 1370.

236. *See id.* at 1369.

237. *See id.* ("In the district court litigation, the court construed 'user computer' to refer to a computer that serves one user at a time.")

238. *See id.* ("However, the Board is required to use a different standard for construing claims than that used by district courts. We have held that it is error for the Board to 'appl[y] the mode of claim interpretation that is used by courts in litigation, when interpreting the claims of issued patents in connection with determinations of infringement and validity.'" (alteration in original) (quoting *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989))).

239. Of course, because the Federal Circuit determines claim construction de novo, there may not be complete consistency with the lower court's construction. *See Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc).

240. *In re Am. Acad.*, 367 F.3d at 1363.

241. American Academy could have narrowed the claims during reexamination, but a modified claim cannot be asserted against a current defendant nor can prior users be sued for such use unless the use violates a claim that was in the earlier patent. *See* 35 U.S.C. §§ 252, 307(b) (2000); *see, e.g., Fortel Corp. v. Phone-Mate, Inc.*, 825 F.2d 1577, 1581 (Fed. Cir. 1987) (denying enforcement of a modified claim before the date the reexamination certificate was issued where the reissued claim was not identical to the original claim).

VI. IMPROVING PUBLIC NOTICE WITHOUT USING THE
BROADEST REASONABLE CONSTRUCTION RULE

The discussion in Parts IV and V highlights three concerns relating to the abandonment of the broadest reasonable construction rule. First, abandoning the current rule may reduce the benefits of iterative claiming by decreasing the likelihood that examiners will reject vague claim language. Second, the rule change will have no effect on the incentives of patent applicants to draft precise claim language. Third, changing the interpretive rule during prosecution may impose a cost on society by increasing the chances that invalid patents will issue because less prior art can be brought to bear on narrower claims in prosecution. Each of these concerns can be alleviated through the implementation of other supporting modifications to patent prosecution. In the event the interpretive rule was not changed during the prosecution stage, the proposals set forth in this Part could still be implemented.

A. Enhancing the Process of Iterative Improvements: Examiners Should Require Disclaimers and Definitions but Not Claim Charts

Even without the broadest reasonable construction rule, claims could be made clearer through an iterative process. First, examiners can and should reject vague claim language and force more definite and unambiguous expressions of the invention. Second, the examiner should take a more active role in shaping the claims by issuing affirmative statements about his understanding of what the patent is and is not intended to cover.²⁴² For example, the examiner could compile the various reasons for the allowance of different claims into a final “reasons for allowance” document.²⁴³ He might explain that he approved a claim as not anticipated or made obvious by the prior art because it included a certain limitation. Those later assessing the scope of the patent claims would then have a clearer understanding of what the USPTO thought the patent claims were intended to cover. Moreover, this would allow courts to adopt a new standard of review by giving weight to examiners’ interpretive statements.

242. Cf. Petherbridge, *supra* note 94, at 190–91 (noting that failure of examiners to document the information they gather about the meaning of patents increases costs to third parties with little cost savings to the examiner). Why examiners do not do this now is unclear. Perhaps they do not have the time, or perhaps the lack of deference such findings receive is a disincentive.

243. If this document were binding on courts for the purpose of claim construction, public notice would be even further enhanced.

Third, examiners can police how certain words and phrases are interpreted.²⁴⁴ Where an applicant explains that certain prior art does not apply, the examiner should require a disclaimer of the prior art in either the claims or the prosecution history.²⁴⁵ Or, when an applicant declares that a certain term means something specific, the examiner should require that the definition be reflected in the claims. While explanations can be ambiguous and hard to apply, the courts can usually apply a clear disclaimer.²⁴⁶ This recommendation of a clear disclaimer requirement is not unheard of; for example, trademark examiners routinely require disclaimers for non-protectable words.²⁴⁷ Though they rarely do so, examiners may amend a patent application, and they may also require applicants to make amendments in order for a claim to be allowed.²⁴⁸ This part of the proposal would reverse the general trend that the applicant initiates all amendments.²⁴⁹ If the applicant disagrees with the examiner's interpretation, the applicant can attempt to clarify what was intended in a response to the examiner's statements.

Each of the above suggestions invites clarity and creates a public record through an iterative process without creating excessive costs in the drafting or search process. Because the examiner will already be looking for indefinite claims and issuing office actions rejecting such claims, performing this review more vigilantly and affirmatively requiring disclaimers should not significantly increase an examiner's review time. Similarly, because examiners know why they are allowing claims over the prior art and often already describe reasons for

244. The courts and the MPEP seem to encourage this. See *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989) (“[D]uring patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed.”); MPEP, *supra* note 13, § 706 (“Although this part of the Manual explains the procedure in rejecting claims, the examiner should never overlook the importance of his role in allowing claims which properly define the invention.”). In practice, however, this is often not done. See Lichtman, *supra* note 13, at 155 n.22; Miller, *supra* note 53, at 192–94.

245. *Cf.* Sag & Rohde, *supra* note 59, at 84–88 (suggesting “negative claim construction” whereby examiner determines what the patent does not mean).

246. See, e.g., *SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1286 (Fed. Cir. 2005) (“When the patentee makes clear and unmistakable prosecution arguments limiting the meaning of a claim term in order to overcome a rejection, the courts limit the relevant claim term to exclude the disclaimed matter.”). *But see id.* at 1287 (“An ambiguous disclaimer, however, does not advance the patent’s notice function or justify public reliance, and the court will not use it to limit a claim term’s ordinary meaning.”).

247. See, e.g., Russell Shaw, Exclusive: Apple Trademark Office Docs Point to Real Reasons for “Podcast” Controversy, <http://blogs.zdnet.com/ip-telephony/?p=1252> (Sept. 23, 2006, 19:43) (“Applicant must disclaim the descriptive wording ‘SOCKS’ apart from the mark as shown because it merely describes a feature or characteristic of the goods.” (quoting Trademark Office Action)).

248. See 37 C.F.R. § 1.121(g) (2007) (providing for amendments by the examiner); MPEP, *supra* note 13, § 714(II)(E) (explaining examiner’s amendments).

249. See Lichtman, *supra* note 13, at 155 n.22; *cf.* Miller, *supra* note 53, at 192 (arguing that the USPTO “has the power to structure its proceedings to ensure efficient and accurate claim construction”).

their allowance, including additional details in the public record should not take significantly more time.

In re Prater is a good example of a case in which a simple and inexpensive disclaimer would have been useful.²⁵⁰ In *Prater*, the United States Court of Customs and Patent Appeals (“CCPA”) rejected a process claim for the generation of a graph from a series of mathematical calculations because the graph could be drawn by hand.²⁵¹ Prater claimed that the specification only described drawing graphs on a digital computer. The CCPA, however, applying the broadest reasonable construction rule, determined that the claims were not limited to a digital computer. It ruled that, since Prater’s claims covered both patentable and not patentable subject matter, the claims were not patentable.²⁵² In this case, the examiner could have notified the patentee that his claims were too broad and could have required the patentee to add a limitation to digital computers. This step would have been much simpler and cheaper, and those reading the patent would have better understood the claims.²⁵³

However, examiners should not have to go so far as to create a claim chart for every patent application, as some have suggested.²⁵⁴ Creating proper claim charts can take hours, if not days.²⁵⁵ Given that 4,000 examiners²⁵⁶ must review approximately 400,000 new applications filed each year,²⁵⁷ even 30 additional minutes per examiner would add significantly to the USPTO’s workload.²⁵⁸ This would not be an efficient use of the examiners’ time, since only a small percentage of patents is ever litigated, subject to licensing, or otherwise in need of detailed claim analysis. Furthermore, of those patents that are ever in need of detailed claim analysis, only a small subset of the claim terms in those patents is truly in dispute.

Additionally, some commentators have suggested that applicants should be required to include a section in the patent that lists the words that the claims use, along with specific definitions.²⁵⁹ These

250. 415 F.2d 1393 (C.C.P.A. 1969).

251. *See id.* at 1398.

252. *See id.* at 1398, 1404.

253. Indeed, the court in *Prater* suggested that the applicant would have been successful if he had limited his claim to a machine process. *See id.* at 1404.

254. *See Petherbridge, supra* note 94, at 197–98.

255. Petherbridge suggests (optimistically) that such a process would take only thirty minutes per patent. *See id.* at 210.

256. *See* USPTO REPORT, *supra* note 13.

257. *See* USPTO, U.S. PATENT ACTIVITY CALENDAR YEARS 1790 TO PRESENT (2006), available at http://www.uspto.gov/go/taf/h_counts.pdf.

258. Using the calculations set forth in notes 211–213, *supra*, the USPTO’s workload would increase by 2.5%. This is in accord with the estimate that 18 hours are spent per application. *See* Lemley, *supra* note 57, at 1500. Thirty minutes is 2.8% of 18 hours.

259. *See, e.g.,* Miller, *supra* note 53, at 203–06 (suggesting that patentees provide a “lexicon section”).

suggestions are also likely to be too costly to be worthwhile.²⁶⁰ Applicants probably will spend far more than a few minutes per patent ensuring that every word in every claim is precisely defined. Irrespective of the amount of time spent, imprecision would remain because words by their nature are imprecise.²⁶¹ For example, if a patent included 20 or more claims, with 1 to 10 undefined terms in each, it would require precise definitions of up to 200 terms. In practice, more definitions would probably be necessary because those 200 definitions would also include words that require definitions. Even if there were a lexicon, during litigation the parties would still inevitably find some basis for disputing the meaning of the terms.²⁶² Instead of disputing claim terms, parties could dispute the words used in the lexicon. No matter how much time is spent creating lexicons by the approximately 400,000 applicants each year,²⁶³ only a few patents will be disputed. Therefore, the costs should be borne in litigation and not by every patent applicant.

If one expects that the terms most negotiated during prosecution will also be the terms most disputed during litigation, then requiring the patentee to include a definition or allowing the examiner to amend the application on a case-by-case basis is more cost effective than requiring a full lexicon or a claim chart of all terms. The examiner and applicant will be forced to spend time considering what the disputed terms mean and to provide a clear definition on the face of the patent rather than buried in the prosecution history. This would greatly increase clarity and notice with little marginal cost.

B. Increasing Ex Ante Incentives to Draft Precise Claims: Requiring Improved Written Specifications

While changing the claim interpretation rule will not increase ex ante incentives for precise claiming, strong enforcement of written specification rules can create such incentives.²⁶⁴ Improving a patent's specification in the initial application is an important way to clarify

260. *But see, e.g., id.* at 206 (suggesting that “this additional disclosure is likely to impose only minimally increased patent preparation costs”).

261. *See* *Autogiro Co. of Am. v. United States*, 384 F.2d 391, 396–97 (Ct. Cl. 1967); *see also* *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722, 731 (2002).

262. This is, and will continue to be, a concern associated with all attempts to improve public notice. Thus, a careful cost-benefit analysis of any changes is required. *See, e.g.,* Lichtman, *supra* note 195, at 2022 (“[Claim construction] hearings focus exclusively on literal meaning; yet, as every participant in the patent system well knows . . . [a]lmost all patents, it turns out, have significant latent ambiguities — even with respect to seemingly innocuous words like ‘to,’ ‘on,’ ‘about,’ and ‘through.’”).

263. USPTO, *supra* note 257.

264. *See* 35 U.S.C. § 112 (2000) (providing the statutory requirements for the specification).

the patent's claims.²⁶⁵ Further, a better specification may help reduce reliance on prosecution history. While the prosecution history is useful for claim interpretation, it is not as precise as the specification nor is it as useful.²⁶⁶ While the desire to improve claim clarity using the patent specifications is not new,²⁶⁷ implementing a strong written description requirement has not been the generally recommended approach,²⁶⁸ because the written description requirement has traditionally been seen only as a means for preventing applicants from adding new inventions to an older disclosure.²⁶⁹

1. Rejecting Ill-Described Applications

Examiners should reject patent applications that do not provide sufficient details about the claimed invention. Under the requirements of 35 U.S.C. § 112, examiners are well within their statutory authority to reject applications that do not completely and unambiguously describe and enable the claimed invention. Increasing the number of rejections based on a failure to satisfy the requirements of 35 U.S.C. § 112 would give applicants greater incentives to clarify initial applications in order to reduce prosecution time and cost.²⁷⁰ While some applicants may be willing to risk a rejection for vague claims, they would be more unwilling to risk rejection based on the specification. Changes to the specification are considered “new matter,” so changes made in response to a rejection would alter the filing priority date.²⁷¹

265. See Bender, *supra* note 12, at 186–87 (discussing relationship between claim definiteness and written description); Miller, *supra* note 53, at 188 (stating that claim construction should focus on the whole patent document); see also Petherbridge, *supra* note 94, at 184–85 (discussing relationship between claim scope and written description).

266. Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed. Cir. 2005) (“Because the prosecution history represents an ongoing negotiation between the [US]PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.”).

267. See, e.g., Merrill v. Yeomans, 94 U.S. 568, 573–74 (1876).

268. Christopher M. Holman, *Is Lilly Written Description a Paper Tiger?: A Comprehensive Assessment of the Impact of Eli Lilly and Its Progeny in the Courts and PTO*, 17 ALB. L.J. SCI. & TECH. 1, 80–82 (2007) (reviewing the written description doctrine and finding that it is not broadly or consistently applied by the USPTO or courts).

269. See Univ. of Rochester v. G.D. Searle & Co., 375 F.3d 1303, 1307 (Fed. Cir. 2004) (Rader, J., dissenting).

270. For example, in *Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559 (Fed. Cir. 1997), a patent infringement suit, the plaintiff claimed the gene that creates insulin in all vertebrates but only described the full structure of the gene that creates insulin in rats. As a result, the broad claim was invalidated without the court having to apply the broadest reasonable construction rule. See *id.* at 1568–69. Had the examiner rejected the claim on this basis during the initial patent application, the claim could have been amended to more clearly describe what the patentee had actually invented.

271. 35 U.S.C. § 132(a) (2000) (providing that no substantive amendment can be made to the specification after an application is filed). Any amendment must come in the form of a “new” application such as a continuation-in-part, such that the date of filing changes for any new matter. See *id.* § 120; 37 C.F.R. § 1.78 (2007). The date a patent application is filed is

A later priority date means that more prior art can be used to invalidate a patent and also means that the “state of the art” may move forward, increasing the chance that the claim will be considered obvious. Thus, applicants will probably prefer priority over vagueness.

While this proposal would not directly affect a patent’s initial claim language, it would result in more comprehensive initial specifications. Because the specification helps to clarify the meaning of the claims, a specification that fully describes the invention and provides enough detail for a PHOSITA to easily practice the invention will allow claims to be better understood. For example, in *Globetrotter Software, Inc. v. Elan Computer Group, Inc.*,²⁷² the Federal Circuit addressed the meaning of the term “preventing” in the context of a computer message designed to ensure that a software program does not run.²⁷³ The patent at issue related to a license management program used to enforce a rule that only a certain number of instances of an applications can run simultaneously.²⁷⁴ For example, if a company only had a license to use twenty copies of Microsoft Word, then the license manager would ensure that the twenty-first user attempting to load the software cannot do so. The mechanism described in the patent was a message sent to the computer “preventing” the application from loading.²⁷⁵ In this patent infringement action, Globetrotter, the owner of the patent, argued that the “preventing” message could be accomplished by sending a passive “no-license” message to the program and, on the basis of such a message, the program would not load.²⁷⁶

The district court disagreed and ruled that “preventing” required an “active” message that would force the program to shut down.²⁷⁷ On appeal, the Federal Circuit determined that “preventing” was ambiguous and looked to Globetrotter’s specification, which clearly and specifically described two alternate embodiments, neither of which “actively” prevented software from running but instead returned a “no-license” message.²⁷⁸ Accordingly, the Federal Circuit reversed and remanded; Globetrotter’s clear and detailed preferred embodiment

important; it serves as a reference date for determining what prior art can be used to test patentability. See 35 U.S.C. § 102(b) (2000).

272. 362 F.3d 1367 (Fed. Cir. 2004). The author represented Globetrotter during parts of the litigation.

273. *Id.* at 1373.

274. See U.S. Patent No. 5,390,297 (filed Nov. 10, 1987).

275. *Globetrotter*, 362 F.3d at 1373.

276. *Id.*

277. See *id.* (“[The accused device] does nothing actively to prevent a program from running, but merely returns ‘a no-license status.’” (quoting *Globetrotter Software, Inc. v. Elan Computer Group, Inc.*, No. C-98-20419 JF, 1999 WL 33493606, at *18 (N.D. Cal. Oct. 26, 1999))).

278. *Id.* at 1380.

description led the court to conclude that a clear understanding of the term “preventing” included passive messages.²⁷⁹

Globetrotter is an example of the benefits of a clear description. However, under the current system, not all descriptions are clear because applicants are wary of the potential for language in the specification to limit the scope of their claims. For example, in *Honeywell International Inc. v. ITT Industries, Inc.*,²⁸⁰ the Federal Circuit ruled that because the language of the specification repeatedly referred to “the present invention” as a specific object, the claims were limited to that object.²⁸¹ Patentees are wary of such unexpected ex post limitations, so pressure from examiners is necessary to encourage improved written descriptions. Examiners should require more description of how the invention is implemented in the preferred embodiment, so readers of the patent will be able to understand better what is and is not part of the invention.²⁸²

One concern with stricter requirements for the specification is that they may hinder innovation by increasing the costs of obtaining a patent.²⁸³ This concern is probably overstated with respect to written descriptions. The marginal costs of accurately describing and enabling an invention are likely to be low because the applicant can be expected to have a full grasp of what he believes was invented.²⁸⁴ Further, because the applicant is required to disclose the entire invention in the specification with the hope that no prior art will bar the claims, inventors will not experience any ex ante increase in the costs of innovation or in the selection of what discoveries to disclose.

2. Description of the Prior Art

Patent applicants should be required to include a section that describes their understanding and explanation of the known prior art.

279. One might argue that the district court got the construction wrong, and thus public notice still failed. This conclusion, however, is incorrect; the district court actually construed the claim properly but then ignored that construction and granted summary judgment. *See id.* at 1373.

280. 452 F.3d 1312 (Fed. Cir. 2006).

281. *Id.* at 1318.

282. *Cf.* Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1652–53 (2003) (discussing role of written description in providing public notice).

283. *See* Jeffie A. Kopczynski, Note, *A New Era for § 112? Exploring Recent Developments in the Written Description Requirement as Applied to Biotechnology Inventions*, 16 HARV. J.L. & TECH. 229–230 (2002) (“Additionally, no invention should be subjected to an unduly rigid written description analysis, as the cost of such stringency outweighs any benefits.”).

284. Failure to fully grasp the invention is grounds for rejection under 35 U.S.C. §112 (2000). *See* *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559, 1568–69 (Fed. Cir. 1997).

Currently, this is not a requirement,²⁸⁵ and some patent prosecutors advise against describing the prior art in the specification.²⁸⁶ This section describing the applicant's understanding and explanation of the known prior art should include a list of preferred reference sources, so readers of the patent know what information the applicant believed to be the state of the art.²⁸⁷ Such a section would be particularly beneficial for bringing to light prior art that the applicant knows about but that might not show up in the examiner's prior art search. Requiring a full description of the prior art could be a low cost way to incentivize the creation of improved written specifications from the outset.²⁸⁸

This disclosure requirement would have several advantages. First, a description of the prior art will lead to disclosure of unwritten background information that might affect the validity of the patent. For example, a patent for demonstrating how to pick up a box²⁸⁹ would be interpreted very differently, and perhaps would not issue, if the applicant were required to describe the history of box lifting, much of which is not in writing.

Second, a description of the prior art may lead to further clarification of terms used in the patent during prosecution. At the very least, the description gives the examiner and the reader a baseline against which to compare the applicant's invention. In the box lifting example, if the applicant's background description of box lifting included little information, it might send a signal to the examiner that the person did not know much about box lifting and that the application may, therefore, need closer examination than a patent with a more comprehensive description. Further, if the background included a description of how people usually bend their knees, the prior art description might shed light on the claim term "flex," which might otherwise be ambiguous.

Third, a description of the prior art may narrow claim construction during litigation more than would otherwise occur without the description. Because claim terms are to be interpreted in light of their associated specification, an explicit discussion of prior art in the specification would help courts shape amorphous claim terms by pro-

285. See Miller, *supra* note 53, at 200–01; see, e.g., *Falkner v. Inglis*, 448 F.3d 1357, 1368 (Fed. Cir. 2006) (holding that DNA structures available in the literature did not need to be disclosed in order to fulfill the requirement of describing new invention).

286. See Miller, *supra* note 53, at 201–02 (noting that many instruction books for patent lawyers advise against describing the prior art).

287. Cf. Joseph Scott Miller & James A. Hilsenteger, *The Proven Key: Roles and Rules for Dictionaries at the Patent Office and the Courts*, 54 AM. U. L. REV. 829, 891 (2005) (arguing that patentees should indicate what dictionaries they relied on to write the claims).

288. Cf. Miller, *supra* note 53, at 202 (arguing that the cost of including the field of prior art for the claimed invention would be minimal). This proposal does not mean that the applicant must perform a prior art search.

289. See U.S. Patent No. 5,498,162 (filed Sept. 6, 1994).

viding additional evidence about the understanding of the terms at a time more contemporaneous to the invention.

Fourth, because claim construction is informed by how one with ordinary skill in the art would construe the claim, a description of the prior art to date will allow readers and courts to better understand what skills were ordinary at the time the patent was filed.²⁹⁰

A potential side effect of requiring a description of prior art is that it could encourage strategic behavior by the applicant. For example, applicants may make misstatements about what the prior art is or simply not disclose unwritten prior art with the hope that the examiner will not discover the omission. The duty of candor and the risk of inequitable conduct findings in litigation may limit such strategic behavior.²⁹¹ At the very least, even misstated information can be helpful to the examiner in determining the intended scope of the claims where the claims relate to an improvement over the purported prior art.

C. Improving the Definition of the Outer Limits of Claims: Relaxing the Obviousness Standard

The third concern related to abandoning the broadest reasonable construction rule is that more patents might issue than is optimal because the scope of prior art that is considered relevant would be reduced when the claims are given narrower interpretations during patent prosecution.²⁹² Even setting to one side this question of what is “optimal” patent issuance, a complete patent prosecution should include testing the application against as much prior art as possible to ensure the patent’s validity. By relaxing the obviousness standard in *KSR International Co. v. Teleflex Inc.*,²⁹³ the Supreme Court took a step toward making the outer limits of claims more definite.

Abandoning the broadest reasonable construction rule need not limit the amount of prior art considered by examiners, especially where a narrower construction might lead to prior art that is more relevant. Instead, the obviousness standard should be relaxed to allow more prior art to be considered. Prior to *KSR*, the Federal Circuit’s test required an examiner to specifically identify some teaching, suggestion, or motivation to combine prior art in order to render obvious an invention based on such a combination.²⁹⁴ Strictly applying the

290. See Miller, *supra* note 53, at 202 (“With the benefit of these explicit pointers to the pertinent prior art, anyone construing a claim term from the patent can focus on documents that show actual usage in the pertinent art with confidence that the documents are highly relevant to claim construction.”).

291. See 37 C.F.R. § 1.56(a) (2007).

292. See *supra* Part V.D.

293. 127 S. Ct. 1727 (2007).

294. See, e.g., *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1385 (Fed. Cir. 2001); *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999); *In re Dance*, 160 F.3d 1339,

obviousness test would almost always limit the prior art applicable to a patent application. In *KSR*, the Supreme Court relaxed the obviousness test to allow examiners to consider more prior art when testing whether a patent claim is rendered obvious by prior art or whether it should issue.²⁹⁵ In assessing whether a claim is obvious, examiners may now consider predictable uses of prior art, market-driven incentives, whether a finite number of options were obvious to try, and other reasons why a PHOSITA might combine or add to existing prior art.²⁹⁶

Expanding the definition of obviousness may seem like a counter-intuitive way to enhance public notice. The proffered justification for the teaching, suggestion, or motivation test is that public notice dictates that any obviousness finding be well supported in public teachings; the evidentiary requirements of the test were considered necessary to insulate the obviousness analysis from hindsight bias.²⁹⁷ Relaxing this requirement, however, is no worse for public notice than the broadest reasonable construction rule. Indeed, the broadest reasonable construction rule probably compensated for the limited ability to reject patent claims as anticipated due to obviousness prior to *KSR*; where the examiner cannot find a writing applying one prior art to another, the broadest reasonable construction rule allows one prior art to *become* the other.

The case of *In re Johnston*²⁹⁸ exemplifies the relationship between the obviousness test and the broadest reasonable construction rule. In *Johnston*, the inventor claimed a “spirally formed pipe” with a large diameter.²⁹⁹ In other words, a long thin piece of metal was wrapped like the core of a paper towel roll in order to form a tube-like structure. The BPAI and the Federal Circuit interpreted “pipe” to include vertical silos that can be formed by wrapping sheets of metal; using this construction of the term “pipe,” both courts found that the prior art regarding the design of silos and storage tanks anticipated the patent.³⁰⁰

This Article’s proposal to abandon the broadest reasonable construction rule would reach the same claim rejection but in a different

1343 (Fed. Cir. 1998); *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988); *see also In re Lee*, 277 F.3d 1338, 1345 (Fed. Cir. 2002) (holding that “common knowledge and common sense” of the examiner or BPAI is improper basis for obviousness rejection).

295. *See KSR*, 127 S. Ct. at 1741 (rejecting rigid application of the “teaching, suggestion, or motivation” test for obviousness).

296. *See id.* at 1739–42 (describing various ways a patent claim might be obvious).

297. *See In re Dembiczak*, 175 F.3d at 999.

298. 435 F.3d 1381 (Fed. Cir. 2006).

299. *Id.* at 1383. Large diameter pipes are twelve feet or more across. *See id.*

300. *See id.* at 1384. “Anticipation” is a term used in patent law to describe when a single prior art reference renders a patent claim invalid because it is not novel under 35 U.S.C. § 102 (2000). Prior art anticipates a patent if it teaches all of the limitations of the claim under scrutiny.

way. This Article's proposal would provide a consistent interpretation standard while still disallowing overly broad and vague patent claims. A reading of the patent claim in *Johnston* using the PHOSITA rule would have interpreted "pipe" to include something through which fluid flows.³⁰¹ Under the new relaxed obviousness standard formulated in *KSR*, the silo prior art would render the pipe claim obvious.³⁰² Therefore, even though the silo prior art may not have anticipated the pipe claim,³⁰³ abandoning the broadest reasonable construction rule still would not have allowed the patent to issue.

In fact, the BPAI determined that Johnston's other claims, including those regarding spirally-formed large diameter pipes shaped into arches, were obvious. The BPAI combined a "Handbook of Steel" teaching helically-formed pipe reshaped into arches and a brochure for a method demonstrating spirally-formed pipe.³⁰⁴ Johnston argued that, because the pipes referenced in the prior art were of different designs, there was inadequate motivation to combine these two methods.³⁰⁵ Instead of strictly applying the teaching, suggestion, or motivation test, the Federal Circuit agreed with the BPAI and stretched to find a motivation for combining the references: "These teachings are in the same field of endeavor and deal with related subject matter."³⁰⁶ The reasoning in *Johnston* illustrates that relaxing the obviousness standard can lead to the rejection of patent applications through the use of more prior art — just like the broadest reasonable construction rule.³⁰⁷

A relaxation of the obviousness standard can also have an iterative effect in clarifying claims. For example, in *Johnston*, the Federal Circuit noted that Johnston's claims were not limited by the method of how the spiral pipes were made, which led in part to the rejection.³⁰⁸ In a continuation-in-part filed after the appeal, Johnston included "horizontally produced spirally formed pipe" in order to more pre-

301. If his patent were to issue, this narrow interpretation of "pipe" would limit Johnston's ability to sue silo makers at the cost of not allowing silos to bar his patent at the prosecution stage.

302. See 35 U.S.C. § 103 (2000).

303. Anticipation is much less likely if Johnston did not intend to claim silos. However, in this case, Johnston stated in his specification that his pipe could be used to make a silo. See *In re Johnston*, 435 F.3d at 1384. Therefore, the court was likely correct in invalidating Johnston's claim based on anticipation.

304. See *id.* at 1384–86.

305. See *id.* at 1385–86.

306. *Id.* at 1386.

307. Changing the obviousness rules need not have the effect of disallowing otherwise novel and nonobvious inventions. Traditional secondary considerations like long felt need, failure of others, and market success would still be relevant as indicia of nonobviousness. See *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).

308. 435 F.3d 1381, 1384 (Fed. Cir. 2006).

cisely claim the invention,³⁰⁹ which might have avoided an obviousness finding based on silos.³¹⁰

VII. CONCLUSION

Public notice is sure to remain an important goal of patent law. However, the broadest reasonable construction rule, the very purpose of which is to enhance public notice, fails to do so either *ex ante* or *ex post*. Yet the rule persists, despite the harm its conflict with the PHOSITA rule causes to public notice. The broadest reasonable construction rule should be abandoned, and patent claims should be understood as a PHOSITA would understand them both during patent prosecution and during any subsequent litigation. Even if this proposal fails to increase the level of public notice over that provided by the broadest reasonable construction rule, it would at least reduce the costs imposed by the use of different interpretive rules at different stages. Additionally, there are supplemental changes that could be adopted to enhance public notice, whether by improving the iterative process, incentivizing clearer patent applications, or by allowing examiners to more easily reject patents that are obvious.

309. U.S. Patent App. No. 11/374,563 (filed Mar. 14, 2006).

310. Johnston's amended claims were again rejected based on obviousness relating to silos. An appeal is pending before the BPAI. *See* USPTO, Patent Application Information Retrieval, <http://portal.uspto.gov/external/portal/pair> (search application number 11/374,563; then follow "Image File Wrapper" hyperlink) (last visited Dec. 1, 2007).