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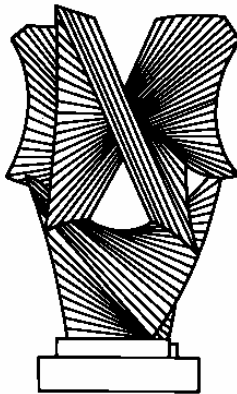
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Substitutes for the Doctrine of Equivalents: A Response to Meurer and Nard

DOUG LICHTMAN*

INTRODUCTION

The scope of a patent is principally determined by the literal language of the patent claims. After a patent issues, however, patent holders have at their disposal a handful of mechanisms by which to expand patent scope beyond those original contours. One such mechanism is the doctrine of equivalents. Under that doctrine, a patent holder can, in the context of an infringement action, ask a court to reinterpret claim language to cover not only that which the claim literally describes but also similar inventions that perform “substantially the same function in substantially the same way to obtain substantially the same result.”¹ Another such mechanism is the reissue proceeding, under which a patent holder can turn instead to the Patent Office and, albeit subject to some hefty restrictions, ask that new claim language be considered.² Yet another mechanism involves follow-up applications known as “continuations” through which an applicant can submit new claims that will under certain circumstances be treated as if they were submitted at the time of the original application.³ These various mechanisms are each substitutes not only for one another, but also for more careful claim drafting at the outset. That is, a patent applicant seeking particular scope to some degree trades off between these options, deciding how much to invest in the process of drafting original claim language, how much to rely on the doctrine of equivalents, and whether and when to make use of both the reissue proceeding and continuation applications.⁴

From a policy perspective, the first step toward evaluating any of these mechanisms is to ask whether a patent applicant would be able to achieve the same patent scope in a world without the mechanism in question. For example, to evaluate the doctrine of equivalents, ask whether an applicant can use continuations, the reissue proceeding, and more careful claim drafting to achieve the precise coverage otherwise available under the doctrine. Similarly, to evalu-

* Professor of Law, The University of Chicago. Email: dgl@uchicago.edu. For helpful comments, sincere thanks to John Duffy, Mark Lemley, Ed McCaffery, Rob Merges, Mike Meurer, Craig Nard, Neil Netanel, and also workshop participants at Berkeley, UCLA, and USC.

1. This is one of the classic articulations of the doctrine. Its words are drawn from *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*, 339 U.S. 605, 608 (1950) (quoting *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929)). Another common phrasing is to ask whether there are “insubstantial differences” between the accused and claimed inventions. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39–40 (1997) (noting the two articulations but refusing to choose between them).

2. See 35 U.S.C. § 251 (2000).

3. See 35 U.S.C. § 120 (2000).

4. Other substitute mechanisms are also in play, such as the use of the means-plus-function element format. See 35 U.S.C. § 112, ¶ 6 (2000).

ate continuation applications, determine first whether the doctrine of equivalents, reissue, and more careful claim drafting can together accomplish the very same work. If analysis along these lines suggests that the mechanism in question is redundant, the implication is not that the mechanism has no value. Instead, the implication is that patent scope is not at stake with respect to that mechanism, and its contours should therefore be based exclusively on institutional factors like the relative cost to the applicant of using it; the relative cost to courts and competitors of evaluating patent scope in light of it; and any resulting differences in the allocation of decision-making power as between the Patent Office and the federal courts, or as between judge and jury. If analysis along these lines suggests that a mechanism is not redundant, by contrast, then patent scope is at stake, and the mechanism at issue therefore unavoidably implicates more fundamental questions about what scope of protection best balances society's competing interests in invention, disclosure, coordination, and imitation.

Mike Meurer and Craig Nard do not explicitly adopt this framework in *Invention, Refinement, and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents*,⁵ but they in essence argue that the doctrine of equivalents is redundant in the sense introduced above. More specifically, they argue that the doctrine in most cases has no effect on patent scope because patent applicants can achieve the relevant range of protection by drafting more inclusive claims at the outset and by using the reissue proceeding to fill any remaining gaps.⁶ This leads Meurer and Nard to think that the normative justification for equivalents analysis must primarily lie in the relative costs of using the doctrine as compared to its substitute mechanisms. Thus they develop a normative theory that turns heavily on institutional factors,⁷ and they ultimately advocate both a significant reduction in the availability of equivalents protection⁸ and a renewed emphasis on claim drafting and the reissue proceeding.⁹

I write this Response to warmly but wholeheartedly disagree.

I begin in Part I by arguing that the doctrine of equivalents is first and foremost a doctrine about patent scope. Applicants cannot replicate its effects

5. 93 GEO. L.J. 1947 (2005) [hereinafter *Refinement*].

6. Meurer and Nard do recognize some exceptions to this general rule. See, e.g., *Refinement*, *supra* note 5, at 1955 (certain unforeseen variations are “conceptually unattainable no matter the amount of time and money spent on refinement efforts”). However, this is the insight that animates their theory and drives their economic model. See, e.g., *id.* (“[W]e show that often the degree of competition is unaffected by the presence or absence of the [doctrine of equivalents].”); *id.* (“[O]ften patent applicants can capture unforeseen embodiments through greater conceptual effort and the use of various claim drafting strategies.”).

7. See *id.* at 1983–94 (articulating their economic model of equivalents analysis).

8. See, e.g., *id.* at 1949 (application of the doctrine of equivalents should be “the exception . . . not the rule”) (quoting *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991)).

9. See, e.g., *id.* at 1951 (“[T]here is not a convincing answer to the question of why the doctrine of equivalents, rather than some other doctrinal approach, should be used”); *id.* at 1995 (discussing claim refinement); *id.* at 1994–96 (discussing the reissue proceeding).

by investing more heavily in efforts at original claim drafting, nor can they muddle through by making more active use of the reissue proceeding or continuation applications. To suggest otherwise is not only to significantly understate the difficulty of identifying and articulating the essence of a genuinely new invention but also to neglect important differences between determining appropriate claim scope at the moment of invention and undertaking that same task years later when a genuine controversy is at hand. Put succinctly, Meurer and Nard are in my view wrong to think that the doctrine of equivalents is a redundant mechanism, and they are therefore wrong to conclude that the normative justification for the doctrine must come from its institutional implications rather than its effect on patent scope. Institutional details matter, but in this setting they likely take second seat to the more central question of how broad patent protection should be.

In Part II, I put questions of patent scope to one side and turn to the institutional issues. As Meurer and Nard suggest, mechanisms that reduce the costs of drafting a patent application often increase the costs of reading and interpreting it. That said, the institutional analysis is significantly more complicated than Meurer and Nard let on. For one thing, the costs of drafting bulletproof claim language can be substantial. Every change in isolation might seem small and manageable, but the dynamic overall can readily add up. Moreover, the benefits of marginally improving claim language do not seem particularly large. Most patents, after all, are never read. And even among those patents that are read, slightly imperfect claim language is not as important as it might at first seem. For instance, someone skilled in the relevant art can often correctly interpret a patent claim despite some number of literal imperfections. In fact, someone skilled in the art might find it easier to read simple, concrete claim language (“shoelace”) rather than more abstract expressions (“mechanism by which to bind tightly around the foot”) that are in fact technically superior.

In Part III, I consider two special topics that Meurer and Nard also stress. Specifically, I discuss the use of equivalents analysis to extend claim scope in instances where the accused technology uses some component that was not invented at the time the original claim language was drafted, and I discuss the relationship between the Patent Office and the federal courts, focusing in particular on how that relationship might change if Meurer and Nard are successful in their efforts to increase the importance of literal claim language while at the same time reducing the availability of the doctrine of equivalents.

Finally, I briefly conclude, presenting my own perspective on the doctrine of equivalents and its role in patent interpretation.

I. A QUESTION OF PATENT SCOPE

Mike Meurer and Craig Nard are completely upfront about the assumption that motivates their normative theory: “We believe that inventors fail to obtain the full claim breadth they are entitled to because they fail to refine their claims

sufficiently during patent prosecution.”¹⁰ It is with respect to this basic point that I disagree most strongly. Meurer and Nard imagine that applicants are capable of writing comprehensive literal claims but are choosing instead to cut corners and then rely on the doctrine of equivalents for protection. In my view, that is not a believable account. Accurate claim language is not always within reach. And, while the reissue process and continuation applications do mitigate the problem, these are in the end significantly imperfect substitutes for the flexibility otherwise available under the doctrine of equivalents.

Start with the difficulties inherent in drafting literal claim language. Every year, I begin my patent course by asking students to imagine that they have been hired to draft a set of comprehensive claims articulating that invention commonly known as the pencil.¹¹ The task is as easy as a drafting exercise can possibly be, in that every one of my students has well over twenty years of experience working with this invention, and each has also already seen major variations on the pencil theme, including the mechanical pencil, the colored pencil, and those pencils that come in the shape of a heart, or Mickey Mouse ears, or a banana. Still, every year, writing a set of comprehensive claims proves to be a nearly insurmountable challenge for the class. How best to articulate that non-transferable exterior substance, remembering that it need not be made of wood, need not come in the shape of a stylus, and yet in most instantiations should be removable in a way that enables or emulates sharpening? What of the transferable inner core that must be contained within the exterior substance but also capable of protruding from it? And the eraser? Six years into teaching and with the help of well over 500 student collaborators, I am still not convinced that I have in my possession airtight patent claims for the pencil. And, as I say, the pencil represents the easiest of drafting exercises because both the invention and its various commercial embodiments are utterly familiar.

Outside the classroom, the deck is not so generously stacked. Consider in this light the patent portfolio held by Tessera Technologies. Tessera is a sophisticated patent player that licenses its patented technologies to firms like Sharp Electronics, Texas Instruments, and Samsung.¹² The firm raised nearly \$100 million when it went public in 2003, and its principal asset was then and is still today its intellectual property.¹³ Yet a recent patent dispute suggests that even in this patent-focused, high-stakes environment, it is not reasonable to expect that every ‘t’ can be crossed and every ‘i’ can be dotted. The patent at issue was meant to protect a semiconductor housing that physically connects semiconductor chips to their associated circuit boards. The innovative accomplishment is

10. *Refinement*, *supra* note 5, at 1952.

11. The inspiration comes from an exercise in ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 33–35 (3d ed. 2002).

12. Detailed information about the firm can be found at <http://www.tessera.com> (last visited Oct. 17, 2005).

13. Therese Poletti, *The Next Rambus? Newly Public Tessera a Mix of Technology and Strategy*, *SAN JOSE MERCURY NEWS*, Dec. 13, 2003, at 1C (reporting on the IPO).

that the housing allows for some flexibility at the point of contact, thereby accommodating temperature changes and other environmental stresses that would otherwise cause the board to shift position and lose contact. A representative claim begins by carefully asserting rights in a “semiconductor chip assembly comprising a semiconductor chip having a plurality of surfaces and having contacts on at least one of said surfaces and a flexible sheetlike element having terminals thereon, and flexible leads electrically connecting said terminals to said contacts”¹⁴—language, it turns out, that inadvertently leaves ambiguous the important question of whether flexibility is a property of these various components in their unassembled state, their assembled state, or both.¹⁵ In the hands of an unsympathetic court, that blunder could cost Tessera millions; yet it is hard to fault Tessera’s attorneys, who surely had their hands full perfecting the rest of that unwieldy 104-word descriptive articulation.

The Tessera anecdote is in no way exceptional. Sophisticated firms with real money on the line nevertheless routinely fail to craft literal claims that properly articulate their inventive accomplishments. Thus millions of dollars are at risk because patentees have repeatedly described computer processes as “selectively forwarding” data from a central computer to remote clients, not realizing that language of that sort leaves unprotected comparable systems where the data is not forwarded but instead remains in the central computer waiting to be picked up.¹⁶ Computer enthusiasts will recognize this to be the difference between “push” and “pull” technology, a concept that had not been clearly defined back when most of the relevant patentees first applied for protection. Similarly, the Federal Circuit recently ruled against a patentee whose claims used the word “adjoining” to describe the proximity of two components.¹⁷ The problem, according to the court, is that “adjoining” strongly implies some form of contact or touching, and all the invention actually required was that the relevant components be “adjacent” or nearby.

Should failures like these be interpreted as avoidable errors—as decisions made by these various inventors not to invest in further claim refinement? Again, Meurer and Nard think so: “We believe that inventors fail to obtain the full claim breadth they are entitled to because they fail to refine their claims sufficiently during patent prosecution.”¹⁸ Quite the opposite, my position is that Tessera and its peers fall short because it is impossible for a patent applicant to anticipate every insubstantial variation that a competitor might try, let alone to

14. Semiconductor Chip Assemblies, Methods of Making Same and Components For Same, U.S. Patent No. 5,679,977 (filed Apr. 28, 1993) (issued Oct. 21, 1997) (claim 1).

15. See Samsung’s Responsive Claim Construction Brief at 9, Samsung Elec. Corp., Ltd. v. Tessera Techs., Inc., No. CV-02-05837 (N.D. Cal. 2003) (making this argument).

16. Two among many examples are: Name Usage Support Through Distributed Processing Networks Linked By Bridges and/or Gateways, U.S. Patent No. 4,644,468 (filed July 20, 1984) (issued Feb. 17, 1987) & Packet Switching System Having Arbitrative Function For Competing Packets, U.S. Patent No. 5,305,310 (filed May 8, 1992) (issued Apr. 19, 1994).

17. *Int’l Rectifier Corp. v. IXYS Corp.*, 361 F.3d 1363, 1374 (Fed. Cir. 2004).

18. *Refinement*, *supra* note 5, at 1952.

articulate in general and abstract terms every detail of a genuinely new invention. Put differently, without the doctrine of equivalents, patent protection would be a remarkably thin reed. Copyists would need only identify a single weakness in a claim and then they would be free to adopt the relevant variation and infringe with impunity. And inadvertent infringers, too, would from time to time stumble into variations that, due to a failure in the original claim language, would also happen to fall outside the patent's scope.¹⁹ The doctrine of equivalents responds to these contingencies. On this view, it is not some excuse that patent applicants strategically use to cut corners. It is instead in many instances the only way to offer inventors meaningful patent protection.

My comments thus far focus on literal claim drafting as an alternative to the doctrine of equivalents; but little changes when we expand the analysis to consider in addition both the reissue proceeding and the possibility of continuation applications. There are two reasons. First, like original claim drafting itself, the reissue proceeding and continuation applications both require that an inventor write appropriate literal language early in the inventive process. This is in sharp contrast to the doctrine of equivalents, which typically applies years later when there is an actual controversy at hand. Reissue is most limiting on this score: it can only be used to expand claim scope during the first two years after patent issuance.²⁰ But continuations are not completely flexible either. A first continuation application must be filed before the associated original application results in an issued patent,²¹ and that first continuation will typically run its course within a few years.²² An applicant can file additional continuations after the first,²³ and in theory the chain can proceed without end, but in practice an applicant must have some plausible reason to keep a continuation alive or the Patent Office will reject it. Worse, an applicant who uses the continuation strategy too aggressively might find himself the proud owner of a patent that is unenforceable on grounds of inequitable conduct—a lesson that might soon be learned by GemStar-TV Guide International, whose patents related to interactive television program selection technologies from an outrageous web of strategic continuation applications, the overwhelming majority of which were abandoned only to be replaced by the next repetitive filing.²⁴

19. Remember: unlike trade secret law, patent law does not tolerate independent invention. An infringer who innocently stumbles into a patent's scope is subject to legal liability, just like an infringer who knowingly enters that same domain. Of course, damages in the latter case are typically higher, at least if the copyist can be shown to have acted willfully.

20. See 35 U.S.C. § 251 (2000) ("No reissued patent shall be granted enlarging the scope of the claims of the original patent unless applied for within two years from the grant of the original patent.").

21. See 35 U.S.C. § 120 (2000) (A continuation application is acceptable only "if filed before the patenting or abandonment of or termination of proceedings on the first application.").

22. For the statistics and an interesting discussion, see Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63 (2004).

23. See 35 U.S.C. § 120 (2000) (discussing the possibility of multiple applications).

24. For a peek into the tangle, see *Systems and Methods for Displaying and Recording Control Interface with Television Programs, Video, Advertising Information and Program Scheduling Informa-*

Second, the reissue proceeding and continuation applications cannot possibly offer protection as broad as that available under the doctrine of equivalents, simply because a finding of equivalents is retroactive whereas these other mechanisms are largely forward-looking. Unpacking that a bit: when a court announces that some accused product is equivalent to the patented invention, the remedies available are exactly the ones that would have been available had the accused product literally infringed. In both cases, the infringer is liable for damages for past infringement. In both cases, the infringer is subject to injunctive relief with respect to any ongoing activities. By contrast, when claim scope is expanded during the reissue proceeding, damages cannot be collected for past transgressions that infringe the new claims but not the old ones;²⁵ and, more important, the court has the authority to permit continuing acts of infringement “under such terms as the court deems equitable for the protection of investments made or business commenced before the grant of the reissue.”²⁶ Continuation applications similarly let slip a class of infringers. Claims included in a continuation application are effective on a forward-looking basis and—except in unusual circumstances—cannot be used to recover for activities that occur before the continuation patent issues.²⁷

In summary, then, Mike Meurer, Craig Nard, and I disagree over a core assumption: they imagine that comprehensive claim scope is almost always within reach, either through careful efforts at original claim drafting or through after-the-fact use of the reissue proceeding and continuation applications, whereas I think it is virtually impossible to write a bulletproof claim or to simulate that outcome by making do with the reissue and continuation alternatives. If I am right, then a world without the doctrine of equivalents is a world of narrower patent scope. That might be a good thing—patent protection is plausibly too broad as it stands today and a legal change that narrows patent scope might beneficially pare patent protection down²⁸—but it at the same time calls into

tion, U.S. Pat. App. 09/120,488 (filed July 21, 1998) (deriving from eight previous applications filed between July 21, 1997 and January 20, 1998, and itself supporting six continuation applications filed between April 28, 2000 and July 27, 2004).

25. 35 U.S.C. § 252 (2000) (explaining the effect of the reissue proceeding).

26. *Id.*

27. The Patent Act does allow a patent holder to recover for infringements that take place after a continuation application is published but before the continuation application matures into an issued patent. However, infringements are actionable under this rule only if (a) the infringer had actual notice of the published continuation application and (b) the invention claimed in the ultimate patent is “substantially identical” to the invention claimed in the published continuation application. Even when these conditions are met, the only remedy available to the patentee is a reasonable royalty. *See* 35 U.S.C. § 154(d) (2000 & Supp. II 2002). I describe the use of these “provisional rights” as an unusual circumstance because, to date, there are no reported cases where a patent holder has successfully invoked them.

28. Although there are better responses to that problem, such as a strengthening of the non-obviousness requirement, a rethinking of the Patent Office’s internal structure, and the creation of a more useful post-grant opposition procedure. For discussion along these lines, see ADAM B. JAFFE & JOSH LERNER, *INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT* (2004).

question the normative account Meurer and Nard provide, an account that emphasizes institutional concerns but does so at the expense of difficult and more fundamental questions about patent scope.

II. INSTITUTIONAL DETAILS

Although I believe that issues of patent scope are the central concern that should motivate any normative theory of the doctrine of equivalents, I do not by that mean to suggest that institutional details are unimportant. The doctrine of equivalents, the reissue proceeding, continuation applications, and more intense efforts at literal claim drafting do each offer different tradeoffs between the costs an applicant must face in articulating claim scope and the costs courts and competitors must incur in interpreting the resulting patent documents. In this section, I therefore consider costs from both perspectives, in the end questioning whether Meurer and Nard are right on these grounds to paint the doctrine of equivalents as the ugly duckling of the scope-articulation flock.

I should make clear at the outset that I find it difficult to have this conversation about institutional factors as they might exist apart from issues of patent scope, in that to me the topics are hopelessly intertwined. If the doctrine of equivalents reduces the costs of claim drafting, for example, would not that reduction in cost lead to an increase in the number of patent applications filed, and thus a corresponding increase in the reach of the patent system? If so, how can we evaluate that change without having a more general theory about whether an increase is desirable, and a companion theory about whether low barriers to patenting increase monopoly power by creating more exclusive grants or decrease monopoly power by increasing the number of competing patent holders? But this is my general theme—the doctrine of equivalents is a doctrine about patent scope—and so I will now put those puzzles aside and focus more narrowly on the institutional issues that Meurer and Nard rightly recognize as also important.

One way in which the doctrine of equivalents, reissue, and continuation applications reduce costs is by reducing the pressure to write perfect literal claims. These mechanisms are safety nets, and they to varying degrees stop a wasteful arms race in which copyists spend excessively on meaningless attempts to skirt literal claim language and applicants respond by upping the ante with respect to their attempts to craft the ideal phrase. The doctrine of equivalents is likely the most effective of the various mechanisms in question because it obviates the need to ever actually write the necessary claim language. Under the other mechanisms, an inventor must spend money updating his claim terms every time a new literal loophole is discovered, although perhaps not too often if copyists anticipate this pattern and decide that short windows of permissible infringement are not sufficiently worthwhile.²⁹

29. Arms races like this one raise a number of interesting policy questions. I will not say more here, but I discuss the topic at length in Douglas Lichtman, *How the Law Responds to Self-Help*, 1 J.L. ECON. & POL'Y 215, 225–38 (2005).

Another way in which these mechanisms reduce costs is by allowing applicants to postpone some of the work of scope articulation. This has value for two reasons. First, a system that allows for gradual investments in refinement also allows for resources to be conserved in instances where the patented technology turns out to be a commercial dud. Failures like this are surprisingly common—many patents are revealed to be worthless within a few years after issuance³⁰—and so the savings here could be significant. Second, because it is typically easier to articulate the essence of an invention after experience has made clear the technology's core attributes, delay is valuable simply because it gives inventors more time to gain experience with their inventions. Consider, for example, how hard it would have been two decades ago to describe the Internet in clear but abstract terms, and then compare that with the difficulty of undertaking the same task today, now that e-commerce, blogging, and other online activities have rendered clear the technology's central features.³¹ With respect to both of these considerations, note that the doctrine of equivalents enables greater cost savings than do the reissue and continuation alternatives, this time because (1) the doctrine of equivalents allows for a longer delay between filing and refinement and (2) the doctrine is naturally invoked only in the information-rich litigation setting.

I have focused thus far on cost reductions; I turn now to cost increases. As Meurer and Nard stress, the doctrine of equivalents, the reissue proceeding, and the possibility of continuation applications all make it more difficult for competitors and other interested constituencies to anticipate the precise scope of an issued patent claim.³² This is in essence a notice problem, and it admittedly must be weighed against the savings considered above. That said, for several reasons, I worry that Meurer and Nard overstate this concern.

First, even in a world without any of these various flexible mechanisms, notice would still be a significant problem. The Markman hearing, for instance,

30. See Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 Nw. U. L. REV. 1495 (2001) (arguing that most issued patents disappear after issuance, never to be invoked in either a licensing or litigation context).

31. Patent doctrines often take advantage of information that was not available at the time of patent prosecution but is available at the time of litigation. For example, section 103 of the Patent Act excludes from patent protection any invention that is "obvious" in light of the prior art. 35 U.S.C. § 103(a) (2000). At the time of patent prosecution, obviousness is largely judged on paper: the purported invention is compared to similar inventions previously described in patents, news articles, and other sources. In court, however, obviousness is in addition evaluated in light of information like how well the purported invention sold, whether competitors copied the technology after it was unveiled, and whether the invention was received by industry experts with praise or skepticism. The Federal Circuit in fact requires that these factors be considered in every case and has described them as "the most pertinent, probative, and revealing evidence available" on the question of obviousness. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1555 (Fed. Cir. 1983). Obviously, information about sales, competitor activity, and the like is information that is typically not available until some time after the patent issues.

32. See, e.g., *Refinement*, *supra* note 5, at 1953 ("[T]he uncertainty about patent rights created by the doctrine undermines the notice function of the patent.").

is a hearing typically conducted at the start of patent litigation.³³ Its purpose is to provide an opportunity for the court to clarify any ambiguities in the literal claim language and then to adopt a definitive interpretation of the patent's words. These hearings focus exclusively on literal meaning; yet, as every participant in the patent system well knows, they are hugely contentious. Almost all patents, it turns out, have significant latent ambiguities—even with respect to seemingly innocuous words like “to,” “on,” “about,” and “through.”³⁴ The Federal Circuit is right now grappling with this problem, specifically struggling to articulate rules for when dictionaries should be used to clarify ambiguous literal terms and which dictionaries in particular should be trusted in various circumstances.³⁵ The scholarly community is also working to think through aspects of this notice problem, with Dan Burk, Mark Lemley, Joseph Miller, Polk Wagner, and others all recently writing papers on point.³⁶ What this means for Meurer and Nard is not only that it might be unfair to blame the doctrine of equivalents, the reissue proceeding, and continuation applications for the patent system's notice problems, but also that it might be overly optimistic to imagine that reducing reliance on those mechanisms would much improve the situation.³⁷

Second, notice is a relevant consideration only to the extent that patents are actually read, and in reality very few patents are. As I have already hinted briefly, most patents sit idle after issuance, never brought into litigation and

33. The hearing takes its name from *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996).

34. Dan L. Burk & Mark A. Lemley, *Quantum Patent Mechanics*, 9 LEWIS & CLARK L. REV. 29, 53 (2005) (collecting cases where the Federal Circuit had to decide “plausible disagreements” over the meanings of these words). For some other evidence in similar spirit, see Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 HARV. J.L. & TECH. 1 (2001) (documenting the frequency with which the Federal Circuit reverses lower court claim constructions); R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105 (2004) (showing how judges at the Federal Circuit themselves often squabble over the meaning of words and the methodologies by which to determine meaning in the first place).

35. See *Phillips v. AWH Corp.*, 376 F.3d 1382 (Fed. Cir. 2004) (order granting rehearing and framing various questions about dictionary use). Several commentators have suggested that the Federal Circuit either choose a default dictionary that will apply in all cases, or obligate each patent applicant to choose their own default dictionary at the time of patent application. See, e.g., Joseph Scott Miller & James A. Hilsenteger, *The Proven Key: Roles & Rules for Dictionaries at the Patent Office and the Courts*, 54 AM. U. L. REV. 829, 902–03 (2005). The argument in favor of these approaches is that they would help to quickly resolve any dispute about the meaning of an ambiguous term. The argument against is that this approach commits the patent system to a random answer—what some arbitrary dictionary says—and does so in instances where, by assumption, neither the patent examiner nor the applicant foresaw the particular ambiguity now in dispute. An alternative approach would be to allow the court to choose from among the several available definitions and in that way make the choice with an eye toward the relevant implications.

36. See Burk & Lemley, *supra* note 34, at 52 (emphasizing the indeterminacy of literal claim language); Miller & Hilsenteger, *supra* note 35, at 870 (exploring ambiguity that arises because even dictionaries offer inconsistent definitions for a claim term); see generally Wagner & Petherbridge, *supra* note 34 (emphasizing the different approaches to claim construction).

37. The patent system is deeply unpredictable in other ways as well. For instance, juries are well known to be a wildcard in patent cases. *Accord Refinement*, *supra* note 5, at 1978 n.153.

never used as the basis for licensing negotiations.³⁸ Moreover, very few people read patents outside of the litigation and licensing contexts. The risks are just too high: if you read a patent and then either yourself infringe or in some way help another party to infringe, you are vulnerable to charges of either willful³⁹ or contributory⁴⁰ infringement, respectively. Ignorance, on the other hand, is an absolute defense.⁴¹ Thus, because patents are both rarely asserted and rarely read, it is probably inefficient to expend significant resources improving patent clarity across the board. The costs will be incurred for every patent, but the benefits will be realized only in rare cases.⁴²

Third, to whatever extent the notice problem is relevant, it is not as important as it might at first seem, because someone skilled in the relevant art can often correctly interpret a patent claim despite some number of literal imperfections. Accused infringers, for instance, in many cases know full well that their products or services are insubstantially different from some patented invention. Indeed, these are the fact patterns that the Supreme Court had in mind when it famously described the doctrine of equivalents as a necessary counter to “the unscrupulous copyist” who “like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy.”⁴³ 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.⁴⁴

Fourth, some of the techniques that might reduce the notice problem at the

38. Unlicensed and unlitigated patents are not necessarily worthless. They might have served as insurance policies, for example, protecting against infringement that turned out not to materialize. Alternatively, they might have served as valuable signals about the associated inventors or firms. *See generally* Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625 (2002); *cf.* John R. Allison, Mark A. Lemley, Kimberly A. Moore & R. Derek Trunkey, *Valuable Patents*, 92 GEO. L.J. 435, 436 & n.6 (2004) (adopting a narrow definition of value that excludes patents of this sort).

39. *See* 35 U.S.C. § 284 (2000). As I have argued before, this strikes me as an awful rule—one that should be replaced by an objective “knew or should have known” standard. *See* Mark A. Lemley & Ragesh K. Tangri, *Ending Patent Law’s Willfulness Game*, 18 BERKELEY TECH. L.J. 1085, 1115 (2003) (noting my suggestion and evaluating its strengths and weaknesses).

40. *See* 35 U.S.C.A. § 271(b) (West Supp. 2005).

41. Interestingly, ignorance does increase the chance of accidental infringement, because it is hard to avoid a legal right of which one is not aware.

42. It is a common misconception to think that the patent system promotes disclosure and dissemination through the written patent document, but that is clearly not right. As I point out in the text, patents are rarely ever read. And, as a frustrated Supreme Court once noted, patent applicants have over time mastered “the highly developed art of drafting patent [disclosures] so that they disclose as little useful information as possible.” *Brenner v. Manson*, 383 U.S. 519, 534 (1966). The better view is to recognize that the patent system promotes disclosure by creating legal rights. Those rights reduce the risk that a patented idea will be stolen by rivals, and that frees the relevant inventor to scream his idea from the mountaintops rather than keeping it quiet so as to protect it from unauthorized use. Disclosure is thus a dynamic process in the patent system, not a process that takes place on paper or in patent archives.

43. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607 (1950).

44. I typically make this point in class by using a sentence like this one—a sentence rife with literal imperfections but one that nevertheless is easily interpreted by someone with skill in the relevant art.

same time threaten to increase the costs associated with interpreting patent claims. For instance, tripling the length of a patent claim might plausibly introduce extra details that would make the claim's contours more precise, but that change would also greatly increase the costs associated with reading and construing the claim language. Similarly, introducing additional claims⁴⁵ and describing patented products both directly and by articulating the process of producing them⁴⁶ would likely increase patent clarity, but again at the cost of substantial excess clutter. Whether that tradeoff is on balance attractive seems to me a difficult empirical question. It is entirely possible that the various constituencies that read patents might actually prefer to suffer with a little more ambiguity rather than to commit more resources to the task of parsing overwhelmingly explicit patent documents.

Fifth and perhaps most importantly, restricting the availability of the doctrine of equivalents might just lead to more abstract claim drafting, and, if that happens, the notice problem will not be much improved. Would competitors be put on better notice if, in a claim for the tennis shoe, the patent holder were to replace the word "shoelace" with the more generic term "fastener"⁴⁷ or the descriptive phrase "mechanism by which to bind and relax"?⁴⁸ These latter options certainly embrace wider literal scope than does the original, and perhaps they would be interpreted to yield the same scope as would be achieved by applying the doctrine of equivalents to the word "shoelace." But do these other phrasings really give better notice as to what is and is not protected? I think not. Readers of this hypothetical claim arguably get a better sense of patent scope by seeing the word "shoelace" and knowing to implicitly insert the phrase "and equivalents" than they do by reading the broader language and then having to translate back to more concrete examples like laces, buttons, and zippers. Put differently, there is no additional information communicated by a phrase like "substantially circular" as compared to using the word "circular" in a setting where every reader knows to think "and equivalents" when interpreting that language.⁴⁹ The extra verbiage is just a cost, both for the inventor who must think to write it and for the reader who must parse it before understanding the core concept.⁵⁰

45. *But see Refinement*, *supra* note 5, at 1975 (favoring the use of "multiple independent and dependent claims").

46. *But see id.* (favoring the use of product-by-process claims).

47. An applicant might be reluctant to use this particular term, because a court could read it as "means of fastening" and then import all the doctrinal baggage typically associated with means-plus-function claiming. *See* 35 U.S.C. § 112, ¶ 6.

48. Let alone the introduction of a new word—maybe "squiggle-dos"—invented just for the purposes of the patent claim. *But see Refinement*, *supra* note 5, at 1975 (suggesting that inventors should more often act as their own lexicographers).

49. *But see id.* at 1975 (urging the use of "words of degree" like "substantially" and "about").

50. I do not mean by this to reopen the classic debate over whether inventors should be asked to claim inventions by articulating the outer limits of their inventive principle—what is called "peripheral claiming"—or instead by clearly describing their actual invention and allowing patent system rules and

III. POLICY PRESCRIPTIONS

My disagreement with Meurer and Nard is at this point easy to crystallize. They believe that institutional concerns are the central issue that should guide a normative theory of the doctrine of equivalents, and they believe that those institutional concerns cut strongly against broad reliance on the doctrine. I, on the other hand, see patent scope as an important and maybe the dominant consideration on which any such normative theory should rely, and I am in addition less certain about how the various institutional issues actually cut. Thus far, I have played out these differences by focusing on scenarios where Meurer and Nard believe that the relevant patent applicants could have written adequate literal claims if only they had invested more heavily in claim refinement. In the first half of this Part, I turn to a special set of cases where even Meurer and Nard concede that patent applicants cannot draft literal claims that would replicate the coverage offered by the doctrine of equivalents, and I show that in those cases, too, our basic disagreement persists.

In the second half of this Part, I focus on the relationship between the Patent Office and the federal courts. Meurer and Nard are fans of the Patent Office. They criticize the doctrine of equivalents on the ground that it “displaces the judgment of the Patent Office” and substitutes instead “the judgment of the fact-finder at trial regarding the breadth of patent rights.”⁵¹ And the principal reform they advocate—increased emphasis on original claim language and reduced opportunities for equivalents analysis—would serve to increase the importance of Patent Office decision-making while simultaneously decreasing the role played by judges and juries. Here, I therefore consider whether a shift in decision-making power is a good thing, or whether instead there are advantages to leaving some details of patent scope to the courts.

A. LATER-DEVELOPED TECHNOLOGY

Meurer and Nard consider as a special case instances where the product that would infringe under the doctrine of equivalents makes use of some component that was neither invented nor imagined at the time the literal claim language was drafted.⁵² My tennis shoe hypothetical provides a concrete example. One can imagine the inventor of the tennis shoe crafting a series of patent claims explicitly asserting protection for shoes with laces, shoes with zippers, and shoes with buttons; but that inventor would never have anticipated the invention of Velcro, let alone thought to explicitly point out that tennis shoes that use Velcro as a fastening mechanism are still tennis shoes for the purposes of the patent. Velcro would thus be what Meurer and Nard label an “unforeseen,

doctrines to define appropriate scope from there. I naturally have views on that question, but here I simply mean to point out that peripheral claiming has no value when it communicates no additional information.

51. *Refinement*, *supra* note 5, at 1953.

52. *Id.* at 1996–99.

later-developed” technology. A tennis shoe using Velcro might be an equivalent,⁵³ but it is highly unlikely that such a shoe would literally infringe even the most carefully crafted original claim language.

In cases involving unforeseen technology, Meurer and Nard again focus on institutional considerations rather than patent scope. Their institutional argument is clever. Even without protection, patent applicants will not in these instances invest excessively in claim refinement because applicants will know that “these types of equivalents are conceptually unattainable no matter the amount of time and money spent on refinement efforts.”⁵⁴ Thus, Meurer and Nard argue that there is no reason to extend patent protection to cover these technologies. Protection will impose a cost—the uncertainty unavoidably associated with any flexible rule that allows literal claim language to expand to encompass technology that is not literally described—but no offsetting benefit, because in these special cases there is no associated reduction in the applicant’s costs of drafting.⁵⁵ As for patent scope, Meurer and Nard think it a red herring. Incentives, they say, “are not much affected by a minute probability” that an invention like Velcro will come along and undermine otherwise-adequate patent claims.⁵⁶

My take, not surprisingly, differs sharply. In my view, the only way to understand the Velcro hypothetical is to focus on the very incentives that Meurer and Nard dismiss. Consider first their argument that incentives are not much affected by the chance that some new technology will come along. While I agree that the inventor of the tennis shoe likely did not much worry about Velcro specifically, every inventor is painfully aware that, over the twenty-year patent period, new inventions will come forward and render ineffective previously adequate claim language. This is in fact strongly analogous to the conventional case where an inventor worries that competitors will find some literal loophole in his final claim language. Inventors never know exactly where the weakness in their claim language will lie, but they do know that language imperfections are a real threat to patent scope but for the protection offered by the doctrine of equivalents.

More generally, here again Meurer and Nard see institutional issues, and I again see questions about incentives, rewards for innovation, pressures to coordinate, opportunities to imitate—in short, issues of patent scope. For example, if Velcro tennis shoes are deemed to fall outside the scope of the tennis shoe patent, the economic value of that patent will be decimated. Velcro tennis shoes will fully replace lace shoes in markets where ease of removal is

53. The Supreme Court has held that the time for determining equivalency is the time of infringement, not the time of application or issuance, and thus courts can find a product to be equivalent even if the product makes use of some component that was after-invented. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 37 (1997).

54. *Refinement*, *supra* note 5, at 1955.

55. *Id.*

56. *Id.*

essential, and Velcro shoes will also compete with lace shoes in every other market. That competition will drive tennis shoe prices down and in essence change the tennis shoe monopoly into a duopoly or perhaps a competitive market, depending on whether Velcro itself is patented. Surely that will affect the long-run incentive to develop products like tennis shoes. Meanwhile, the decision about whether Velcro tennis shoes come within the scope of the tennis shoe patent will also have serious implications for the incentive to develop new technologies like Velcro. After all, if Velcro shoes are deemed to fall outside the scope of the tennis shoe patent, the incentive to create technologies like Velcro will drastically increase: invent the next Velcro, and you not only earn profits based on the marginal value of your new fastening mechanism, but you also earn at least a partial share of the tennis shoe market as well! Then again, maybe the incentive is not that strong, given that this rule reduces the incentive to create products like tennis shoes, and, without products like tennis shoes, of what value would the next Velcro be?

I could play out this interaction at some length, but my basic message is by this point transparent: the question of whether Velcro tennis shoes should be deemed equivalent to conventional tennis shoes is not merely a question about the costs of patent drafting; it is more broadly another version of patent law's fundamental question about how best to calibrate private incentives to innovate, disclose, coordinate, and imitate. Patent scope is at stake, just like it was in cases outside this narrow class of unforeseen, later-developed technologies.⁵⁷

B. THE PATENT OFFICE AND THE COURTS

Many patent doctrines work to define the balance of power between the Patent Office on the one hand, and the federal courts on the other. The doctrine of prosecution history estoppel, for example, empowers the Patent Office to extract from a patent applicant certain concessions that will bind that applicant even if a court later determines the concessions were unnecessary.⁵⁸ The

57. To put my argument in slightly different terms: we can imagine strong arguments against a rule that would deem Velcro tennis shoes to infringe the original tennis shoe patent, and we can imagine strong arguments in favor of such a rule. None of those arguments, however, would turn on whether the original patent described the invention as having "laces," "fasteners," or "mechanisms by which to tightly close around the feet." All of those phrases give would-be competitors similar notice about what the actual invention is; the legal analysis should therefore turn on the ramifications for innovation policy, not on institutional issues or questions about what language was used in the original patent claims.

58. See Douglas Lichtman, *Rethinking Prosecution History Estoppel*, 71 U. CHI. L. REV. 151, 154 & n.15 (2004) (noting that even if the examiner incorrectly construes the prior art, any concession made in response is still binding). Absent immediate appeal, patent examiners thus have three basic powers with respect to scope articulation: they determine the scope of the literal claims; they in certain instances rule out the possibility of expanded scope by putting in place estoppels; and they sign off on the pattern of dependent claims, which are the claims that will serve as fall-back positions for the patentee in the event that one of the broader independent claims turns out to be invalid. Courts, meanwhile, construe the literal claims, determine the scope of equivalents protection, and reject claims that should not have been issued. Courts somewhat surprisingly do not have the power to "blue pencil" an invalid claim.

doctrine of equivalents meanwhile empowers the federal courts to broaden patent scope beyond the contours originally deemed appropriate by the Patent Office. The various proposals put forward by Meurer and Nard would have their own implications along these lines. Specifically, an increase in the emphasis placed on literal claim language combined with a reduction in the availability of the doctrine of equivalents would shift decision-making authority toward the Patent Office and away from the courts. In this section, I briefly explain why that might not be a beneficial reform.⁵⁹

Start with the identity of the relevant decision-maker. Meurer and Nard might be right to favor patent examiners over judges and juries, in that examiners are typically trained in the technologies they evaluate, whereas judges and juries are at best talented generalists.⁶⁰ If this were the only consideration in play, I myself would be tempted to endorse rules that shift power toward the Patent Office, especially if those rules could be combined with other reforms like an adjustment to the administrative practices that today reward patent examiners for approving patent applications but offer no similar incentive to reject or narrow patent claims.⁶¹ The important point, however, is that the identity of the decision-maker is only a small part of what is at stake in this balance of power. Also at stake is the timing of the intervention: the Patent Office weighs in at the start of the process, whereas courts get involved only after an actual controversy is at hand. That difference matters tremendously, and it should at least make us hesitate before shifting too much authority away from the courts.

Two of the relevant factors I already covered earlier in my Response. The primary argument in favor of early intervention is that an early clear statement of patent scope makes it easier for rivals to anticipate the patent's contours and either invent around the patent or strike a deal with the patent holder.⁶² An argument against early intervention is that delay typically yields information, as experience with the invention renders clear the technology's core attributes.⁶³ But there are still three additional factors to consider. First, delay makes

59. My remarks in this Part sharpen and develop my earlier discussion in Lichtman, *supra* note 58, at 175–80.

60. For a somewhat sobering series of papers on how judges and juries perform in patent cases, see Kimberly A. Moore, *Xenophobia in American Courts*, 97 NW. U. L. REV. 1497 (2003); Kimberly A. Moore, *Jury Demands: Who's Asking?*, 17 BERKELEY TECH. L.J. 847 (2002) (symposium); Kimberly A. Moore, *Judges, Juries, and Patent Cases—An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365 (2000).

61. Gregory Aharonian offers an almost-daily newsletter where he catalogs the various incentive problems caused by the rules and structure of the modern Patent Office. Some of the commentary is flamboyant, but for anyone trying to think about the reality of patent examination, this is a must-read resource. Links and information at Internet Patent News, <http://www.bustpatents.com> (last visited Oct. 21, 2005).

62. See *supra* note 32 and accompanying text.

63. See *supra* note 31 and accompanying text. The broader point here is that patent law regularly and rightly distinguishes the task of describing an invention from the task of defining appropriate patent scope. Description can be well accomplished at the time an application is first filed; scope, however, is often better determined later in time when more information is available.

adversarial review possible. When patent applications are first filed, the application itself is kept secret,⁶⁴ and, even if it were public, the invention would typically be insufficiently mature to attract attention from the right parties. The early process therefore cannot be adversarial but must instead be a private conversation between an applicant and his examiner. By the time judges and juries are involved, by contrast, rivals know about the existence of the patent and also have a sense of its implications for the market. The result is that rivals can at that point come forward with helpful information about the prior art and with arguments about what the appropriate patent scope should be.

Second, delay means that the patent system can focus its resources. The Patent Office cannot afford to convene the National Academy of Sciences every time a patent application is filed, and thus the initial process of patent review is by necessity quite spare. For that tiny subset of patents that are of sufficient import to warrant litigation, however, courts and litigants can invest significantly more resources in fact-finding and analysis, the probable result again being better decisions from a public policy perspective. This is Mark Lemley's point about "rational ignorance": it makes sense to design the patent system such that patent applications are in the beginning reviewed casually, because that conserves resources for use later in the process when a small number of patents emerge as influential and thus worthy of more serious review.⁶⁵

Third and most subtly, delay helps to mitigate the consequences of unavoidable randomness in the decision-making process. Suppose, for example, that patent examiners and federal courts both sometimes make arbitrary decisions, for instance because they misunderstand a critical aspect of the claimed technology or because everyone on occasion has a bad day. When that randomness touches patent examiners, its implications are difficult to avoid. Every patent applicant is subject to the random draw, and thus every patentee must react by altering behavior according to the random outcome. Receive a patent that is mistakenly too narrow, and the incentive to invest in commercialization and further development is reduced. Receive a patent that is mistakenly too broad, and all of a sudden what might have been a competitive market is now more likely to fall victim to monopolistic pricing and practices.⁶⁶

When power is lodged with the courts, however, very few patentees actually experience their random draw. Most patent holders settle infringement disputes

64. The reason for secrecy is that it preserves for the applicant the option to return to trade secret law in the event that the application must be withdrawn or is for some reason rejected. Modern law has already begun to chip away at this protection; today, most patent applications are published eighteen months after they are first filed. *See* Lichtman, *supra* note 58, at 156–57. One wonders whether further steps in this direction might be appropriate. Patent applicants could even be forced to make a binding election at the moment of application: either try for a patent, or maintain secrecy, but not both.

65. *See* Lemley, *supra* note 30, at 1496–97. I should point out that many of us worry that Lemley underestimates the trouble that errant patents cause. *See, e.g.,* Joseph Farrell & Robert P. Merges, *Incentives to Challenge and Defend Patents: Why Litigation Won't Reliably Fix Patent Office Errors and Why Administrative Patent Review Might Help*, 19 *BERKELEY TECH. L.J.* 943, 947–48 (2004).

66. I consider the problem of examiner inconsistency in Lichtman, *supra* note 58, at 170–75.

in the shadow of the courts, rarely filing suit let alone actually litigating all the way through to a final verdict. This means that any randomness that affects the courts has significantly less bite than comparable randomness at the Patent Office. If there is a 25% chance that the courts will wrongly deny a meritorious claim and an offsetting 25% chance that the courts will accidentally give away the store, parties negotiating in the shadow of the courts will make basically the same decisions that they would have made had the courts been 100% sure to get the case exactly right every time. Mitigation of the implications of arbitrary decision-making is therefore yet another factor to consider in this tradeoff between the Patent Office and the federal courts, and thus yet another variable that would have to be considered in order to evaluate from a policy perspective the relative allure of the various reforms championed by Meurer and Nard.

CONCLUSION

Thus far, I have structured all of my comments as responses to Mike Meurer and Craig Nard's obviously provocative work. In conclusion, I want to shift gears and endeavor to explain why it is that I have written to defend equivalents analysis and why I still believe that the doctrine of equivalents should play a significant role in patent interpretation.

One virtue of the doctrine of equivalents is that it can expand patent scope to cover variations on an invention that the inventor himself could not possibly have described in words at the time of his original patent application. As I emphasize in Part I of this Response, patent applicants cannot anticipate every insubstantial variation that a competitor might try, nor can they articulate in general and abstract terms every detail of a genuinely new invention. The doctrine of equivalents thus plays an important role in ensuring that patent protection is more than an empty gesture. It empowers courts to read between the lines of the patent document and protect inventions when for some reason the literal words have missed their mark. As a result, a malevolent copyist cannot escape the scope of protection simply by searching out a weakness in the patent language, and a patentee is still protected even against an infringer who innocently stumbles upon a hole in the patent's claims.

A second virtue of the doctrine of equivalents is that it lowers the costs of claim drafting by obviating the need to write perfect claims. In certain instances, an applicant can perfectly articulate a comprehensive literal claim and would do so if that were the only way to achieve the desired scope of protection. My argument in Part II, however, is that from a social perspective the costs of writing perfect literal claims are often unwarranted. This is true in part because many claims are sufficiently clear even when literally imperfect. It is true in part because most patent claims are never read anyway. And it is true in part because perfect claims can be both more cumbersome and less informative than simpler but technically imperfect alternatives.

A third and final virtue of the doctrine of equivalents is that it brings

additional information to the question of patent scope.⁶⁷ This is the main argument I pursue in Part III. The original patent document is written and evaluated in an information-poor environment. No one knows how the invention will mature and what its economic implications will be. No one knows how much to spend evaluating the patent application or, at the extreme, whether to bother evaluating it at all. And only the applicant and his examiner are involved in the conversation anyway, because the process is largely secret. But the doctrine of equivalents is not constrained in these ways. Its analysis takes place after the invention has matured at least in part, after rivals have had an opportunity to evaluate the patent's relative importance, and as part of an adversarial interaction designed to bring information to the fore. Against this backdrop, it seems almost silly to focus too heavily on the patent document, the output of a process that suffers from so many comparative disadvantages.

None of this is to imply that the doctrine of equivalents has no faults. The doctrine makes patent scope less certain and through that stands in the way of negotiation and compliance efforts.⁶⁸ The doctrine also might encourage applicants to skimp on claim drafting—which would be problematic if true,⁶⁹ although I doubt that many such cases actually exist.⁷⁰ More troubling, the doctrine combines with other patent rules to discourage applicants from submitting broad but borderline claims to the Patent Office for review. The reason is that a rejected claim creates an estoppel that bars the applicant from later using the doctrine of equivalents to capture the now-rejected scope, but a claim that

67. Recall my analogy to the “objective factors” that are used to evaluate obviousness. Like the information I discuss here, that information is used during litigation even though it is not available at the time of patent prosecution. See *supra* note 31.

68. The doctrine's uncertain contours also admittedly increase the efficacy of what Mike Meurer calls “opportunistic and anticompetitive” patent litigation. See Michael J. Meurer, *Controlling Opportunistic and Anti-competitive Intellectual Property Litigation*, 44 B.C. L. REV. 509 (2003).

69. This is one of the major concerns that Meurer and Nard emphasize: the doctrine of equivalents reduces the incentive to draft comprehensive literal claims by protecting inventors even in cases where their literal claims fall short. See, e.g., *Refinement*, *supra* note 5, at 1989 (proposition 3). An example might be an applicant who carelessly uses the word “square” to describe his invention rather than clarifying that the real requirement is that the invention be (say) a “four-sided polygon” or a “parallelogram.” The doctrine of equivalents arguably encourages this sort of sloppiness by providing a safety net for applicants who make literal mistakes. Economists will recognize the problem here as a problem of moral hazard.

70. I am dubious because other patent rules already discourage sloppy drafting, specifically by making sure that literal protection is much more attractive to an applicant than is protection under the doctrine of equivalents. For example, it is difficult to win a case on summary judgment if the infringement is actionable only under the doctrine of equivalents, because equivalence is a question of fact that normally requires a trial. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1520–21 (Fed. Cir. 1995) (en banc). Similarly, equivalence is subject to a long list of arbitrary and ever-changing doctrinal limitations: prosecution history estoppel, the “all elements” rule, and so on. And the doctrine is a frequent target of Federal Circuit hostility. See, e.g., *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722 (2002) (reversing the Federal Circuit's estoppel rule, a rule that would have very nearly repealed the doctrine of equivalents). For the most part, then, I do not expect applicants to neglect literal language that would have been inexpensive to draft. The doctrine of equivalents is a safety net, but it is too precarious a protection to much discourage applicants from drafting the best literal claims reasonably within their reach.

was never submitted has no effect and thus leaves fully intact the possibility of protection under the doctrine of equivalents.⁷¹

These and other concerns are serious problems and they cry out for reform. For instance, perhaps the doctrine can be adjusted to explicitly ask questions about the costs an applicant would have incurred had he drafted better literal language *ex ante* and/or the benefits competitors would have enjoyed had that better literal language been in place.⁷² Indeed, the most striking aspect of the doctrine of equivalents is that it today says nothing about these two clearly relevant issues, settling instead for a general statement that patent claims should be read to cover any substantially similar invention that performs “the same function, in the same way, to achieve the same result”—as if the doctrine of equivalents should apply no matter what the reason for the literal imperfection and no matter what costs that error might impose on others. Even the rule of prosecution history estoppel says more, inquiring as to whether, at the time the estoppel was generated, “one skilled in the art could [reasonably have been] expected to have drafted a claim that would have literally encompassed” the invention otherwise being barred.⁷³

Nevertheless, it would be a mistake to see the flaws associated with the doctrine of equivalents and conclude that the doctrine should no longer enjoy a central place in patent interpretation. The doctrine serves too important a role in the three dimensions I have emphasized: it ensures that patent protection remains viable despite the limitations of language and foresight; it discourages wasteful efforts to perfect claim language where perfection is inefficient; and it empowers the patent system to make better decisions by bringing into the process information that is for various reasons unavailable early in the life of a patent. No other patent system mechanism accomplishes these three objectives as completely. Returning to the title of this Response, perhaps my real message is therefore that in certain critical respects the doctrine of equivalents has no substitutes—not the reissue proceeding, not the use of continuation applications, and certainly not more aggressive attempts at literal claim drafting.

71. Polk Wagner favors this pattern of events, presumably because he thinks that the Patent Office is too likely to allow broad claims, and thus he would rather not see them brought in the first place. See R. Polk Wagner, *Reconsidering Estoppel: Patent Administration and the Failure of Festo*, 151 U. PA. L. REV. 159 (2002). The ideal rule in this context would combine both insights: it would punish applicants for bringing an obviously overbroad claim to the Patent Office, and it would deny protection for otherwise-valid claims that reasonably could have been brought but were not.

72. Then again, a more careful rule would increase the costs of litigation by providing another axis for adversarial bickering, and this particular rule would be dangerously vulnerable to hindsight bias—which is to say that courts might too readily believe that a reasonable patent applicant would have known the difference between the word “adjoining” and the word “adjacent” (my example from note 17, *supra*) and would also have known that a computer system should not only “selectively forward” data but also allow data to be stored and retrieved at the user’s convenience (my example from note 16, *supra*).

73. See *Festo*, 535 U.S. at 741. The *Festo* decision on its face applies only to cases where an estoppel has been raised, but I wonder whether this same duty of reasonable care might be beneficially expanded to straightforward equivalents disputes. Perhaps the best arguments against such an expansion are the concerns I raise in note 72, *supra*: the cost of the inquiry and the risk of hindsight bias.