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Increasing Certainty and Harnessing Private Information in the U.S. Patent System: A Proposal for Reform

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Increasing Certainty and Harnessing Private Information
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# Table of contents

I. Introduction ................................................................................................................................. 1

II. Overview of the patent system .................................................................................................. 2

III. Patenting needs differ among patentees .................................................................................. 3

   A. Differences among industries ............................................................................................... 3
   
   B. Differences among wealthy and poor inventors ................................................................. 9

IV. The state of play in the current patent system .......................................................................... 11

   A. The current (partially) differential patent system ............................................................... 11
   
   B. Previous reform proposals ............................................................................................... 14

V. Proposal for an economic approach for increasing certainty in the patent system ..................... 18

   A. Amount of scrutiny in anticipation and obviousness determinations .................................. 18
   
   B. Pre-litigation indication of claim scope ........................................................................... 27
   
   C. Allowing various patent terms ......................................................................................... 36
   
   D. Opposing patents ............................................................................................................... 46
      1. Proposed changes to third-party oppositions in patent proceedings ............................. 48
      2. Benefits of the proposed reforms .................................................................................. 48
      3. Problems with the proposed reforms .......................................................................... 50
      4. Refinements to improve the Congress’ proposed opposition system ............................. 53

   E. Deference and differential review in the courts ................................................................... 58
      1. Deference to the USPTO’s first-to-invent findings ......................................................... 58
      2. Courts’ application of different legal standards ............................................................. 60

   F. Who should perform the work? ............................................................................................ 63
      1. Is the USPTO the correct overseer for the suite of reforms proposed herein? .................. 63
      2. Changes needed within the USPTO ............................................................................... 65

   G. Pricing for the reforms ........................................................................................................ 66

VI. Conclusion ............................................................................................................................. 69
I. Introduction

Nearly half of litigated patents are invalidated.\(^1\) Because of this, and in order to reduce the number of “bad patents,” commentators and industry members have called for reforms to increase certainty in the patent system.\(^2\) Many have also proposed reforms that meet the varied needs of different industries.\(^3\) This paper responds to these prior proposals. The paper also suggests reforms to the patent system that are designed to meet the varied needs of different industries, primarily using pharmaceutical and computer industries as examples. The four reforms proposed are: allowing varied amounts of scrutiny in patent examination, pre-litigation claim scope hearings, variation in patent term length, and reforms to patent oppositions. Each of the four proposed reforms relies on the premise that the needs of various patentees and third parties can be met by providing options or “tiers” in the patent system and allowing the patentee and third parties to choose the options or opt into the different tiers, thereby harnessing currently unused or underused private information. These reforms allow industry-specific effects while avoiding the difficulties associated with classifying based on industry. As these reforms, and others similar to them, could significantly increase the cost of patent prosecution or patent maintenance, care is taken to consider the effect that the reforms could have on the poorest of patentees.\(^4\)

The next section of this paper gives a brief overview of the patent system.

Section III discusses the different needs of various industries and types of patentees.

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\(^1\) John R. Allison & Mark A. Lemley, Empirical Evidence on the Validity of Litigated Patents, 26 AIPLA Q.J. 185, 205-207 (1998) (noting that, using a sample of 300 litigated patents, approximately 46% of patents that are litigated are found invalid).

\(^2\) See infra Section IV.B.

\(^3\) Id.

\(^4\) Whereas poorer patentees might not be poor in the general sense, but they are still the most vulnerable of patentees and deserve consideration when designing reforms.
Section IV discusses the current state of our patent system. Section V proposes four reforms to the patent system.

II. Overview of the patent system

This section gives a brief overview of the U.S. patent system and introduces terminology used throughout this paper. Inventors apply to the United States Patent and Trademark Office (USPTO) for patents. An examiner at the USPTO searches for references (“prior art”) that teach the invention and argues against the validity of the patent and its claims based on the prior art and statutory requirements. The statutory requirements that a patent must meet include providing an adequate written description and enabling others to “make and use” the invention. Invalidity arguments made by the examiner must describe how the prior art teaches or renders obvious each element of the patent claims at issue. The inventor responds to the arguments of the examiner by narrowing claims and/or arguing for the validity of the claims. Once the examiner agrees that the inventor has overcome all rejections, the patent is allowed and subsequently grants.

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6 See Merck & Co., Inc. v. Teva Pharms. USA, Inc., 347 F.3d 1367, 1372, 68 USPQ2d 1857, 1861 (Fed. Cir. 2003) (noting that, for 35 U.S.C. §102, “[a]n ‘anticipating’ reference must describe all of the elements and limitations of the claim in a single reference, and enable one of skill in the field of the invention to make and use the claimed invention”). See also MANUAL OF PATENT EXAMINING PROCEDURE (MPEP) §2143 (noting that, for a 35 U.S.C. §103 obviousness determination, a “prior art reference (or references when combined) must teach or suggest all the claim limitations”).
7 37 C.F.R. § 1.111(b). Although “secondary consideration” of novelty, such as commercial success, long-felt need, and failure of others are considered during litigation, Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17-18 (1966), they are less typically considered during patent prosecution. Lisa A. Dolak & Michael L. Goldman, Responding to Prior Art Rejections--An Analytical Framework, 83 J. PAT. & TRADEMARK OFF. SOC'y 5, at § VI.D.1 (2001) (noting that evidence of commercial success is closely scrutinized). Further, because of the timing of patent prosecution, less of the secondary evidence might be available. If secondary or objective indicia of non-obviousness are available during prosecution, however, then they can be used to rebut a prima facie showing of obviousness. See MPEP § 716 et seq.
The “assignee” of a granted patent owns the rights to the patent and can assert the patent against others. Often the assignee of a patent will be the company for which an inventor works. For notational simplicity, I will use the term “patentee” to refer to both the assignee and the inventor throughout this paper and only differentiate between the two when necessary.

III. Patenting needs differ among patentees

A. Differences among industries

Generally, most inventors, commentators, and companies want to increase the quality of patents that are granted by the USPTO. Their discussion is usually focused on ensuring that other patentees’ patents more closely cover what was actually invented, thereby reducing the breadth of the patents. When considering their own patents, however, the differing needs of various industries come into focus. In the pharmaceutical industry, for example, research and development for a single drug can cost $800 million and take over fourteen years. Once developed, each drug is often protected by only a few patents. Given that the cost of researching and developing drugs dwarfs the production costs for drugs, companies rely primarily on strong patent protection, and not

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8 37 C.F.R. § 3.73.
manufacturing efficiencies, in order to maintain profits. Specifcally, once the patents on a drug expire, other drug producers can enter the market and sell a generic version of the once-protected drug – usually at a lower price. In addition to reducing the price at which drugs can be sold by the patentee, generic drugs usually capture approximately 40% of the market once released.

Pharmaceutical companies desire strong patent protection and, therefore, want to know that their patents, which are critical to excluding others from producing their drugs, will hold up in court. As noted above, however, nearly half of all patents are invalidated during litigation. Given the great potential value of each patent, pharmaceutical companies are very interested in increasing the certainty of the validity of their patents. Further, given that the amount of money spent on preparing, filing, and prosecuting patent applications is small in comparison to the potential or expected value that the resulting patents yield, pharmaceutical companies should be willing to spend much additional money in exchange for greater certainty.

There is some evidence that pharmaceutical companies already spend more to prosecute patent applications than do computer or software-related companies. Pharmaceutical companies should also be willing to spend more to signal the increased

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12 Glover, supra note 11, at 8.
13 Id. at 4-5.
14 Allison & Lemley, supra note 1, at 205-207.
15 Patent prosecution costs can be as high as several hundred thousand dollars. Kimberly Moore, Worthless Patents, 20 BERKELEY TECH. L.J. 1521, fn10 (2005). This is small in comparison to the potential value of the patents. See, e.g., infra note 33 and related text.
16 Andrew Kopelman, Addressing Questionable Business Method Patents Prior to Issuance: A Two-Part Proposal, 27 CARDOZO L. REV. 2391, 2420 (2006) (noting that, given the relatively higher research and development costs in the pharmaceutical industries, it may be presumed that pharmaceutical companies spend far more on discovering prior art for their own patent applications than do companies in other industries).
17 Interview with Linda Thayer, Partner, and Jean Fordis, Managing Partner, of Finnegan, Henderson, Farabow, Garret, & Dunner LLP’s Palo Alto, CA Office (email transcript on record with author).
certainty to competitors. If rational competitors know that a company’s patents are likely to be found valid in court, the competitors should be more likely to license the patents instead of risking an adverse finding of patent infringement in the courts. This would be of much value to the patentee.

Currently, however, all patents have the same presumption of validity in court and there is little indication of how much effort went into prior art searches or drafting. Thus, even if a pharmaceutical company spends much time and money to determine the scope and content of the prior art before filing a patent, the resulting patent will have the same presumption of validity as it would if less work were performed.

In contrast to the pharmaceutical industry, in the computer and software industries, there can be thousands of patents on a single product. It is estimated, for example, that 90,000 patents cover various aspects of microprocessors. Further, companies that produce computer and software inventions typically file and are granted more patents. For example, in 2005, the ten organizations that were granted the most patents were all, at least in part, producers of computer or software products.

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18 All patents have the same general presumption of validity regardless of the amount of work performed to conduct prior art searches. See infra Section V.E.

19 Patents list the references that were considered by the USPTO examiner, which is one indication of how much work was performed in prosecuting the patent application. Mark Lemley and Bhaven Sampat, Examiner Characteristics and the Patent Grant Rate, Stanford Law and Economics Olin Working Paper No. 369, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1329091. The prosecution history of a patent, which is public, also provides information about the effort that went into prosecution.


21 USPTO Press Release, Top 10 Private Sector Patent Recipients for the 2005 Calendar Year, available at http://www.uspto.gov/web/offices/com/speeches/06-03.htm (January 10, 2006) (noting that International Business Machines received more patents than any other organization: 2,941 patents. Canon Kabushiki Kaisha received 1,828; Hewlett-Packard 1,797; Matsushita Electric 1,688; Samsung Electronics 1,641; Micron Technology 1,561; Intel 1,549; Hitachi 1,271; Toshiba 1,258; and Fujitsu 1,154).
Like pharmaceutical companies, those companies that produce computer and software products also want more certainty in the patent system. Given the greater number of patents per product as compared to the pharmaceutical industry, however, rational computer and software companies should not be willing to pay as much as pharmaceutical companies would for increased certainty of validity for their patents. For example, if Intel owns 1,000 patents that cover its Pentium II processor and if Allison and Lemley’s statistics on invalidation are indicative, then approximately 540 patents covering the processor would be found valid in court. Therefore, in order to produce a competitive microprocessor while avoiding a finding of infringement in court, a company would have to avoid infringing all 540 of Intel’s valid Pentium II-related patents. If a competitor’s microprocessor infringes even one of Intel’s valid patents, then it could be enjoined from producing the microprocessor.

Intel, acting rationally, would avoid paying more, or avoid paying much more, to increase its certainty that the patents it has on its Pentium II processor would be held valid in court. Even if only 540 patents on the Intel processor were found valid, there would still be a likelihood, let us call it “P,” that the competitive microprocessor would be found to infringe at least one of those patents. If Intel paid more to increase the

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22 See, e.g., The Subcommittee on Courts, The Internet and Intellectual Property of the Committee on the Judiciary House of Representatives, Committee Print Regarding Patent Quality Improvement Hearing, 45 (2005) (quoting the testimony of Richard Lutton, Chief Patent Counsel for Apple Computer, who states that uncertainty in the patent system is of primary importance when considering reforms).
23 There is no way to determine the exact number of patents that cover the Intel Pentium II processor. An estimate of 1,000 patents would represent 1.1% of all patents on microprocessors. See The Proper Balance of Competition and Patent Law Policy, supra note 20.
24 Allison & Lemley, supra note 1, at 205-207.
25 See eBay Inc. v. MercExchange, L.L.C., 126 S. Ct. 1837, 1839 (U.S. 2006) (noting that a permanent injunction should not automatically follow once infringement and validity are found, but instead that a four-factor test should be used to determine if a permanent injunction is warranted). See also id. at 1842 (noting, in the concurrence by Justices Kennedy, Stevens, Souter, and Breyer, that the pattern of granting permanent injunction in most patent cases when infringement and validity are found is the result of applying the four-factor test).
certainty of its patent portfolio and thereby increased the number of patents that would be held valid in court to 70%, then Intel might only marginally increase the likelihood that a competitor’s microprocessor would infringe at least one patent, let’s call that probability “P+Δ,” where Δ is the likelihood that a competitor infringes one of the additional 160 patents that would be found valid, but does not infringe one of the original 540 patents. Given that the scope of patents on the Intel Pentium II processor will overlap extensively, it is likely that a product that infringes any of the additional 160 valid patents would also infringe the original 540 patents. Therefore, Δ is likely to be a small probability. Rationally, Intel would only be willing to spend up to Δ times the likely value of any license or settlement with competitors. Therefore, as a general matter, Intel, although it might state that it would like more certainly valid patents, would be irrational to pay significantly more for such certainty. Furthermore, given the large number of patents Intel holds, competitors are less likely to let an accusation of infringement by Intel go to court. This has played out in practice, as Intel typically licenses out large portions of its patent portfolio to competitors in order to avoid litigating

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26 Under higher scrutiny, more of Intel’s 1,000 patents could be rejected by the USPTO and abandoned by Intel than under the current level of scrutiny. Therefore, Intel’s total number of patents on the Pentium II processor could be reduced. In 2004, the grant rate of patents was 61%. See National Academy of Public Administration, U.S. Patent and Trademark Office: Transforming to Meet the Challenges of the 21st Century, 63 (August 2005), http://www.napawash.org/Pubs/PTO-8-25-05.htm. It is estimated that the rate of grant of some sort of patent (continuation, divisional, or original) stemming from a parent patent application was over 85% in 2000. See Cecil D. Quillen, Jr., Ogden H. Webster, & Richard Eichmann, Continuing Patent Applications and Performance of the U.S. Patent and Trademark Office – Extended, 21 THE FEDERAL CIRCUIT BAR JOURNAL 1, 35-55, 43-50 (August 2002) (discussing various methods of calculating “corrected” patent grant rate). Although corrected grant rate is likely to be reduced if higher scrutiny is employed, in order to simplify the discussion herein, I will assume that Intel would still be granted 1,000 patents and that at least some of the granted patents would have narrower claims.


28 Top 10, supra note 21 (noting that Intel received over 1,500 patents in 2005).
the issues.\textsuperscript{29} Having the additional 160 “valid” patents might only marginally improve Intel’s negotiating position.

On the other hand, computer and software companies should have some idea ahead of time which patents will be most valuable,\textsuperscript{30} and companies could be willing to pay more to increase the certainty of these more valuable patents. Currently, some computer and software companies do engage in some actions to increase the certainty of their most important patents. For example, whereas these companies prefer to pay lower rates to have law firms’ associates draft most of their patent applications, the companies will pay higher rates to have partners draft patent applications for their more important inventions.\textsuperscript{31} Further, the companies will pay for prior art searches for their more important inventions, but not for others.\textsuperscript{32} Even if this additional effort increases the likelihood that a patent will be held valid in court, as discussed above with respect to the pharmaceutical industry, there is no increased presumption of validity in the courts and competitors are not signaled of the increased certainty of the validity. For the computer science industry, as was the case for the pharmaceutical industry, there is less incentive to perform the actions that can increase the likelihood of a patent being held valid in litigation than there would be if competitors were signaled of increased certainty.

Another difference between the pharmaceutical industry and the computer and software industry is the value of patent term. Each day that a pharmaceutical company

\begin{footnotesize}

\textsuperscript{30} There is some evidence that this is true. See, e.g., John R. Allison, Mark A. Lemley, Kimberly A. Moore, & R. Derek Trunkey, \textit{Valuable Patents}, 92 Geo. L.J. 435, 437-442 (2004) (noting a correlation between litigated patents and valuable patents and noting that there are objective indicia of which patents are more likely to be litigated).

\textsuperscript{31} Interview with Linda Thayer and Jean Fordis, supra note 17.

\textsuperscript{32} Personal experience of author while working as a patent agent at Knobbe, Martens, Olson & Bear LLP, Finnegan, Henderson, Farabow, Garrett, & Dunner LLP, and Hickman, Palermo, Truong, & Becker LLP.
\end{footnotesize}
maintains the monopoly associated with a single patent can be worth millions of dollars – even at the end of the patent term.\textsuperscript{33} In contrast, it is a generally-accepted principle that technology in the computer and software industries advances quickly and the value of patents is significantly lower at the end of the patent term.\textsuperscript{34} Therefore, pharmaceutical companies should generally be willing to spend more for longer patent terms than would computer or software companies. However, as above, there are likely to be specific cases, e.g., for their most important and most enduring inventions, in which even computer and software companies should be willing to pay more for a longer patent term.

**B. Differences among wealthy and poor inventors**

Not only do the needs of different industries differ, but the needs of various inventors also differ. Wealthy companies, for example, have significant resources available not only for developing inventions that will provide value to the company but also for building departments and systems for managing intellectual property. Hewlett-Packard has an entire department dedicated to licensing its patent portfolio.\textsuperscript{35} Rambus receives most of its revenue from patent licensing.\textsuperscript{36} Cisco Systems has developed a sophisticated patent review system by which it incentivizes employees to submit patentable ideas and assesses which patents to file based on a number of profitability and


\textsuperscript{36} Cher Price, *Rambus Makes Profit Again*, THE INQUIRER, Jan. 20, 2006 (noting that, of Rambus’ $41.6 million in revenue, $34.7 million was from patent licensing).
freedom-to-operate factors.\textsuperscript{37} IBM earns approximately $75,000 per year on each patent in its portfolio.\textsuperscript{38}

Poorer companies, on the other hand, typically cannot afford to create systems for developing and licensing patent portfolios. Consider an archetypical computer science startup. The employees work on their own computers in a garage or makeshift office in one of their houses. They might have ingenious ideas, and even have the money to file a patent application or two, but they are less likely to have resources to develop sophisticated intellectual property programs. Poorer companies, with their limited patent portfolios, might be excluded from the practice of patent “cross licensing,” and might be more likely to engage in litigation as opposed to licensing.\textsuperscript{39} Further, poorer companies might be less likely to participate in markets in which cross licensing is necessary.\textsuperscript{40}

Reforms to the patent system such as those proposed herein can significantly increase the cost of prosecuting and maintaining patents. As the cost of patenting increases, the poorest of patentees are likely to opt to protect their innovations with trade secret.\textsuperscript{41} As smaller, often poorer, patentees are great sources of innovation,\textsuperscript{42} they


\textsuperscript{39} Allison et al., supra note 30 at 468-469 (noting that small entity patents are litigated more often than large entity patents and suggesting, as one possible explanation, that large entities are more likely to have large patent portfolios which are amenable to cross licensing with competitors).

\textsuperscript{40} David Potashnik, Phillips v. AWH: Changing the Name of the Game, 39 AKRON L. REV. 863, 898 (2006).

\textsuperscript{41} There is some belief that such marginalization of smaller companies has come about because of the availability of costly patent oppositions in the German patent system. See, e.g., N. Thane Bauz, Reanimating U.S. Patent Reexamination: Recommendations for Change Based Upon a Comparative Study of German Law, 27 CREIGHTON L. REV. 945, fn. 145 (1994), (noting that “[o]ne German commentator noted [that] inventions of great economic value are made today mainly by employees of major corporations that can expend the money needed for systematic research work. It is often only the patent departments of major corporations that can discover significant material that is prejudicial to novelty . . . because they alone are capable (economically) of completely researching [the] respective discipline . . . The author concludes that the small and mid-sized companies are thus disadvantaged by the opposition system”)

(quoting Fromut Volp, Einspruchsverfahren nach Patenterteilung [Opposition Proceedings after a Patent is

\textsuperscript{42}
should not be incentivized to opt to protect their innovations outside of the patent system. As such, the benefits provided by reforms should be balanced with the desire to keep poorer innovators disclosing their innovations as patents in exchange for the limited monopoly that patents provide. The patent system must not exacerbate the effect that availability of resources has on participation in the patent system.\footnote{In the current patent system, there is some accommodation for the divergent resources of patentees. Specifically, small companies and individual inventors pay lower fees for filing patents if they qualify as “small entities.” 37 C.F.R. § 1.27. Although small entity status is primarily linked to the number of employees at the patentee’s company and does not account for wealth, 37 C.F.R. § 1.27, the number of employees at the patentee’s company might be a decent approximation of the wealth of a company. In the Australian patent system, the “innovation patent” has been introduced in part to allow smaller, poorer companies to participate in the patent system. Australian Government, IP Australia, The Innovation Patent, Comment on Recommendation 13, http://www.ipaustralia.gov.au/patents/what_innovation.shtml.}

**IV. The state of play in the current patent system**

**A. The current (partially) differential patent system**

Many of the reforms proposed herein require some variation or differential treatment in the patent system. In this section, I give examples of how such differentiation already occurs and has, in some ways, laid the ground work for the proposed reforms. The legislature has responded to some of the varied needs of different industries. The obviousness requirement for biotechnological processes differs from that of other industries.\footnote{Mark D. Janis, Second Tier Patent Protection, 40 HARV. INT’L L.J. 151, 157-159 (1999) (discussing German Gebrauchsmuster patents).} There is an entirely separate set of rules and regulations available

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\footnote{See, e.g., Alexander E. Silverman, Symposium Report: Intellectual Property Law and the Venture Capital Process, 5 BERKELEY TECH. L.J. 157, 169 (Spring 1990) (noting that F. M. Scherer’s unpublished data indicate smaller companies are better at creating break-through innovations and that larger companies are better at producing incremental innovations).

\footnote{See generally 1-3 Chisum on Patents § 3.06 (2006) (discussing the German second tier patent known as “Gebrauchsmuster” (utility model or petty patent)); Mark D. Janis, Second Tier Patent Protection, 40 HARV. INT’L L.J. 151, 157-159 (1999) (discussing German Gebrauchsmuster patents).}
for obtaining patents on varietals of plants.\footnote{United States Patent and Trademark Office, Plant Patents, http://www.uspto.gov/web/offices/pac/doc/general/plant.htm.} For business methods, there is a defense against infringement for some accused infringers.\footnote{35 U.S.C. § 273 (stating that it is a defense to infringement if the accused had “actually reduced the subject matter to practice at least 1 year before the effective filing date of such patent, and commercially used the subject matter before the effective filing date of such patent.”).}

The Patent Term Restoration Act of 1984,\footnote{Pub. L. No. 98-417 (the patent term restoration is codified, at 35 U.S.C. § 156 et seq.).} although facially neutral, has a disparate impact across industries. The act alters the patent system to “restore to the terms of . . . patents [that require premarket government approval from a regulatory agency] some of the time lost while awaiting [such] approval . . .”\footnote{MPEP § 2750.} Although the act applies to any invention that requires government approval before use or sale, the act primarily benefits the pharmaceutical industry, which would otherwise lose valuable patent term during the Food and Drug Administration (FDA) approval process. If a computer-related invention, such as a medical device,\footnote{The FDA specifically mentions regulating “computer-related technology” as part of its medical device regulation. FDA Performance Plan, 2.51 Medical Devices & Radiological Health, Program Description, Context and Summary of Performance (2002).} required FDA approval, then the invention would also be eligible for regaining some of the patent term lost during the approval process.\footnote{35 U.S.C. § 156.}

Burk and Lemley have noted that courts treat different industries differently – even with respect to the facially-neutral aspects of the patent system.\footnote{See generally Dan L. Burk & Mark A. Lemley, Is Patent Law Technology-Specific?, 17 BERKELEY TECH. L.J. 1155 (2002).} For example, the Court of Appeals for the Federal Circuit (CAFC) works diligently to find biotechnological inventions nonobvious, but imposes stringent enablement and written
description requirements for biotechnology inventions.\textsuperscript{52} The opposite standards apply for computer-related inventions. The CAFC has loose requirements for enablement and written description and more stringent obviousness requirements for computer and software inventions.\textsuperscript{53} This divergence could be due, at least in part, to the divergent skills needed to mimic inventions in each industry. It is often possible to replicate a software invention once the functionality of the invention is known.\textsuperscript{54} Thus, describing the best mode and providing a detailed written description of software inventions are often less important for the \textit{quid pro quo} of the patent system.\textsuperscript{55} On the other hand, it is often very difficult to replicate a biological invention based on the function.\textsuperscript{56} Therefore, written description and enablement are important for providing the public with the ability to replicate biological inventions.\textsuperscript{57}

Relatedly, courts often hold that for software inventions, prior art does not necessarily need to provide extensive enablement in order to be invalidating.\textsuperscript{58} Therefore, it is easier to find anticipation or obviousness of a software invention. In contrast, biological prior art needs to provide detailed disclosure to enable one of

\begin{itemize}
\item \textsuperscript{52} \textit{Id.} at 1156, 1173-1174.
\item \textsuperscript{53} \textit{Id.} at 1156, 1161-1169.
\item \textsuperscript{54} \textit{Id.} at 1183-1184.
\item \textsuperscript{55} \textit{Id.} at 1183-1184 (2002). The \textit{quid pro quo} of the patent system is generally thought to be disclosure of the invention in a manner so that a person having ordinary skill in the art can make and use the invention in exchange for a limited monopoly on the invention. Thomas P. Nound, Mark S. Carlson, & Paul T. Meiklejohn, \textit{Patent Law Issues Affected by the Predictability of Technology in the Filed of Invention}, 88 J. PAT. & TRADEMARK OFF. SOC’Y 603, 633 (2006).
\item \textsuperscript{56} Burk & Lemley, supra note 51, at 1184. \textit{See also} Regents of the Univ. of Calif. v. Eli Lilly & Co., 119 F.3d 1559, 1568 (Fed. Cir. 1997) (noting that “[a] definition by function . . . is only a definition of a useful result rather than a definition of what achieves that result”).
\item \textsuperscript{57} \textit{Id.} at 1184.
\item \textsuperscript{58} \textit{Id.} at 1185.
\end{itemize}

13
ordinary skill in the art to make and use the invention in order to be invalidating.\textsuperscript{59}

Therefore, it is harder for prior art in the biological industry to render inventions obvious.

B. Previous reform proposals

Many commentators argue that the legislature should do more to have the patent system differentiate among industries. Samuelson argues that inventions implemented as computer software should not be patentable.\textsuperscript{60} Wells argues that Internet-based patents should be analyzed with greater scrutiny than patents in other industries.\textsuperscript{61} Gratton argues that software patents should receive shorter terms than patents in other industries.\textsuperscript{62} Webbink, in addition to arguing that patent terms should be shorter for software inventions, also argues that patents should only be granted for “complete systems [and] not [mere] components.”\textsuperscript{63} Menell argues not only that software should have different treatment than other industries, but also that software applications should be protected with a modified copyright doctrine and that operating systems should be protected with patent-like protection combined with the availability of compulsory licenses.\textsuperscript{64} Anderson argues that the software patents should be analyzed by a Software Evaluation Panel, comprising members of the open source community and small and large business, in order to help USPTO patent examiners better determine the scope and content of the prior art.\textsuperscript{65}

\textsuperscript{59} Id.
\textsuperscript{62} Gratton, \textit{supra} note 34, at 250.
\textsuperscript{65} Anthony E. Anderson, \textit{Taming the Code: Effectively Implementing Software Patents}, 5 J. MARSHALL. REV. INTELL. PROP. L. 381, 397-398 (2006). Noveck has similarly called for a system in which a panel of lay experts can collect and analyze prior art in order to help patent examiners. Noveck would not limit the
As a parallel, commentators have also called for industry-specific legislation for biotechnology inventions. For example, Burk argues that neither copyright protection nor patent protection as they exist today are appropriate for recombinant DNA (rDNA) sequences and, therefore, a modification of current statutes or entirely new statutes should be proposed for rDNA.\textsuperscript{66} Similarly, Enayati posits that a modified version of current patent laws should apply to biotechnology inventions.\textsuperscript{67} Villamil argues that patents related to DNA should have forced compulsory licenses in order to allow compensation for expenses of patenting while still allowing freedom for follow-on innovation.\textsuperscript{68} Feldman and Aljalian separately argue that, for biotechnology patents, the doctrine of equivalents should only apply if the equivalent was known at the time the invention was made.\textsuperscript{69}

Whereas the noted proposals have merit, they also have inherent difficulties. First, the U.S. participates in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which prohibits member countries’ patent laws from system’s use to any specific industry. Beth Noveck, “Peer to Patent”: Collective Intelligence and Intellectual Property Reform, Revision 19, http://peertopatent.jot.com/Proposal4 (last visited January 11, 2007), copy on file with author.


\textsuperscript{69} Robin Feldman, Rethinking Rights in Biospace, 79 S. CAL. L. REV. 1, 43 (2005). See also Natasha N. Aljalian, The Role of Patent Scope in Biopharmaceutical Patents, 11 B.U. J. SCI. & TECH. L. 1, 68, 75 (2005) (contrasting the proposal with the current rule that gauges equivalents at the time of infringement). See also Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 21 (U.S. 1997) (noting that with the doctrine of equivalents, a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is "equivalence" between the elements of the accused product or process and the claimed elements of the patented invention).
discriminating in the grant of patents based on the “field of technology.”

Holding different industries to different standards might violate the TRIPS Agreement. Even if the proposals above were allowable under the TRIPS Agreement, there would still be significant problems determining in which technology area each invention should be classified and, as a result, significant risk of patentees gaming the system. For example, if Villamil’s proposal to deny injunctions for DNA patents were adopted, then every patentee that invented something that could be defined as a DNA patent would attempt to categorize the patent as something else in order to retain the threat of injunctions against competitors or infringers. If Gratton and Webbink’s proposal for shortening patent terms for software inventions were adopted, then inventors would attempt to avoid software classifications even if such classification were appropriate. Further, no inventor would classify her invention as a “component” of a software system and not a complete system. Otherwise she would be unable to patent her invention under Webbink’s proposed system.

Statutory definitions are unlikely to resolve the line-drawing problems. Consider the current definition of “biotechnological process” in 35 USC §103(b)(3).

Biotechnology processes covered by this definition could incorporate software or even

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70 Agreement on Trade-Related Aspects of Intellectual Property Rights, 15 April 1994, § 27(1).
72 35 U.S.C. § 103 (b)(3) (stating that “the term ‘biotechnological process’ means-- (A) a process of genetically altering or otherwise inducing a single- or multi-celled organism to-- (i) express an exogenous nucleotide sequence, (ii) inhibit, eliminate, augment, or alter expression of an endogenous nucleotide sequence, or (iii) express a specific physiological characteristic not naturally associated with said organism; (B) cell fusion procedures yielding a cell line that expresses a specific protein, such as a monoclonal antibody; and (C) a method of using a product produced by a process defined by subparagraph (A) or (B), or a combination of subparagraphs (A) and (B).”)

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have as their critical points of novelty an algorithm implemented in software. Under this definition, there clearly could be novel software designed to control or enable “a process of altering or otherwise inducing [an] organism to [perform a covered action].”\textsuperscript{73} For example, consider Petrov et al.’s use of software to “control the fermentation process of E. Coli” based on parameters such as “pO2, pH, [and] temperature.”\textsuperscript{74} In such a case, should the invention be classified as software, even if it happens to control a biotechnological process, or should the invention be classified as a biotechnological process because the software is merely part of the biotechnological process? Regardless of whether this question can be definitively answered in this particular case, situations will undoubtedly arise in which classification will be difficult.

Again, the goals of the proposals discussed above are laudable, but the implementation of differentiations based on technological classification is untenable. In the next section, I propose patent reforms that would avoid technical classification of individual patents while still allowing differentiation among patents and still meeting the divergent needs of various patentees. Like Lemley et al.’s “gold-plated” patents,\textsuperscript{75} the proposal below relies on industry-neutral indicia, usually based on private information, to define which patents are held to higher standards, assessed with different processes, or granted longer terms.

\textsuperscript{73} Id.
\textsuperscript{75} Mark A. Lemley, Doug Lichtman, & Bhavan Sampat, \textit{What to Do About Bad Patents?}, \textit{REGULATION} 10-13, 12-13 (Winter 2005-2006).
V. Proposal for an economic approach for increasing certainty in the patent system

I present four proposals for reform to the patent system. The reforms stem from the premise that, where changes are needed in the patent system, especially those designed to respond to differing needs among patentees, the reforms can be structured to allow multiple options or tiers for patentees and third parties.76 The four reforms presented (amount of patent examination scrutiny, pre-litigation claim scope hearings, varied patent terms, and opposition proceedings) are designed to meet the divergent needs of different industries while balancing the effect that the reforms have on the poorest of patentees. As noted in the Conclusion of this paper, other reforms of similar structure could also be implemented.

Although I presume that the USPTO should administer all aspects of the reform, it may be appropriate for other bodies to administer some aspects of the reforms, as noted in Section V.F. In addition, the costs associated with the reforms should at least cover the USPTO costs and might also be increased to reflect a desired “market” (i.e., limiting use of the higher tiers of the reform if policy so dictates). A more detailed discussion of costs is presented in section V.G.

A. Amount of scrutiny in anticipation and obviousness determinations

Anticipation and obviousness determinations are made based on 35 USC § 102 and 103, respectively, and generally require that the invention is not previously known to the general public (e.g., that “prior art,” such as a published paper or patent, does not disclose the invention) or obvious from what practitioners in the relevant field already

76 See infra Section V.E.
know. Currently, as noted above, a patent is given the same presumption of validity against all prior art regardless of whether the USPTO considered it during prosecution and regardless of how diligently the patentee searched for prior art.

I propose that the patent system should be reformed to allow amount of scrutiny for obviousness and anticipation and allow commensurate deference in the courts. Specifically, if the USPTO performs a more rigorous review of obviousness and anticipation and grants the patent over the findings of this more rigorous review, then the courts should require invalidity to be shown with a higher evidentiary level than if a less rigorous obviousness and anticipation review were performed. Further, I propose that the choice of which patents receive higher scrutiny should be made by the patentee. Below I flush out the details of precisely how more rigorous examination might be performed. This is appropriate because the patentee will be in the best position to determine which patents are most important and, therefore, will be able to balance increasing rigorousness for its most valuable patents against its available budget.

A change to the patent system of this structure would benefit the patentee and third parties. It would give more certainty to patentees. Highly-scrutinized patents should be more likely to be held valid if litigated. This allows patentees to make more informed decisions regarding their businesses and patent litigation. The reform would

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78 For a discussion of why we should not simply have higher deference prosecution for all patents, see infra Section V.G.
79 The USPTO arguably does not have the information to determine which patents should receive higher scrutiny. Further, if my proposed increased price structure for higher-scrutiny patents were adopted, it would be unfair to require those higher fees of patentees if the decision to increase scrutiny were in the hands of the USPTO.
80 There is some evidence that patentees should have some idea ahead of time which patents are more valuable. See, e.g., Allison et al., supra note 30, at 437-442.
also provide useful signals to third parties.\textsuperscript{81} First, the third parties would know which patents were more important to the patentees based on the level of prosecution requested. Patentees would be more likely to pay for the higher-cost patent prosecution if they believed that the invention was valuable or critical to their businesses. Knowing this would allow the patentees’ competitors and other potential infringers to determine which patents were most important to license or design around.

Second, members of relevant industries could see which aspects of the claims of patents were most important to patentees because, with higher scrutiny, some individual features would be more thoroughly vetted than they would be under the current system. During patent prosecution, patentees might argue most strenuously for the elements of the patents that were most critical and those that were the most at risk of being invalidated by the prior art (the most “borderline”).\textsuperscript{82} This more rigorous argumentation would inform third parties which particular aspects of the invention the patentee felt were important or were importantly, but subtly different from the prior art. This extra information would be useful for either designing around the invention or attempting to efficiently invalidate the claims of the patents in later proceedings.

In a system where there are varying degrees of rigorousness or prosecution, there remain issues related to how to vary the amount of scrutiny and to what, precisely, courts should defer. As to how “more rigorous” patent prosecution should be defined, I argue that basing the level of deference on self-reported rigorousness of the patent examiner’s anticipation and obviousness determinations would have drawbacks. First, it would be

\textsuperscript{81} Under the reform, patents would have appropriate markings to indicate higher scrutiny and the prosecution histories of the patents could provide the signals to third parties.

\textsuperscript{82} Elements could be both critical and borderline. This type of argumentation happens to some extent in the current system. Patentees will typically argue certain aspects and not argue others. However, the additional scrutiny and related argumentation would provide additional information.
difficult to accurately determine the rigorousness of any particular examination. Rigorousness could, for example, be based on the amount of time the examiner spent examining the patent. Even if the examiner spent many hours looking for and assessing prior art, however, she might find little or no relevant prior art. Should we grant a higher level of deference even to those examinations that are ineffective? Perhaps not.

Assigning a level of rigorousness based on the quantity of references in the search would also be problematic. Consider assigning rigorousness based on whether a threshold level of rejections was made or a threshold number of references was cited. Such a system would incentivize patent examiners to merely meet the numeric thresholds and not necessarily attempt to find and argue using the most relevant art.

I propose instead that the patent system should require a higher burden on accused infringers to show invalidity using references that were used by the examiner and a lower burden to show invalidity over references that were not used by the examiner. For example, if the patent examiner used ten references during patent prosecution, then the patent would have a higher presumption of validity only against those ten prior art references. If, in a more rigorous patent examination, the patent were validated against one hundred prior art references, then the patent would have the higher presumption of validity against all one hundred references. All unused prior art references that were not duplicative of references considered by the USPTO would be given less deference (e.g., invalidity might be shown by a preponderance of the evidence rather than the higher standard of clear and convincing evidence). Differentiating deference based on whether the specific references were used during prosecution would allow the differentially

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83 This is also the view of Lemley, Lichtman, and Sampat. Lemley, et al., supra note 75, at 12.
rigorous levels of prosecution to be treated differently based on the specifics of prior art used by the USPTO instead of on the classification of the rigorousness.\textsuperscript{84}

As to the rigorousness of patent examination, there need not necessarily be specific levels, but there could instead be a system whose price varied by references specifically considered and argued by the examiner, whether found by the examiner or submitted by the patentee, and the extent of the search performed by the examiner. For example, there should always at least be a minimal search by the examiner and prosecution based on that search (similar to current patent prosecution). If a higher fee is paid, on the other hand, the examiner could perform a more extensive search, and the higher fee could be based on the cost of the search and could also be incrementally increased for each additional reference, beyond a certain threshold, argued by the examiner. Further, if the patentee would like more rigorous prosecution, the patentee could pay an incremental fee in order to submit additional references, perhaps with statements of relevancy, and have them considered and argued by the examiner.\textsuperscript{85}

Providing differential deference based on whether prior art was used by the examiner would benefit competitors. Knowing which prior art references require a higher burden of proof should provide potential litigants with information useful for determining litigation strategy. For example, if a particular piece of prior art requiring a higher burden of proof would be essential to an invalidation argument, then the litigant

\textsuperscript{84} Further, given that increased deference as to argued references could apply regardless of rigorousness of the examination, paying for increased rigorousness could amount to paying the examiner to argue more references. \textit{See infra} note 94 and related text.

\textsuperscript{85} The patentee could even pay to have the examiner separately argue each additional reference. Requiring payment for these additional references could avoid the potential problem of patentees burying the examiner, especially if the patent examiner merit system were altered to reflect the work actually performed, as discussed in Section V.F.2. \textit{See also} supra note 88.
might not waste time and money arguing that reference and might instead settle the conflict or shift more resources into a non-infringement argument.

Additionally, this type of differential review would benefit the USPTO and industry. Although patentees are required to disclose all relevant prior art of which they know, they are not required to actively search for prior art. 86 Further, given that patents are currently afforded the same presumption of validity against all prior art references whether or not they were considered by the USPTO, 87 there is little reason for patentees to search for additional art. The differential deference described herein would alter the incentives. Since showings of invalidity against the references that were used by the examiner would be associated with a higher burden, patentees should want the best references to be used by the examiner. If the patentee can overcome the arguments of the USPTO using the closest references, then the patentee has a more certainly valid patent. Given this incentive, the patentee would be more likely than under the current system to search out and disclose more appropriate prior art. 88

Even with this approach, there remains a subtler question as to the level of use or consideration by the examiner. In patent prosecution, there are typically a limited number of references upon which the examiner specifically relies to attempt to invalidate the patent application. There are often numerous other references that the examiner cites but does not discuss.

87 See, e.g., infra Section V.E.2.
88 In order to avoid “burying” the examiner with prior art, I propose below to proportionally increase the resources available in the USPTO and the incentives rewarded to examiners for the more rigorous examinations.
I propose that the presumption of validity should be highest against references that are used by the examiner to attempt to argue invalidity of the claims and are eventually overcome by the patentee during patent prosecution. It is true that the silence of the examiner regarding prior art that was “considered” but not specifically discussed or used might be an indication that the examiner considered the claims patentable over these references. In reality, however, these references might not have been thoroughly considered by the examiner. Given the time constraints currently imposed on examiners, it is quite logical to assume that not all of the references are fully read or fully considered. As such, it might be best to give the highest deference to the findings of the USPTO only if there is prosecution history or an examiner statement discussing why or how the particular considered references do not anticipate or render obvious the claims of the patent.\(^{89}\)

This approach to increased deference could be beneficial as it would incentivize patentees to disclose how particular pieces of prior art are relevant to patent claims. If a patentee discloses the relevance of each prior art reference, then the examiner should be able to provide more appropriately focused arguments. If the examiner makes the strongest arguments that the patentee believes are available and the patentee overcomes these arguments, then the validity of the patent should be more certain.\(^{90}\) Patentees providing better, more focused disclosure should benefit the USPTO by reducing its workload and society by promoting better prior art disclosure and more rigorous prosecution.

\(^{89}\) I would argue, however, that at least some presumption of validity should hold against all references, even if it is lower than against references that were considered or used during patent prosecution. This reflects the assumption that a patent is a result of a “government agency … do[ing] its job [properly].” American Hoist & Derrick Co. v. Sowa & Sons, Inc., 725 F.2d 1350, 1359 (Fed. Cir. 1984).

\(^{90}\) That is, the patent should be more likely to be held valid in court.
Even if giving the higher deference against prior art overcome by the patentee or specifically cited as not invalidating by the examiner would improve the patent system, it is not without implementation difficulties. For example, prior art receiving the higher deference might not have been used by the USPTO in the same manner in which a later party might be attempting to use it. If the USPTO examiner argued that a reference taught a particular feature of a claim (call it claim 1, element A or “C1.A”)

91 and the patentee overcame that argument, then should Claim 1 receive a higher presumption of validity against the reference or only element C1.A? If a party later asserted that the reference taught C1.B, then it might be inappropriate to require a higher burden of proof since the examiner might not have specifically discussed or even considered the issue.

In implementing the reform, the legislature could strike a balance in favor of administrability, holding litigants to a higher burden of proof when attempting to invalidate a patent using any reference that has already been used by the USPTO, regardless of how it was used, or in favor of fairness, holding litigants to a higher burden of proof for references used by the USPTO unless the reference is being used in a different manner. I propose that the legislature should strike this balance by shifting the burden of proof to the patentee. The patentee could be required to show that a defendant’s arguments for invalidity are equivalent to those made by the examiner during patent prosecution. Once shown, the defendant could be required to show invalidity with a higher burden of proof. Further, I propose that the patentee should be able to show the equivalence of the defendant’s and the USPTO’s arguments even if the defendant used a reference that was not identical to that used by the examiner. The patentee should be able

91 This also raises the question, what is an “element” of a claim? See, e.g., Larami Corp. v. Amron, 1993 U.S. Dist. LEXIS 3097 (D. Pa. 1993) (dictating the outcome of the case on defining as an “element” the claims recitation of “an elongated housing having a chamber therein for a liquid”).
to show equivalence if the reference used by the defendant was substantially similar to a reference (or cumulative to more than one reference) that had been considered by the USPTO and the defendant used the new reference to make the same argument that had previously been made by the USPTO.

Another way that the examiner could obtain prior art would be via a system of third party prior art submissions, such as Noveck’s “peer-to-patent” system, which is currently in beta at the USPTO. In addition to allowing third parties to submit prior art, Noveck proposes that a panel of experts would assist the examiner in determining what prior art is the most pertinent, thereby reducing the chance that the examiner will be “buried” by the potentially large number of prior art submissions. I propose that Noveck’s system would augment well the reforms proposed herein. In fact, the peer-to-patent system shares the ideology of many of the reforms proposed in this paper: utilizing private information related to the innovation or patent in order to appropriately reduce the breadth of granted patents, thereby increasing the certainty of the validity of granted patents.

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92 Noveck, supra note 65. See also, Anderson, supra note 65.
94 Noveck, supra note 65 (discussing “Stage 2: Assisting the Examiner with Obviousness Review – Convening Expert Panels”).
95 With the use of Noveck’s peer-to-patent system, better and more pertinent prior art should be considered. Even over this more pertinent prior art, I propose that the higher deference would still only apply to arguments actually made by the examiner and overcome by the patentee. Presumably, however, given that the art should arguably be better, the patentee will overcome better examiner arguments. If the patentee overcomes better arguments, the validity of the patent should be more certain.
B. Pre-litigation indication of claim scope

One area of uncertainty in patent law is the scope of patent claims. Currently, as held in the landmark case, *Markman v. Westview Instruments*, the determination of the scope of patent claims in suit is determined by the court as a matter of law.\footnote{Markman v. Westview Instruments, 517 U.S. 370, 372 (U.S. 1996).} Accordingly, judges hold *Markman* hearings to determine the scope and definitions of the terms of patent claims based on the arguments from each party in the suit.\footnote{Timothy M. Salmon, *Procedural Uncertainty in Markman Hearings: When Will the Federal Circuit Show the Way*, 18 ST. JOHN’S J.L. COMM. 1031, 1036 (2004).} The findings in a *Markman* hearing are appealable to the CAFC, where they are reviewed *de novo*.\footnote{Id. at 1034.} The *Markman* hearing often take place before the other issues in a patent infringement case are decided and serve to clarify the scope of the factual questions of invalidity and infringement in the case.\footnote{Id. at 1037-40.}

In order to increase certainty for patentees who are willing to expend the resources and for third parties similarly motivated, I propose two forms of pre-litigation claim scope hearings: one in which the USPTO acts as the adversary and oversees the claim scope hearing, and another in which the USPTO oversees the patentee and one or more third parties arguing claim scope. A more refined discussion of the details of initiating and participating in these hearings is presented below.

Either form of claim scope hearing should provide early refinement of what precisely is covered by the target patent. This early solidification of claim scope should have a beneficial effect on negotiations between patentees and accused infringers. Once claim scope has been refined, there will be more certainty as to whether the claims are infringed by the competitor’s products. This increased certainty should increase the
likelihood that the accused infringer will license the patent, if it looks likely that the product infringes, or that the patentee will drop the accusation, if it looks likely that there is no infringement.\footnote{Edward Brunet, Markman Hearings, Summary Judgment, and Judicial Discretion, 9 Lewis & Clark L. Rev. 93, 113, 116 (2005) (noting that claim construction hearings increase “the possibility of [] settlement opportunities and [provide] greater ability, post claim construction, to resolve the litigation through dispositive motions”).}

Another benefit of pre-litigation claim scope determination is notice. By initiating a pre-litigation claim scope determination, the patentee not only signals that the patent is particularly important, it also provides a more refined definition of what, exactly, is the covered invention. If a third party is able to initiate a claim scope determination, such a proceeding will provide the same refining signal and, assuming the initiation of the process cannot be anonymous, will signal the patentee which party or parties should be contacted to negotiate licensing agreements.

Early claim scope determination should also streamline litigation. As noted in a recent American Bar Association (ABA) study, Markman hearings are often held after discovery but before trial.\footnote{Committee No. 601 - Federal Trial Practice and Procedure, ABA Intellectual Prop. Law Section, 2002-2003 Annual Report, http://www.abanet.org/intelprop/annualreport04/content/02-03/COMMITTEE%20NO%20601.pdf, 2 (last visited Nov. 1, 2006) (finding that 78% of Markman hearings occur after discovery, but before trial).} As noted by Brunet, early claim construction hearings provide efficiencies, such as narrowing the issues and focusing discovery.\footnote{Brunet, supra note 100, at 113.} The proposed pre-litigation claim scope hearings would provide many of these same benefits for patents that are later asserted in court.\footnote{See discussion below proposing that parties to a claim scope determination hearing would be estopped from retrying the same issue later in court.}

One might argue, however, that a pre-litigation claim scope hearing would be far less useful than an equivalent Markman hearing in appropriately clarifying claim scope.
One of the things that make a *Markman* hearing possible is the focused nature of litigation. During the litigation, the parties’ opposing positions elucidate which terms are critical to the issues of infringement or validity. For example, in *Phillips v. AWH Corporation*, which dealt with claims for “modular, steel-shell panels that can be welded together to form vandalism-resistant walls,” the opposing parties were able to refine the claim scope determination to the term “baffles.”

A pre-litigation claim determination proceeding, on the other hand, would not have the structure of a litigation to help the parties focus on particular terms. It might be that, without the focus provided by litigants, the USPTO, the patentee, and third parties might not be able to determine, or might incorrectly determine, what claim terms are important enough to refine using a hearing. Therefore, the patentee or third parties might inefficiently refine terms that would never be germane to later assertion of the patent.

Notwithstanding that pre-litigation claim scope hearings might have less focus than *Markman* hearings, they should still have some. First, regarding the patentee’s own focus, consider that patentees often define terms in patent specifications. Even though the patentee can be her own “lexicographer,” the definitions disclosed in the specification must be interpreted by the court and are subject to further refinement. “It is the person of ordinary skill in the field of the invention through whose eyes the claims are construed.” This determination can be made using “general purpose dictionaries” or “the words of the claims themselves, the remainder of the specification, the

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104 *Markman* hearings often occur during discovery after litigation has commenced. Brunet, *supra* note 100, at 95-97.
105 *Phillips v. AWH Corp.*, 415 F.3d 1303, 1309 (Fed. Cir. 2005).
106 *Id.* at 1310.
107 *Id.* at 1319.
108 *Id.* at 1313 (citing Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1477 (Fed. Cir. 1998)).
109 *Id.*
prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.”

If patentees consider some terms important enough to provide definitions, then the patentees might also consider some terms important enough to refine with pre-litigation claim scope determination proceedings. Second, regarding the focusing effect of initiation by third parties, they should be able to read patents and know what terms would be critical to deciding whether the claims of the patent cover their products. These sources of focus should help ensure that pre-litigation claim scope determination hearings are useful.

Clearly, the patentee should be able to initiate and participate in claim scope hearings. One should consider, however, the extent to which third parties should be able to initiate and participate in claim determination proceedings. Clearly, as noted above, the third party will help focus the claim scope hearing. Additionally, allowing third parties to participate in the claim scope hearings would allow the courts to hold the participating parties to the interpretation determined by the USPTO (and appealed to the CAFC and Supreme Court as appropriate) under the doctrine of res judicata. Once the scope of particular claim terms was determined, the parties should be less likely to litigate and more likely to either license the patents (in the case of clear infringement) or drop the case (in the case of clear non-infringement).

110 Id. at 1314.
111 This focus could be based in part on the third parties’ products or plans for products.
112 I believe that patentees should be able to initiate the proceeding even though they could simply have written “better” claims. Further, it would be beneficial to allow patentees to at least have the USPTO arguing against a broader interpretation of claim scope. As is the case with so many other aspects of patenting, this could help patentees overcome their own biased understanding of the prior art.
On the other hand, allowing third parties to both initiate and participate in these proceedings leaves open the possibility for harassment and hardship.\footnote{113} As described below with respect to post-grant oppositions,\footnote{114} there is a risk that the third parties will use the adversarial proceedings as a form of harassment. For example, this could have been possible in the \textit{Phillips} case. Mr. Phillips appears to have been working as a sole inventor.\footnote{115} In 1991, four years after Mr. Phillips’ U.S. Pat. No. 4,677,798 (’798) issued, AWH Corp. filed a patent on a similar invention.\footnote{116} At the time that AWH Corp. filed its patent, if the laws had permitted, it might have also initiated a claim scope hearing for terms in the Phillips ’798 patent, or even for terms in other of Phillips’ patents, in order to avoid being estopped from later challenging the ’798 patent in court. AWH Corp. might legitimately have done so in order to determine whether one of its products infringed. AWH Corp. might have also, however, initiated the hearing in order to stress the resources of Phillips and alter a license negotiation between the two. A sole inventor, Phillips might not have had the resources to participate in a claim scope hearing. Further, if AWH Corp. were allowed to participate in the claim determination hearings in addition to being able to initiate such proceedings, then they could further overwhelm Phillips with abusive adversarial tactics.

\footnote{113} There is precedent for making allowances for hardship. Consider the Australian “innovation patent” system, which allows for low-cost registration of inventions without substantive examination. Either the patentee or a third party can initiate substantive examination. If the examination is patentee-initiated, then the patentee pays for the examination. If the substantive examination is third-party initiated, then the third party and the patentee split the cost of examination. Australian Government, IP Australia, \textit{Introduction of the Innovation Patent}, http://www.ipaustralia.gov.au/patents/what_innovation_review.shtml. \textit{See also} Australian Government, IP Australia, \textit{The Innovation Patent}, http://www.ipaustralia.gov.au/patents/what_innovation.shtml.

\footnote{114} \textit{See infra} Section V.D.

\footnote{115} As there is no separate assignee listed on the patent, it appears that Mr. Phillips filed this patent as a sole inventor. \textit{See} U.S. Pat. No. 4,677,798.

\footnote{116} Both Phillips’ patent and AWH Corp.’s patent deal with modular walls. \textit{Compare} U.S. Pat. No. 5,228,257 and U.S. Pat. No. 4,677,798.
In setting the policies related to the rights of third parties in claim determination proceedings, the legislature should weigh the benefit of the additional information provided by the third parties against the potential damage to patentees. Without more evidence on the subject, I propose that third parties should be able to initiate third-party claim term determination proceedings at the discretion of the USPTO – allowing the patentee to argue against and the third party to argue for the hearing. For example, if the patentee could show,\textsuperscript{117} over the objections of the third party, that a claim scope hearing was initiated as a form of harassment or that no useful goals would be accomplished (e.g., increasing certainty for a licensing negotiation), then the claim scope hearing could be denied. A “no useful goal” standard might benefit the hypothetical Phillips patentee discussed above. The standard might preclude AWH Corp. from initiating claim scope hearings where AWH Corp. would not be affected by the outcome of the hearings because, for example, it does not make or plan to make related products.

If third parties for whom no useful goals would be served by the claim scope hearing cannot bring such hearings, then what would be the fate of “roving” patent busters? Assuming that groups such as Electronic Frontier Foundation’s (EFF) Patent Busting Project\textsuperscript{118} would take advantage of claim scope hearings to fight against granted patents, then, as they do not practice any inventions, they would likely be unable to directly initiate a claim scope hearing under my proposed reforms. They could still, however, fund an opposition on behalf of a party that would be affected. Numerous organizations already work this way, such as the EFF’s litigation group\textsuperscript{119} and law school

\textsuperscript{117} With, for example, clear and convincing evidence or a preponderance of the evidence standard.
\textsuperscript{118} Electronic Frontier Foundation (EFF), Patent Busting Project, http://w2.eff.org/patent.
\textsuperscript{119} See, e.g., EFF, Legal Victories, http://www.eff.org//victories.
Requiring these groups to find a party to argue on behalf of should not be an insurmountable burden. Further, if a group wishes to initiate a claim scope hearing and is unable to find a party on whose behalf to argue, then perhaps the claim’s terms are not sufficiently important to warrant contestation.

I also propose that third parties should be excluded from participating in claim scope determination proceedings in certain cases. As noted above, important benefits are obtained by allowing third parties to participate in claim scope hearings and holding them to the claim scope determined by the USPTO. On the other hand, the potential hardship on the patentee might overwhelm other considerations. As such, it might be best to allow third-party participation in claim scope hearings unless there has been a showing by the patentee that allowing the third party to participate would cause undue hardship on the patentee because of the greatly increased resources needed to argue against the third party. Similar to the decision of whether to hold a claim scope hearing at all, the decision of whether to allow third parties to participate could also be made by the USPTO based on arguments by both the patentee and the third party. Even if third parties were not able to participate directly, they should still be allowed to submit prior art and arguments for review by the USPTO or perhaps retract their initiation of

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120 See, e.g., Stanford Legal Clinics, http://www.law.stanford.edu/program/clinics (noting that there are immigrants’ rights, criminal prosecution, criminal defense, cyberlaw, environmental law, and other clinics at Stanford University Law School).
121 Forcing the patentee to engage in a claim scope determination hearing with the USPTO should arguably be less resource-intensive than a hearing in which a third party is able to participate.
122 In cases where the patentee desires the third party to be bound by the claim scope determination made by the USPTO, the patentee might simply not argue for undue hardship, thereby allowing the third party to participate in the hearings and allowing for res judicata.
proceedings. This would allow the USPTO to make a more robust claim term scope determination without requiring the patentee to respond to each third-party submission.

In order to help reduce the potential for hardship on patentees, the legislature could also attempt to consolidate all third parties interested in refining the same claim terms into a single claim scope hearing. For example, the USPTO could put the public on constructive notice before the claim scope hearing and allow multiple third parties to enter into the claim scope hearings for that term. After this constructive notice and the first claim scope hearing, third parties might only be able to initiate claim scope hearings for the already-considered terms only upon a showing of “good cause.”

One might also consider providing claim scope hearings as part of third-party patent oppositions, which is discussed below. Claim scope hearings could be performed early in the process of third-party oppositions to provide focus to the oppositions. Further, similar to the way litigation provides focus to Markman hearings,

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123 The legislature should consider allowing third parties to retract initiation of claim scope determination proceedings if they are not allowed to participate. There is likely to be a fear that the USPTO has a bias towards broad scope. Allowing the third party to retract its initiation of a hearing if it is not allowed to participate might allay the fear of a biased outcome. On the other hand, the patentee could still expend resources to initiate the proceeding itself and thereby still obtain higher deference for any findings that were made.

124 In order to limit the effect that third-party submissions could have on the patentee, the legislature could propose a limitation on the arguments that the USPTO could present, similar to the one currently in place for arguments made by the USPTO in office actions during patent prosecution. In office actions, the patent examiner must make the best argument as to the unpatentability of the claims submitted by the applicant. See, e.g., 37 C.F.R. 1.104 (c)(2). See also MPEP § 2164.04. A similar requirement in claim determination proceedings would put the burden of determining the best argument among those submitted by third parties and those determined by the examiner on the USPTO.


126 A third party might show good cause, for example, by showing that their need for claim scope determination arose after the constructive notice. This might happen if the third party did not know that it was going to enter the related market until after the constructive notice. Additionally, even though there might be little efficiency gain in doing so, the legislature might even go so far as requiring all claim scope determinations on all terms in a given patent to be consolidated into one hearing and allowing additional claim scope determination hearings on any term on that patent with a showing of good cause.

127 See infra Section V.D.
discussed above, the third-party oppositions would also provide focus to claim scope hearings. Additionally, if the legislature believes that the claim scope hearings would not be useful standing alone, it could restrict the use of pre-litigation claim scope hearings to third-party oppositions. 128 Given the reasons presented above, however, I believe that claim scope hearings would also provide benefit outside the context of third-party oppositions.

As alluded to above, a natural choice for appealability of the claim scope findings of the USPTO would be to allow appeals of claim scope determination proceedings to the CAFC and, subsequently, to the Supreme Court. As for the deference given to the findings of the USPTO, I propose that in addition to the claim scope determinations being res judicata between a patentee and a participating third party, the findings of the USPTO could also be given high deference even for those parties who did not participate in the proceedings. For example, if a particular third party were allowed to participate, the findings would be res judicata between the patentee and that party. The findings would also receive high deference if the patentee were engaged with a different third party in later litigation. 129 Similarly, if a claim scope determination proceeding were conducted only between the patentee and the USPTO, the finding could be given high deference in later court proceedings with the patentee and any third party.

The claim scope hearings proposed herein would provide numerous benefits. They would allow third parties to initiate critical claim scope hearings in order to decide

128 Further, even if claim scope determination hearings were not limited to third party oppositions, the legislature might preclude claim scope determination hearings without a third party adversary if it felt that the USPTO alone would be too patentee-biased.
129 If claim terms that were interpreted during a pre-litigation claim scope determination hearing were subject to further claim scope determination later, then only the actual determinations made should be given higher deference.
whether they should license the patents at issue. Further, the discretionary nature of the
initiation of the hearings and third-party participation would allow the USPTO to at least
attempt to balance benefit to the parties against the potential for harassment and hardship.

C. Allowing various patent terms

As noted above, one difference among industries is the value of the final years of
patent term. For computer-related inventions, for example, the economic benefit of
monopoly usually decreases significantly over the years. For pharmaceuticals, on the
other hand, the monopoly value of a patent could extend far beyond the currently allowed
term. Notwithstanding this difference in value, the patent terms for all inventions are
the same. Patents are valid for twenty years from the date of filing of the patent plus
any adjustment (increase) that is due because of delays in the patent office or regulatory
delays, such as the FDA’s drug approval process.

Currently, the patent system requires that patentees pay maintenance fees in order
to keep patents in force. Maintenance fees are due three, seven, and eleven years after
grant of the patent and currently stand at $980, $2,480, and $4,110, respectively. If the
patentee does not pay the maintenance fee, the patent is abandoned, and the invention
becomes part of the public domain. As such, patentees can abandon and avoid paying for
patents that they no longer value highly enough.

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130 Gratton, supra note 34, at 231.
131 Coalition Seeks to Curb Drug Patent Extensions, supra note 33 and related text.
133 See MPEP § 2750. See also note 48 and related text.
134 See MPEP § 2504. See also 37 C.F.R. § 1.20.
Insomuch as commentators are correct that we should have different patent terms for different types of innovations, I believe that there is a better approach than maintenance fees for handling patent term that promotes earlier release to the public domain of innovations that patentees predict will hold less value (to the patentee) in the latter years of allowable patent term. Although there are valid reasons presented below for requiring a patent term length decision at the time of filing, there are also good reasons to require patentees to decide, at the time of patent grant, for what length patent term they would be willing to pay. A longer term, up to the current term of twenty years from filing, would require payment of a higher fee. Patentees that believe that their patents will continue to have value throughout their terms should be willing to pay the higher fee for the longer patent term. Patentees that believe that the technology will move quickly in their field and, therefore, that the value of their patents will decrease

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135 See supra Section IV.B.

136 The patentee should be able to better calculate how much to spend on patent term once the patent is granted. It is not until that time that the scope of the patent is known, as patents’ claims are typically narrowed during patent prosecution.

137 Before 1982, the USPTO allowed design patentees to select one of three terms: 3.5, 7, or 14 years. See Act Aug. 27, 1982 (effective 10/1/82, as provided by § 17(a) of such Act, which appears as 35 USCS § 41 note) (substituting the section of 35 U.S.C. § 173 that read: “Patents for designs may be granted for the term of three years and six months, or for seven years, or for fourteen years, as the applicant, in his application, elects” with “Patents for designs shall be granted for the term of fourteen years from the date of grant”). In Australia, innovation patents, which amount to registration of an invention without examination, have a term of eight years from the time of filing the application. Introduction to the Innovation Patent, supra note 113. Standard Australian patents have a term of twenty years from the date of filing. Australian Government, IP Australia, Maintaining Your Patent, http://www.ipaustralia.gov.au/patents/maintaining_index.shtml.

138 I do not take a position in this proposal on whether maximum allowable term should be lengthened or shortened. This proposal would be consistent with lengthening or shortening the maximum allowable term. Although I do not discuss pricing extensively in this section, I will note here that the price for a longer patent term should at least cover USPTO costs associated with a longer patent term and should properly incentivize patentees’ choices of shorter and longer patent terms. More discussion of pricing is presented in Section V.G.

139 Again, beyond the mere intuitiveness of the presumption, there is evidence that patentees should have some idea of which patents will be more valuable. See supra note 80.
dramatically over time, would opt for the shorter terms, thereby benefiting society by releasing the innovation to the public before the end of the twenty-year term.

This proposal allows desirable industry-specific effects while avoiding the line-drawing problems inherent in prior proposals. Since pharmaceutical companies gain considerable value from many of their patents in the final years of patent term, they might opt for the longest patent term available for all of their patents, regardless of the up-front cost. Computer and software companies, on the other hand, might expect that many of their inventions are likely to be valueless before the maximum patent term. These companies could opt for shorter patent terms in order to avoid paying higher up-front fees for years of the patent term that they believe are unlikely to provide any additional value. On the other hand, even computer and software companies might expect some of their inventions to provide value throughout the fully-allowable life of the patent. For these inventions, they might opt to pay for the longest allowable patent term.

It is possible that such a system of up-front payment could cause problems for poorer inventors. Poorer inventors might believe that their patent would have value through the maximum patent term, but be unable to pay the higher fee. This problem,

141 Although many believe that inventors are overly optimistic, See, e.g., F.M. Scherer, The Innovation Lottery, in EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY 3, 3, 11 (Rochelle Dreyfuss et al. eds., 2001), there should be some inventors, especially those inventors that can predict at the time of grant what their patents should be worth over time, who will opt for the shorter patent term. See Allison et al., supra note 39 and related discussion. Further, relatively sophisticated patentees, e.g. larger corporations, might be able to better predict which of their patents are of a shorter-term value and therefore could opt for shorter terms for only those patents.
142 One might argue that forcing patentees to decide on patent term is antithetical to a theme of these reforms: harnessing private information. I would argue, however, that an up-front choice of patent term harnesses the patentees’ predictions of the long-term value of the innovation. Although this is not as pro-patentee as merely requiring maintenance fees, it is nonetheless based on private information.
143 One might argue that, if the patentee expects the value to be low in the latter years of allowable term, then society would similarly put a low value on the covered innovation. As I argue below, however, I believe patent trolls are an example of society putting a higher value on the innovation than the patentee.
144 See, e.g., Gratton, supra note 34, at 250 (proposing that software patents should have shorter terms). See also Section IV.B.
145 See Coalition Seeks to Curb Drug Patent Extensions, supra note 33 and related text.
though important, is not unique to this proposal. In the current system, the cost of filing and prosecuting patents is likely to be prohibitively high for the poorest patentees. This problem is mitigated by reduced fees for “small entities.” The up-front fees for longer patent terms could also be mitigated by a similar reduction in up-front costs for poorer entities.

The legislature might consider carving out an exception to this proposal for the poorest of inventors by allowing them to opt into a patent system similar to the current system (unitary twenty-year patent term with maintenance fees). I would argue that this would be a laudable, but ultimately flawed, approach. If there is an exception to the up-front payment of fees for patent term, then there would be too much incentive to attempt to get around the system by attempting to represent that the patentees are in the protected class. For example, if the patent system had a protected class of “poor, small inventors” that did not have to pay for up-front patent terms, then companies would create subsidiaries or separate companies that qualified as the protected class in order to avoid the up-front payment as long as doing so was economically efficient. As discussed throughout this proposal, such gaming should be arduously avoided as it

146 See supra note 43 and related discussion.
147 Although this does not appear to be a problem with small-entity status under the current system, I believe it is more likely to be under the system I propose. Today small-entity status allows lower up-front fees for small entities, but requires that the entity reimburse the USPTO for the higher fees if the entity had, in good faith, incorrectly asserted small entity status. 37 C.F.R. § 1.28(c). If small-entity status was initially correctly established and is later lost (for example, by assigning the patent to a larger company), no reimbursement of higher fees is needed, but the patentee must pay any remaining fees as a large entity. 37 C.F.R. § 1.27(g)(1). In my proposal, on the other hand, there is no way to reconcile or reverse the earlier decision to include the patentee in the protected class. A patentee who qualified at the time of patent grant would be able to opt out of the requirement to decide on and pay for patent term. Even if a patentee, upon transition out of the protected class, were required later to reimburse the up-front fees or abandon the patent, the patentee would still have incentive to avoid being classified as a large entity until a decision could be made as to the long-term value of the relevant patent.
148 Currently, patentees must pay large-entity fees if a patent is assigned to a large entity, even if the patentee would otherwise qualify as a small entity. 37 C.F.R. § 1.27(a). If similar rules applied, then the “poor, small inventors” might avoid assigning the relevant patents to the large entity until it is economically efficient to do so.
incentivizes patentees to attempt to bypass the rules for individual gain in contravention of the goals of the patent system.

I believe a better system to protect poorer inventors would reduce the patent fees, as in the current system, and allow small inventors to use the currently-available monetary credit system to fund the up-front payments.\textsuperscript{149} Instead of risking the failure of this reform, we would be appropriately putting the risk associated with opting for the longer patent terms on the patentees.

As discussed above, in the current system, patentees can abandon their patents during the life of the patent by foregoing payment of maintenance fees. I believe that, even with a system of up-front payment for patent term, maintenance fees should still be required during the chosen patent term. The payment of maintenance fees forces the patentee to consider, at regular intervals, whether or not to keep the patent enforceable. In cases where the patent is no longer of sufficient value, the patentee can choose to abandon the patent and release the invention into the public domain. Continuing to require maintenance fees, even nominal ones, would be beneficial because this practice of abandonment of economically inefficient patents would continue and the public would continue to get the benefit of earlier release of the inventions into the public domain.

I also propose that patentees should not be able to “buy back” forfeited patent term. Consider if the legislature reformed the patent system to allow patentees that originally opted for shorter patent terms to repurchase the latter portions of their patent terms. The first issue would be notice. Third parties rely on the expiration date of patents. Allowing a patentee to buy back patent term, even well in advance of the

\textsuperscript{149} For example, loans from financial institutions.
expiration date, would undermine this reliance. The second issue would be the
distribution of rents. The benefits to patentees, who would presumably obtain increased
profits by buying back patent term on only the most valuable patents, and to the USPTO,
who would benefit by receiving more fees, are outweighed by the damaging effects of the
aforementioned uncertainty and the unjust costs to third parties in the form of increased
and unforeseen patent infringement damages or royalty payments made to the patentees.

Given that the goal of the patent system is to “promote the progress of science and
useful arts,” one should consider whether the incentive to perform research would be
reduced by the requirement of paying higher up-front patent fees. Specifically, one
should consider whether companies who might opt for shorter patent terms would have
reduced incentives to perform research. Consider a company that produces computer-
related inventions. The company might decide to pursue only shorter terms for their
patents, but might believe that one or more of the inventions would have longer-term
value without knowing which one it would be.

Would the fact that they are foregoing this unknown long-term value
disincentivize research? Perhaps so, but it might still be advisable to pursue this
proposal. Patents are granted to provide incentive to do research, not as a right to lottery
surplus for the inventions. If a company believes that inventions are critical at the time
of patent grant, they will be willing to pay more up front for the longer patent term. If, on
the other hand, the value of an invention only becomes apparent far later in time, then the

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150 U.S. Const. art. I, § 8, cl. 8.
151 On the other hand, some commentators argue that the patent system is a lottery. See, e.g., F.M. Scherer,
The Innovation Lottery, in Expanding the Boundaries of Intellectual Property 3 (Rochelle Dreyfuss et al. eds., 2001).
In its current structure, it might be. The reforms proposed herein could help cut
back on the downsides of that lottery – namely unforeseeable lottery gains where the value of the patent
was initially predicted to be of short term value and where the patentee acted on that initial prediction.
patentee’s incentive for initial outlay of inventive resources would arguably be altered little (since they do not know whether the patent will ever be valuable), but their benefit, in terms of patent-related monopoly rents, would be much increased.152

Further, having an up-front payment would not change the structure of the incentive to invest resources in research in order to capitalize on the chance that some longer-term patents could produce great rents. Companies could still have programs to create longer-term patents. They could still file all of their patents with the longest term available. The reforms described herein, however, would allow all companies to take a more refined approach while still allowing those companies that valued the longer patent terms to obtain them.

Up-front payment for patent term might reduce some of the effect of “patent trolls,” though the improvement might be marginal, especially considering that those with such intent could still opt for longer terms. Patent trolls often purchase patents from

152 As an example, consider the case of NTP v. Research in Motion (RIM). NTP holds numerous patents related to electronic email communications. NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282, 1288-1289 (Fed. Cir. 2005). RIM created the Blackberry system, which sends email to mobile devices. Id. at 1289-1290. RIM was eventually found to have infringed NTP’s 6,067,451 patent (the ’451 patent), which has an effective filing date of May 20, 1991. The ’451 patent is a continuation of Ser. No. 844957, filed April 23, 1997 (granted as U.S. Pat. No. 5,819,172), which is a continuation of Ser. No. 443430, May 18, 1995, (granted as U.S. Pat. No. 5,625,670), which is a continuation of Ser. No. 702939, May 20, 1991, (granted as U.S. Pat. No. 5,436,960). U.S. Pat. No. 6,067,451. For the sake of this hypothetical, let us assume that this was the only patent in suit and that there existed at the time the type of up-front payment for patent term discussed in this section. If NTP recognized at the time of grant that the invention would be valuable in the latter part of its allowable patent term, it would have paid for the longer term and the NTP v. RIM case and negotiation would have played out the same way as happened under the current patent system. If NTP determined, using its own calculus, that it would be worth paying for a long term for the patent, then its longer term should be protected. On the other hand, if NTP decided at the time of grant that it was not worth paying for the longer term, then perhaps NTP should not receive the “lottery” earning associated with the end of the term. If NTP expected the patent’s value to decrease significantly over time, then it might have opted for a shorter patent term – such as 10 years from time of grant. If NTP had opted for the shorter term, it would have significantly reduced the duration of infringement of RIM’s Blackberry devices and the patents would have already expired by the time the case was decided by the CAFC in 2005. NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282, 1282. This would have had further implications in the later negotiations between the two companies because, as the patent would have already expired, NTP would no longer have the threat of injunction against RIM. See supra note 25.
patentees that are not using them and attempt to enforce them against companies.\textsuperscript{153} The companies are then forced to license the patents or litigate in order to prove non-infringement. It is likely, however, that at least some of the patents that patentees are willing to sell to patent trolls are those which they feel have limited current value to the patentee. Assuming that patentees have some acumen in determining what patents will have value, at least some of the patents that turn out to have little or no value to patentees are likely to be the same patents that the patentees would have believed, at the time of grant, had little long-term value (again, to the patentee). Therefore, in a system as proposed herein, the patentee might have opted for a shorter patent term on at least some of the patents that end up in the hands of patent trolls. If the patent term were shorter for these patents, then the patent trolls would have far less patent term to use against potential infringers and, further, would be far more likely to be outside of the patent term when approaching potential infringers, thereby eliminating the possibility of an injunction being leveled against the accused.\textsuperscript{154}

In addition to mitigating some of the trouble of patent trolls, such a system of differential patent terms might also mitigate some problems related to continuation practice in the U.S. patent system. “Continuation” patents are generally based on the same written description as the original patent application, but claim a different invention.


\textsuperscript{154} The trolls value these patents, or they would not purchase them. I would argue, however, that the value that trolls place on these patents is of marginal importance to the patent system at best and is harmful to the patent system at worst. The trolls are only marginally improving incentive for research by paying marginal sums to patentees for their patents. The trolls too heavily emphasize the rent-extracting side of the quid pro quo of the patent system.
Continuations allow patentees to see what products appear in the market and file continuation patents with claims that cover the products in the market. Because the continuation applications get the benefit of the original parent patent application’s filing date, the claims that are written with knowledge of the products in the market are treated as if they had been written at the time of original filing. For example, NTP’s ’451 patent, which is a fourth-generation continuation patent, might have been the result of such a practice. Currently, patentees can file continuation patent applications as long as a parent patent is pending. Further, there is no limit to the number of continuations or the number of generations of continuations that a patentee can file. Some commentators believe that putting no restrictions on the numbers of continuations creates too much opportunity for abuse. Commentators and the legislature have proposed limiting the number of continuations that can be filed for a patent in order to reduce the opportunity to abuse the system.

For reasons similar to those described above with respect to patent trolls, requiring up-front payment for patent term, at the time of patent application filing as opposed to at the time of grant, might also somewhat mitigate the problems associated

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155 See generally MPEP §200 et seq. (discussing continuation and divisional applications, which have the same written description as the parent patent application, and continuation-in-part applications, which have an augmented written description).
156 These are often called “submarine” patents. See, e.g., Mark A. Lemley & Kimberly A. Moore, Ending Abuse of Patent Continuations, 84 B.U.L. REV. 63, 80 (2004).
157 35 U.S.C. § 120.
158 See supra note 152.
159 See supra note 152.
160 MPEP § 201.07.
161 Harold Wegner, Continuation Rules Moving Ahead, IPFrontline (June 20, 2006), http://www.ipfrontline.com/depts/article.asp?id=11519&deptid=4 (discussing whether there should be a limit on the number of generations of continuations that an applicant could file for one patent).
162 PR Newswire US, Symbol Announces Favorable Decision For Leaders of The Automatic Identification and Data Capture Industry in Patent Lawsuit Against Lemelson Foundation; Appeals Court Affirms the Lemelson Claims Are Not Enforceable, (September 12, 2005).
with continuation practices. Further, as noted above, requiring up-front payment for patent term might be used in conjunction with other proposals for limiting harmful continuation practices.\(^{164}\) To begin with, continuation patents expire when their earliest-expiring parent expires. If companies are forced to decide on patent term when the patent is granted, then they are likely to opt to save money by choosing shorter patent terms for the inventions that they believe have less long-term value. Because companies will have opted for shorter patent terms for those inventions that were initially believed to have limited long-term value, at least some egregious cases of abusive continuation practice should be eliminated: those in which there is a recharacterization of the original invention to cover follow-on products whose associated value was unforeseen by the patentee.\(^{165}\)

Additionally, in contrast to current proposals for limiting the number of continuation applications, allowing patentees to pay less for shorter patent terms would allow the patentee to make a more refined decision regarding continuations.\(^{166}\) In enacting the continuation practice as it did, the legislature must have seen some value in the permissibility of recharacterization in continuation patent applications.\(^{167}\) Presumably, the legislature wanted to promote recharacterization in the cases where the patentee knew that the patent was going to be valuable, but did not yet know the precise form that the invention was going to take. Such a result would be promoted by the

\(^{164}\) See, e.g., Lemley & Moore, supra note 156 at 65, 106-118 (suggesting reforms including limiting the number of continuation applications a patentee can file in one family, “requiring publication of all applications, placing a time limit on the addition of new claims that broaden the scope of the patent, and creating a defense for infringers who independently developed the patented invention”).

\(^{165}\) Because the value associated with the recharacterization was unforeseen, the patentee is more likely to have opted for shorter patent terms for these patents, at least on the margin.

\(^{166}\) I am not arguing that any particular continuation practice has inherent value, but instead that the legislature should consider which continuation practices should be promoted and which should be discouraged.

\(^{167}\) Lemley and Moore, on the other hand, state that “there are not many good reasons for society to allow continuation applications” and would generally suggest abolishing the practice if it were not so difficult for the legislature to enact such a reform. Lemley & Moore, supra note 156 at 100, 105-106.
system proposed herein. Patentees could still pay for longer term to allow them to capture predicted value, even if the precise form of the claims is not known before patent grant. On the other hand, a limit on the number of continuations a patentee could file would preclude this. If predicted recharacterization is something we want to promote, and perhaps it is not, then rules limiting continuations should be reconsidered.

D. Opposing patents

The patent system currently allows only limited third-party involvement in patent prosecution. The law forbids any “protest or other form of pre-issuance opposition to the grant of a patent . . . without the express written consent of the applicant.” Third parties can, however, submit prior art within two months of the publication of the application. The USPTO reviews the prior art in order to determine if it invalidates the invention as claimed. The third party cannot, however, participate in patent prosecution.

Third parties also have the ability to oppose granted patents via inter partes reexamination proceedings. Inter partes reexamination allows third parties to submit prior art and statements of relevancy any time during the relevant patent’s enforceability. In order for a reexamination proceeding to be granted, the prior art must raise a “substantial new question of patentability.” If the USPTO determines that the prior art raises a substantial new question of patentability, then a reexamination

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169 37 C.F.R. 1.99(c).
170 MPEP 1134.01.
171 MPEP § 2600 et seq.
172 37 C.F.R. §1.915.
173 37 C.F.R. §1.913. A patent’s duration of enforceability is calculated as 6 years from expiration of the patent. 35 U.S.C. § 286.
174 MPEP § 2616.
process similar to the original patent prosecution is initiated.\textsuperscript{175} Although the third party can submit papers responsive to arguments made by the USPTO or the patentee, the third party cannot be directly involved in the reexamination\textsuperscript{176} and the third party loses all right to challenge the patent later in court.\textsuperscript{177}

Allowing third parties to submit prior art reduces some of the burden on patent examiners while at the same time allowing some participation by the interested parties. The submission of the additional prior art allows the patent examiner to more efficiently discover the most relevant prior art and therefore more efficiently argue against the validity or narrow the scope of the patent.

There has been much debate in industry and academia, however, regarding third parties’ inability to meaningfully enter into patent validity proceedings.\textsuperscript{178} In particular, many feel that too many “bad” patents are being issued and that allowing third parties to be involved in patent validity proceedings would help remedy this.\textsuperscript{179} As the USPTO spends only about eighteen hours over a period of three years to read a patent, search for prior art, determine whether the prior art invalidates the patent, present the arguments to the patentee, and counter or respond to the patentee’s counterarguments,\textsuperscript{180} some commentators feel that third parties’ involvement could improve the quality of issued patents.\textsuperscript{181} The Act passed the House and is now stalled in Congress.\textsuperscript{182}

\begin{footnotesize}
175 MPEP § 2666.
176 MPEP § 2654.
177 35 U.S.C. § 315(c).
179 Id.
180 Lemley et al., supra note 75, at 10.
\end{footnotesize}
1. Proposed changes to third-party oppositions in patent proceedings

Congress has heard the voices of those calling for reform in the third-party opposition proceedings. Texas Representative Lamar Smith introduced The Patent Reform Act of 2005 (H.R. 2795) and later submitted a replacement version of the act on July 26, 2005 (“the Act”). The Act proposes a number of changes to the patent system and is said to represent the “most sweeping changes in patent reform in 50 years.” As relates to third-party opposition in patent prosecution proceedings, the Act would expand participation by allowing third parties to submit prior art with a statement of relevancy within six months of publication of the patent application. The Act would also allow a third party to oppose a patent within nine months of its being granted. Further, the Act would enable third parties and paten¬tees to conduct discovery and submit arguments to the USPTO panel that decides the validity of the patent. This would allow third parties much more opportunity to oppose granted patents than do current reexamination proceedings.

2. Benefits of the proposed reforms

There would be advantages to such patent reform. As alluded to above, there is some evidence that the average of eighteen hours that the USPTO spends on a patent is

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186 H.R. 2795, supra note 184, at 55.
187 Id. at 41.
188 Id. at 47-48.
189 Id. at 48-49.
insufficient to determine whether the patent is valid.\footnote{In a recent study by Allison and Lemley, 46% of patents that were allowed by the USPTO and were later litigated were found invalid. Allison & Lemley, supra note 1, at 205-207.} Allowing third parties to submit prior art should at least marginally improve the USPTO’s productivity and might improve the quality of granted patents and the likelihood of patents being upheld in court.

Allowing the submission of prior art for a longer period of time (six months as opposed to two months) should allow third parties more time to analyze published patents and determine what prior art would invalidate those patents. Further, allowing third parties to submit statements of relevancy should simplify the USPTO’s analysis of the submitted prior art.\footnote{If the statement of relevancy submitted with the prior art is accurate, then the USPTO should be able to pinpoint issues with less work than would otherwise be the case.}

The more revolutionary of the two proposed amendments is that third parties would be able to engage directly in the opposition of granted patents. As noted above, the USPTO would oversee the discovery and "adjudication" of third-party oppositions. The system would allow a third party to bring any patentability/invalidity argument that could be brought in litigation.\footnote{H.R. 2795, supra note 184, at 42, 48.} The process would resemble litigation but since the issues and discovery would be limited to validity issues,\footnote{Id. at 42.} the oppositions should generally be cheaper and faster than more comprehensive lawsuits.

Allowing third parties to be more involved in opposition proceedings would have numerous benefits. First, allowing third parties to contribute to the pre- or post-grant proceedings of patents would be beneficial for industry members. Companies and individuals would be able to take more control of the patent landscape in their business areas. They would be able to invalidate those patents that should be invalidated and that
might have otherwise been used to extort money from the companies in the industry. Additionally, allowing third-party oppositions promotes involvement in the analysis of patents. Companies are currently disincentivized from reading competitors’ patents because of the threat of increased damages if they are later found to infringe patents of which they have knowledge.194 Allowing companies to participate in third-party opposition proceedings would counter the current disincentive by allowing the company to benefit from reading and attempting to invalidate competitors’ patents. Incentivizing broad investigation of patents should increase the amount of knowledge that is conveyed by patents and therefore could help spur innovation.

Second, the system would reduce the burden on the courts. Under the Act, the findings of third-party oppositions would estop participating parties from bringing the same validity issues in later litigation.195 With this estoppel, a court trying a patent infringement case has the benefit of deferring to the third-party opposition proceeding as to the validity of the patent. Given that the validity of the patent at issue would be better established before the case goes to trial, the parties and the court can focus more on the other issues, such as infringement.

3. Problems with the proposed reforms

Although some laudable goals would be met by the proposed third-party opposition reforms and the proposed reforms might be an improvement over the current system, there are problems. Even if all patentees benefit from cheaper litigation, the proposed third-party opposition practices might still unduly disfavor the poorest

194 Yarway Corp. v. Eur-Control USA, Inc., 775 F.2d 268, 277 (Fed.Cir.1985) (noting that knowledge of a patent, combined with infringement of the same, can result in the infringer paying enhanced damages).

195 H.R. 2795, supra note 184, at 50-51. Parties would be estopped from bringing up issues considered in the third-party opposition hearings unless the evidence “could not reasonably have been discovered” during the opposition proceeding. Id. at 51.
patentees. As discussed above with respect to claim scope hearings, wealthy, aggressive companies might expend the resources to employ teams of lawyers and scientists to monitor published patent applications and granted patents and challenge their validity.\textsuperscript{196} Initiating third-party opposition proceedings would serve the dual purpose of invalidating competitors’ patents and forcing the competitors to expend additional resources in order to defend their patents.\textsuperscript{197} Further, even if the use of resources by wealthy companies is inefficient for society and would preclude the wealthy companies from challenging those patents later in court, the oppositions could still be beneficial to the companies. The aggressive tactics of wealthy companies could be used, for example, to significantly increase their competitors’ cost of obtaining and maintaining patents.\textsuperscript{198} Patentees with fewer resources could thereby be excluded from the patent system because of lack of funds to combat third-party opposition. Additionally, if poorer patentees knew that their patents were likely to be opposed, and therefore could predict these additional costs, then they would be more likely to opt out of the patent system altogether and opt instead for opposition proceedings.

\textsuperscript{196} Opposition is a more likely tactic than litigation for these companies as litigation would require a “reasonable apprehension of [suit].” Intel Corp. v. Commonwealth Sci. & Indus. Research Org., 455 F.3d 1364, 1367 (Fed. Cir. 2006).

\textsuperscript{197} Even if it were found that no substantial question of patentability was raised by the request for opposition, the patentee would have to engage in discovery in order to prove that no such question was raised. H.R. 2795, \textit{supra} note 184, at 42.

\textsuperscript{198} Consider a hypothetical in which Microsoft put in place a system to monitor and challenge the granted patents for a particular startup company. If Microsoft challenges all of the patents issued to the startup that it expects not to encounter later in court, then the costs for each patent might rise from around $30,000 to $80,000, assuming that defending against the opposition proceeding would cost around $100,000 and that Microsoft challenges 50% of the startup’s patents. This estimate might be conservative given that the average cost of patent litigation is around $2 million dollars. Tricia Bishop, \textit{43.5-Month Patent Process Not Moving Fast Enough}, \textit{The Baltimore Sun}, April 30, 2006. Regardless of the cost of opposition proceedings, however, the incremental cost could be prohibitively expensive for poorer patentees. Even if the startup is able to successfully defend the validity of every one of its patents, this drastic increase in cost for the patentee is likely to force the patentee to file fewer patents and instead opt for trade secret protection for some or all of its inventions. Assuming that there is some value in the patent system and Congress’ mandate to “promote the progress of science and useful arts,” then there should also be value in protecting the ability of small companies and individual inventors to participate in the patent system.
alternatives, such as trade secret.\textsuperscript{199} As the patent system is designed to promote disclosure in exchange for a limited monopoly, we should be careful to not adopt reforms that would disincentivize participation.

In addition to being more likely to opt out of the patent system due to opposition proceedings, poor patentees are also less likely to have the resources to initiate patent opposition proceedings. Poorer patentees will not have the resources to monitor the patents of even one large company. Thousands of patents are granted to each of numerous large companies each year.\textsuperscript{200} A single poor patentee or small company could not possibly expend the resources to monitor the patents of even one of these large, wealthy companies. Further, given free-rider problems,\textsuperscript{201} it is unlikely that poorer inventors or patentees will be able to pool their resources to monitor and challenge the patents of these large companies.\textsuperscript{202} Even if poorer patentees were able to band together, however, they would be unlikely to match the excess resources available to large companies.\textsuperscript{203} Therefore, in the “resource battle” that could be initiated by an organized group of poorer patentees and companies, the large company would at least survive, and would likely cause the poorer patentees to more fully expend their scant resources. As such, it is likely that large, wealthy companies would be less often on the defensive in

\textsuperscript{199} There is some belief that this is the case for German patent oppositions. \textit{See, e.g.}, Bauz, \textit{supra} note 41.
\textsuperscript{200} \textit{Top 10}, \textit{supra} note 21.
\textsuperscript{201} Merriam-Webster’s Online Dictionary (defining free rider as one who obtains “a benefit . . . at another's expense or without the usual cost or effort”).
\textsuperscript{202} This problem is likely worse under the current system as litigation is arguably more costly than third-party oppositions would be.
\textsuperscript{203} Large companies presumably have more cash and credit than small ones, even in aggregate.
patent opposition proceedings that were initiated by poorer companies, and even when they were, they would have the resources to defend themselves.  

4. Refinements to improve the Congress’ proposed opposition system

Although the Congress’ proposed third-party opposition system is likely to be better than the current system, the system can be even further improved. I propose a system that is simultaneously similar to that proposed by Congress and similar to my proposals for claim scope hearings and increased scrutiny for anticipation and obviousness. I propose that third parties should be able to initiate patent opposition proceedings and that the patentee should be able to avoid the proceedings by showing harassment or showing that no useful goals would be served by the opposition proceedings. For example, if the patentee could show that the third party would not be affected by the outcome of the proceeding (this might be the case if, for example, the third party would not be a likely infringer of the claims of the patent), then the opposition would not proceed. As discussed above with respect to claim scope hearings, this should mitigate against potential harassment. Further, as noted above, this would preclude certain groups, such as EFF’s patent busting team, from directly opposing patents. This might exacerbate the undersupply of patent challenges suggested separately by Miller and Farrell and Merges. However, if these parties were able to find a willing

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204 Large, wealthy companies are likely, however, to be on the defensive in oppositions initiated by other large, wealthy companies.
205 Joseph S. Miller, Building a Better Bounty: Litigation-Stage Rewards for Defeating Patents, 19 BERKELEY TECH. L.J. 667, 688-690 (2004). Miller argues a “bounty” paid to one who invalidates a patent in litigation would increase the incentive to not settle patent litigation cases, thereby increasing the number of patents that are invalidated. The bounty could be based on either the patentee’s profits from practicing the invention or on the amount of damages the patentee is asking for (either reflects the patentee’s view of the worth of the patent). Id. at 705-716.
third party who would be affected by the outcome of the opposition, then they would be able to argue on its behalf and avoid exacerbating the undersupply of challenges.\textsuperscript{208}

Similar to the discussion of claim scope hearings above, I propose attempting to consolidate all third-party oppositions into a single proceeding in order to increase efficiency and to reduce the burden on the patentee. The USPTO could put the public on notice of the opposition, allow other third parties to enter the opposition, and only allow subsequent third-party oppositions upon a showing of good cause. There is even more incentive to consolidate third-party oppositions than there is to consolidate claim scope hearings. All third parties will be interested in the same thing: invalidating the patent.\textsuperscript{209} Allowing them to join together should be efficient for the third parties, who would be able to pool resources to determine and make the best arguments for invalidity, and for the patentee, who would only have to defend the validity of the patent once in order to get the issue of validity \textit{res judicata} against all participating third parties.

To further reduce the possibilities for harassment, the legislature might institute a fee-shifting scheme. For example, if a third party, or a group of third parties, opposed a patent and lost the opposition, then the third party or third parties could be forced to pay the fees of the patentee.\textsuperscript{210} If a third party were faced with the possibility of paying both

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\textsuperscript{208} \textit{See supra} note 118 and related text.
\textsuperscript{209} In contrast, in claim scope determination hearings, multiple third parties would not necessarily be interested in refining the same terms.
\textsuperscript{210} This might include the fees paid to the USPTO in addition to reasonable or actual lawyers’ fees. A similar fee-shifting scheme could be considered for claim scope determination hearings, but in the case of such hearings, it would be much harder to tell when fees should be shifted, as determining the “winner” of a claim scope determination hearing would be difficult.
\end{flushleft}
their own and their opponents’ fees, they should be less likely to initiate a third-party opposition merely to harass a patentee.

As a matter of symmetry, the legislature should also consider whether fees should be shifted to the patentee if the patent is invalidated. In doing so, the legislature should balance the incentives: disincentivizing patenting insomuch as the patentee can account for this potential cost and therefore opt out of the patent system, and incentivizing third-party oppositions. The former is self-explanatory. As to the latter, perhaps the most compelling reason for shifting the fees to the patentee upon invalidation would be to incentivize third parties to initiate oppositions, especially in cases where the third party is fairly certain that it can invalidate the patent and it would not be willing to pay even its own fees to invalidate the patent. Incentivizing third-party oppositions in this way might help reduce the purported undersupply of oppositions in the patent system. 211

As discussed above with respect to claim scope hearings, in order to mitigate some of the potential damage to the poorest of patentees, I also propose that third parties should be able to participate in third-party oppositions that they initiate unless the patentee can show that allowing the third party to participate would cause undue hardship. As above, this might include the patentee showing that expending the additional resources needed to argue against the third party would unduly harm the patentee.

As alluded to above, I would follow the current prohibition on third parties opposing patents in court if they have already opposed them using third-party opposition proceedings. I would limit this prohibition, however, to only those cases in which the

211 See supra notes 206 and 207.
third party was allowed to participate in the opposition proceedings. Further, I would allow the third party to retract the initiation of a third-party opposition if it were not allowed to participate in the proceedings.\textsuperscript{212} This would allow the third party to avoid creating higher burdens for showing invalidity in court if it does not feel that the USPTO will provide unbiased results arguing on the third party’s behalf. Even if the third party could not participate, I would suggest that the third party could submit prior art and briefs for consideration by the USPTO, as proposed for claim scope hearings.\textsuperscript{213} For more discussion of the benefits and drawbacks of this type of system, please see the discussion of claim scope hearings in Section V.B.

As an important corollary to third-party oppositions, I propose above augmenting the patent system by allowing patentees to select which patents should receive increased scrutiny, thereby overcoming some drawbacks with third-party oppositions – specifically the narrowing of patent claims only after grant as opposed to during patent prosecution. Such patentee-selected increased scrutiny is discussed above with respect to anticipation and obviousness and could be expanded beyond anticipation and obviousness to other requirements such as enablement, best mode, or written description.\textsuperscript{214} The increased scrutiny could involve a more thorough investigation by the USPTO, and the findings of the USPTO could be given more weight in later court proceedings.\textsuperscript{215} The USPTO could

\textsuperscript{212} Similar to the discussion in note 128, if the legislature believes that the USPTO would be too patentee-biased in opposition hearings in which no third party directly participated, then they might want to avoid such oppositions.

\textsuperscript{213} The legislature might also require the USPTO to make only the most compelling arguments in order to limit the number of arguments against which the patentee has to argue. \textit{See supra} note 124 and related text.

\textsuperscript{214} 35 U.S.C. § 112.

\textsuperscript{215} \textit{See supra} Section V.A.
fund this additional scrutiny with increased fees for the highly-scrutinized patent applications.\footnote{As discussed below, there might be reasons to increase the fees beyond that which would be required to merely cover the additional costs. See infra Section V.G. Further, as was the case for the increased scrutiny for anticipation and obviousness discussed above, the USPTO’s examiner merits system should be altered to reflect the increased scrutiny. See infra Section V.F.2.}

Allowing patentees to select which patents receive increased scrutiny would not only provide the benefits described above with respect to anticipation and obviousness,\footnote{Patentees would obtain increased certainty for their most important patents. Industry would benefit from this increased scrutiny by refining the scope of patents in the industry and thereby providing better information to those considering whether to obtain licenses or fight infringement charges in court. See supra Section V.A.} it would also enable companies’ most important patents to be appropriately narrowed during prosecution, not after grant. Under Congress’ proposal, patents would be broad when granted and only later limited or invalidated. As such, until a third-party opposition was completed, the patent would have the appearance of broad scope. In contrast, self-selected increased scrutiny would lead to appropriate narrowing of the patent claims before the patent grants. Therefore, patentees, as well as third parties, would have a more accurate assessment of the legitimate scope of patents from the time of grant and not merely after a third-party challenge.

Furthermore, increased scrutiny would allow more opportunity for appropriate narrowing of the claims in the patent. During Congress’ proposed third-party opposition proceedings, the patentee is free to amend upon initial response to the opposition, but is allowed subsequent amendments “only upon good cause.”\footnote{H.R. 2795, supra note 184, at 46-47.} Therefore, if the patentee does not make all of the appropriate amendments upon initial response to the opposition, then the patent might not be fully or appropriately narrowed. In contrast, self-selection of additional scrutiny would allow the patentee to continue to narrow the patent’s claims...
until they have been fully and appropriately narrowed. Allowing the patentee to select which patents receive higher scrutiny enables the USPTO to better help the patentee find the appropriate claim scope.

E. Deferral and differential review in the courts

One might question whether the courts can provide the type of deference to USPTO findings and the type of differential review required by the reforms proposed herein. The courts are familiar, however, with deferring to the USPTO and applying different legal standards based on the claim being made in and the facts of the case at hand. These are discussed in turn below.

1. Deference to the USPTO’s first-to-invent findings

As to the issue of deference, courts already defer to the USPTO’s findings of patent validity.\(^{219}\) That is, although the USPTO must prove invalidity with a mere preponderance of the evidence,\(^{220}\) courts defer to the finding and require third parties to prove invalidity of a granted patent with clear and convincing evidence.\(^{221}\)

Another example in which courts defer to findings of the USPTO is in interference proceedings. Unlike many other countries, the U.S. grants patent to the first party to invent instead of the first party to file.\(^{222}\) That is, if two parties have made the same invention, then the first one to invent is granted the exclusive right to exclude. The second party to invent gets no rights to the invention.\(^{223}\) Uncertainty arises, however,

\(^{219}\) 35 U.S.C.S. § 282 (noting that granted patents are presumed valid and that the “burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity”).

\(^{220}\) The Federal Trade Commission argues that the standard should be lowered for both considered and unconsidered prior art. See, e.g., The Proper Balance of Competition and Patent Law Policy, supra note 20, at 26.

\(^{221}\) Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1375 (Fed. Cir. 1986).

\(^{222}\) Paulik v. Rizkalla, 760 F.2d 1270, 1272 (Fed. Cir. 1985).

\(^{223}\) There is an exception to this for business method patents. See supra note 46 and related text.
because it is often difficult to determine which party was first to invent.\textsuperscript{224} To ease the uncertainty created by the first-to-invent system, the USPTO’s Board of Patent Appeals and Interferences (the Board) conducts interference proceedings to determine which patentee was the first to invent the subject matter.\textsuperscript{225} The interference finding of the Board can be appealed to the CAFC or to a U.S. District Court.\textsuperscript{226} Once the interference proceeding has been decided, however, those parties are estopped from retrying the issue of priority later in court.\textsuperscript{227}

Courts’ deference to the findings of the Board gives parties more certainty regarding the validity of the considered patents than would be the case if interference proceedings were not available. The reforms proposed herein would similarly call for the courts to defer to the findings of the USPTO and would provide the same type of increased certainty that interference proceedings provide.

\textsuperscript{224}The process of invention is often secretive, occurring behind closed doors in research labs and other protected spaces. Furthermore, the existence of identical, separately-created inventions cannot be known until long after invention when related patents are filed or the issue arises in litigation.

\textsuperscript{225}See, e.g., USPTO, Interferences, http://www.uspto.gov/web/offices/pac/doc/general/interfer.htm. In an interference proceeding, the first party to file a patent is presumptively the first to invent. Falkner v. Inglis, 448 F.3d 1357, 1361 (Fed. Cir. 2006). The later-filing party can overcome this presumption by showing that it was first to create the invention, also known as “reducing it to practice.” Radio Corp. of America v. Radio Eng’g Labs., Inc., 293 U.S. 1, 2, 21 USPQ 353, 353-4 (1934). A party with a later reduction to practice of the invention could still be awarded priority of invention if the party can show that they were the first to conceive of the invention and if they pursued the invention diligently “from a time just prior to when the second conceiver entered the field to the first conceiver’s reduction to practice.” MPEP, § 2138.01 Interference Practice (citing Hull v. Davenport, 90 F.2d 103, 105, 33 USPQ 506, 508 (CCPA 1937)).

\textsuperscript{226}35 U.S.C. § 141. Patentees may also choose to sue the Director of the USPTO in the U.S. District Court for the District of Columbia. 35 U.S.C. § 145. Upon appeal, the court reviews the findings for abuse of discretion and reviews questions of law de novo. See, e.g., Falkner v. Inglis, 448 F.3d 1357, 1363 (noting that the CAFC “will set aside actions of the Board if they are arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law, and [ ] set aside factual findings that are unsupported by substantial evidence. [The CAFC] review[s] questions of law [in decision by the Board] de novo.”)

\textsuperscript{227}William T. Burnett & Co. v. General Tire & Rubber Co., 1979 U.S. App. LEXIS 11780 (4th Cir. 1979) (quoting Daniels v. Coe, 116 F.2d 941, 943 (D.C. Cir. 1940)).
2. Courts’ application of different legal standards

As to whether the courts can apply different legal standards, note that courts and juries already apply different legal standards depending on the facts of the case or the claim being made.\(^\text{228}\) Some scholars have questioned, however, whether there is truly a practicable difference among different legal burdens, such as preponderance and clear and convincing.\(^\text{229}\) Whereas the various legal standards may not affect the outcomes of most cases,\(^\text{230}\) our legal system relies on the supposition that the different legal standards are, in fact, determinative in some way. Furthermore, as noted by the Second Circuit in \textit{Taylor}, although there might be few cases that would turn on the legal standard applied, these cases do exist.\(^\text{231}\) Additionally, as stated by the Supreme Court in \textit{Anderson}, the applicable “standard of proof should be taken into account in ruling on summary judgment motions.”\(^\text{232}\) Therefore, even if juries truly weren’t able to differentiate among legal standards,\(^\text{233}\) and, as such, that the different legal standards weren’t determinative in jury trials, the presumably subtler legal minds of the judiciary could serve to differentiate at least at the summary judgment level. As a result, the legal standards should affect the outcomes of cases at least at this gate-keeping level.

\(^{228}\) There are numerous situations in which different legal standards are applied. Patent infringement must be shown with a preponderance of the evidence. \textit{Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.}, 424 F.3d 1293, 1310 (Fed. Cir. 2005). Willful infringement must be shown with clear and convincing evidence. \textit{Georgia-Pacific Corp. v. United States Gypsum Co.}, 195 F.3d 1322, 1334 (Fed. Cir. 1999).
\(^{229}\) \textit{Adele Bernhard, When Justice Fails: Indemnification for Unjust Conviction}, 6 \textit{UCHI L. SCH ROUNDTABLE} 73, 108 (1999) (noting that she has found no criminal cases where the purported difference between clear and convincing and preponderance standards affected the outcome of a case “or where the burden was even discussed as claim determinative”).
\(^{230}\) \textit{Philip Signore, On the Role of Juries in Patent Litigation (Part 1)}, 83 \textit{J. PAT. & TRADEMARK OFF. SOC’Y} 791 (Nov. 2001) (suggesting that even educated juries may not be able to differentiate between the clear and convincing standard and the preponderance standard).
\(^{231}\) \textit{United States v. Taylor}, 464 F.2d 240, 243 (2d Cir. 1972) (noting that, although “there will be few cases where application of [a different legal standard] would produce a different result, we cannot say these [cases] are non-existent”).
\(^{233}\) Signore, \textit{supra} note 230.
Courts are accustomed to applying different legal standards depending on the claims being made or the facts of the case. For example, a patentee has the burden of showing patent infringement with a preponderance of the evidence.\(^{234}\) However, for willful infringement, the patentee must show that the infringement was willful with clear and convincing evidence.\(^{235}\) This is not differential treatment of the same allegation, but instead it is differential treatment of two different allegations with one of the allegations comprising a subset of the relevant facts of the other.\(^{236}\) That these two allegations require different levels of proof illustrates that courts and juries are accustomed to considering different legal standards for similar claims.

Another example of differentiation that relates directly to the high and low scrutiny proposals herein is that, prior to the formation of the CAFC, courts applied a different burden for showing invalidity depending on whether a particular prior art reference was considered by the USPTO.\(^{237}\) If prior art had been considered by the examiner, then the alleged infringer had to show with clear and convincing evidence that the previously-cited prior art was invalidating.\(^{238}\) If prior art had not been considered by the USPTO in making a determination of validity, on the other hand, then the alleged infringer had to show invalidity over the reference with a mere preponderance of the evidence.\(^{239}\) The CAFC has since abrogated this differentiation,\(^{240}\) and some

\(^{234}\) Cross Med. v. Medtronic, 424 F.3d 1293, 1310.
\(^{235}\) Georgia-Pacific v. US Gypsum, 195 F.3d 1322, 1334.
\(^{237}\) See, e.g., Tvetter v. AB Turn-O-Matic, 633 F.2d 831, 833 (9th Cir. 1980).
\(^{238}\) Id. at 833 (noting a requirement of showing of invalidity with clear and convincing evidence if the prior art had previously been considered by the USPTO).
\(^{239}\) Id. (noting a lesser burden to show invalidity using prior art if it had not previously been considered by the USPTO).
\(^{240}\) Hybritech, 802 F.2d 1367, 1375. See also American Hoist, 725 F.2d 1350, 1360. The court continues to note, however, that “when the prior art before the court is the same as that before the [USPTO], the burden
commentators have called for its return. The previous existence of the rule, irrespective of its previous fate or current popularity, illustrates that the court is capable of differentiating in this way.

Further supporting differentiation among tiers of patents in the US patent system is the existence of some form of differentiation in the patent systems of over sixty countries, including Germany and Australia. In the German patent system, the utility model or “Gebrauchsmuster” patent has a shorter term and requires the patentee to overcome a more lenient obviousness requirement than is applied to regular German patents. Similarly, Australia has a shorter-term “innovation” patent that allows for initial registration of the patent, later examination of the patent only upon the request of the patentee or a third party. Further, the bars for novelty and obviousness are lower for innovation patents than for regular patents. Although the reforms proposed herein differ substantially from the differentiation in non-U.S. patent offices, the examples illustrate that the differentiation proposed herein can fit into a functioning patent system.

on the party asserting invalidity is more difficult to meet,” Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 796 F.2d 443, 447 (Fed. Cir. 1986), and that the alleged infringer “has the added burden of overcoming the deference that is due to a qualified government agency presumed to have properly done its job.” American Hoist, 725 F.2d 1350. Overcoming this deference requires showing with clear and convincing evidence that the patent is invalid. Hybritech, 802 F.2d 1367, 1375. The clear and convincing evidence standard applies whether or not the prior art was considered by the USPTO. Id. at 1375.


Id at 160-165.


Id.
F. Who should perform the work?

1. Is the USPTO the correct overseer for the suite of reforms proposed herein?

Throughout this paper, I state that the USPTO would administer all proposed reforms. It is possible, however, that aspects of the reform might be better handled by a body other than the USPTO. The proposals herein could be administered by a special unit of the courts independent of trial or by a government entity other than the USPTO. For example, if it were possible to overcome issues raised by Article III of the Constitution, which prohibits courts from issuing advisory opinions, a special unit of

246 Lemley argues, for example, that the courts could efficiently handle validity determinations, thereby providing a patent registration system that would also allow patentees to opt out of the USPTO’s patent prosecution. Mark A. Lemley, Rational Ignorance at the Patent Office, 95 Nw. U. L. Rev. 1495, 1510-1511 (2001). See also, F. Scott Kieff, The Case for Registering Patents and the Law and Economics of Present Patent-Obtaining Rules, 45 B.C. L. Rev 55, 120 (2003) (arguing for a registration system and further arguing that a patent registration system would free the USPTO from making validity determinations, thereby appropriately putting the burden of validity determinations on the patentee and alleged infringers). If there were a hybrid system in which patentees could opt out of patent prosecution, as Lemley suggests, I believe patentees would be far less likely to draft valid claims (the same would be true for Kieff’s pure registration system). First, patentees would desire monetary savings and opt out of patent prosecution, thereby avoiding the important claim-narrowing that occurs during prosecution. Second, patentees would view their claims favorably over the prior art and draft overly-broad claims. As such, I believe that, with Lemley’s system, we would have far more patents invalidated during litigation, and these patents would be invalidated because of poor drafting and over-optimism and not because of lack of invention. Further, this effect would be exacerbated for the least sophisticated and poorest of inventors, who would not have the expertise to assess the claims or the money to hire the most competent counsel, and who would have the greatest monetary incentive to opt out of patent prosecution. The patent system should provide a safety net for the poorest and least sophisticated inventors – even if there is a cost for that safety net. Perhaps encompassed by Lemley’s proposal is a delayed patent examination system, such as the Australian innovation patent system. Introduction of the Innovation Patent, supra note 113. A system of delayed examination could overcome some of the drawbacks associated with a mere registration system. In the Australian innovation patent system, patentees register inventions and prosecution is delayed until either the patentee or a third party requests examination. Id. The delayed examination would be beneficial in that it would allow for appropriate narrowing of patents before invalidation while at the same time avoiding unnecessary prosecution when neither the patentee nor third parties call for prosecution. As discussed, however, there is still a significant problem of lack of notice of covered scope of the invention before the examination has occurred. This could inappropriately alter licensing negotiations. It could also undermine the reputation of the patent system. Consider the effect on the patent system’s reputation of allowing someone to patent the wheel. Will Knight, Wheel Patented in Australia, New Scientist (03 July 2001) (discussing the registration of a patent for a wheel in Australia’s innovation patent system).

247 It might be impermissible for the members of the judiciary to participate in such hearings, as they may require impermissible advisory opinions. See, e.g., Veterans Law Group v. Sec’y of VA, 2006 U.S. App. LEXIS 17885 (Fed. Cir. 2006) (citing St. Pierre v. United States, 319 U.S. 41, 42 (1943)).
the Federal Circuit would arguably be better equipped to handle pre-litigation claim
scope hearings given the judiciary’s experience with Markman hearings. On the other
hand, in cases where the claim scope depends on the understanding of the “person having
ordinary skill in the art,” the USPTO, including the Board of Patent Appeals and Interferences, would arguably be in the best position to make that determination.

Leveraging previously-developed skills is an important factor in deciding who should administer the reforms.

Other government organizations should also be considered when deciding how to administer reforms, at least as examples. For example, the International Trade Commission (ITC) investigates and adjudicates cases on behalf of U.S. industries, including cases related to “unfair trade practices involving patent, trademark, and copyright infringement.” Perhaps the expertise that has been developed in the ITC could be leveraged. Moreover, even if the ITC were not directly involved in administering the reforms proposed herein, lessons learned in developing and running the ITC could prove useful for deciding how to administer the reforms.

See, e.g., Lemley, supra note 246 at 1495-1496.
Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005).

It appears that less than thirty patent and trademark infringement complaints have been filed in the U.S. ITC in the past year. Recent Section 337 Complaints Filed With USITC, http://info.usitc.gov/sec/dockets.nsf/337?OpenView.
On the other hand, if there is not a pre-existing expertise for a particular reform, then perhaps the USPTO would be the best choice to handle the reforms, especially if the bias in the USPTO toward granting patents were removed or altered, as proposed in the next section. Further, it should be possible to set up new groups within the USPTO to administer reforms if the existing examiner corps could not provide sufficient skill, time, or lack of bias.

2. Changes needed within the USPTO

In order to have the USPTO function in a manner consistent with a revamped, differential patent system, the way that patent examiners are reviewed and incentivized should be modified. Currently, there are two primary ways in which patent examiners are measured: first actions on the merits (FOAMs) and “disposals.” Examiners most often obtain FOAMs by rejecting patentees’ patent applications. Examiners obtain disposals when an application is allowed or abandoned. There is no differentiation in the current examiner merit system to recognize when examiners perform more or less work for particular applications.

Commentators who feel that the work of the USPTO is below an acceptable standard might object to the USPTO handling the reforms. Anderson, supra note 65, at 383 (asserting that the USPTO’s handling of software patents is “inadequate”). The quality of the USPTO’s work might always be a matter of debate. It is not clear, however, that any other body generally would be more proficient than the USPTO at handling the proposed reforms. Further, any quality issues in the USPTO might be due to the limited budget of money and time currently afforded for each patent application. As is discussed in more detail in section V.F.2, proposals such as those described herein necessitate changes to incentives and procedures within the USPTO.


MPEP § 1705 II (noting that the examiner gets credit for FOAMs when she submits a final or non-final rejection, engages in an Ex parte Quayle action, or allows a case).

MPEP § 1705 III (noting that the examiner gets credit for disposals if the case is allowed or abandoned as well as for filing an Examiner’s Answer to a patentee’s appeal of a rejection, an international preliminary examination report, a statutory invention registry disposal (after a FOAM), or an initiation of an interference proceeding). 37 C.F.R. 1.135 (a).
In order for the proposals herein to work, the merit system for USPTO examiners must be revised to reflect the additional work required. If an examiner is asked to review more prior art, then perhaps there should be an incremental merit structure for reviewing these references. Perhaps there should also be a system of incremental merits for each reference argued. Perhaps, as alluded to above, patentees could even pay to ensure that particular references are analyzed, and the examiner could be credited for each such analysis. Whatever reforms are put in place, the examiner’s incentive system should be adjusted to match the expected workload corresponding to the reforms.

The fees charged to patentees for more extensive patent prosecution arguably should be adjusted to cover the additional expense associated with requiring additional prosecution time. There may be reasons to set fees higher than the cost associated with more rigorous examination. This is discussed in detail in the next section.

**G. Pricing for the reforms**

In order for the proposals discussed herein to work, the proper fees must be charged. I propose that the fees associated with the reforms should at least cover the USPTO’s costs. Charging fees that at least cover the costs of implementing the reforms should ease at least one of the frictions that are likely to hinder adoption of reforms, namely, the added examiner workload. As discussed above, it is likely to take significantly more resources at the USPTO to make the more thorough determination of anticipation and obviousness. The USPTO must free the resources needed for the more extensive determination – especially patent examiner time.

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257 See supra Section V.F.2 for discussion of proposed changes.
The question remains, however, whether the reforms should be priced higher than cost. Specifically, we should inquire whether we would like to reduce the market for any of the reforms. For example, we should consider the number of higher-scrutiny, higher-deference patents we would like to encourage. The higher the cost, the less often patentees will opt for higher-scrutiny patents. It seems that, given the broad interest in improving granted patents, we should encourage greater numbers of higher-scrutiny patents. On the other hand, the majority of patents will never be asserted.\(^{258}\) If patentees pay for higher scrutiny for unasserted patents, then this additional effort on the part of the USPTO and the additional cost to the patentee might be wasteful.\(^{259}\) That said, the additional scrutiny by the USPTO should generally lead to narrower claims for the patentee. Therefore, these narrower, more certainly valid patent claims should be less likely to read on the products of competitors and the number of patents asserted by patentees might drop below the level currently observed. When the narrower, more certainly valid claims do read on the products of competitors, the patentee and alleged infringer should be more likely to settle instead of going to court, thereby benefiting the judiciary as well as the parties.

Another consideration is the poorest of patentees. On the margin, the lower the cost for higher-scrutiny patents, the greater the number of poorer patentees that will be able to afford higher-scrutiny patents, and therefore, the more likely poor patentees will be to opt for higher-scrutiny, higher-deference patents. The desire to enable the poorest

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\(^{258}\) Lemley, *supra* note 246, at 1501 (estimating that less than two percent of patents are ever litigated and approximately an additional three to four percent of patents are licensed).

\(^{259}\) Patentees will have some idea which of their patents will be more likely to be infringed by competitors, but they will not be certain. Patentees are likely to make mistakes, both submitting for higher scrutiny some patents that will never be asserted and failing to pay for higher scrutiny for patents that will be asserted.
of patentees to use the higher-scrutiny patent system favors lowering the cost of higher-scrutiny patents.

Further, perhaps there is some value in differentiating among patents due to the potential for wasting resources on never-to-be-asserted patents, avoiding systemic dilution of scrutiny, and allowing lower-cost patents. Allowing higher- and lower-scrutiny patents might be useful for signaling during patent prosecution within the USPTO. If the USPTO increased scrutiny for all patents, then if careful steps were not taken within the USPTO, the patent examiners might continue to provide the same or similar scrutiny as they currently do for all patents. The “higher scrutiny” might be diluted into scrutiny similar to that currently practiced by the USPTO. If, on the other hand, the patent examiners are given more time and incentive to scrutinize some patents and less for others, then they are more likely to be able to break from their current practice and expend more time and effort on those patents for which they are given greater incentive.

Also, if all patents were examined with higher scrutiny, then the cost of patent prosecution would increase. As the cost of patent prosecution increases, more of the poorest of patentees will be excluded from the patent system. If there is value in keeping the poorest patentees in the patent system, as I believe there is, then perhaps there is value in keeping a lower-scrutiny, lower-cost option for patenting available that would allow more of the poorest of patentees to obtain patents.\textsuperscript{260}

\textsuperscript{260} Something that is not discussed extensively in this paper is the possibility of patents that are given lower scrutiny than is currently exacted by the USPTO. There would be problems with such a system. \textit{See supra} note 246.
The legislature should similarly set the prices higher if it wishes to reduce the market for longer patent terms, claim scope hearings, or patent oppositions. In determining an appropriate price for longer patent terms, the legislature should consider how many or what percentage of patents they want to have longer patent terms and set the price for the longer terms to reflect that desire.\footnote{Presumably, the legislature has performed a market analysis in setting the cost of maintenance fees. If so, that analysis could inform the fee differential for longer and shorter patent terms.} Similarly, the costs for patent oppositions and claim scope hearings should reflect the desired “market” for these proceedings. For example, some commentators believe that oppositions are undersupplied.\footnote{See supra notes 206, 207 and related text.} Therefore, the legislature may want to set the price for oppositions, and possibly claim scope hearings, at USPTO cost. Analysis similar to that presented above for higher- and lower-scrutiny patents should help inform the pricing for any proposed reform.

VI. Conclusion

Four reforms have been proposed herein. The reforms harness private patentee or third-party information in order to appropriately narrow the scope of granted patents, thereby increasing the likelihood that the patents would be held valid in court, appropriately signaling to those who practice in the area of the innovation, and encouraging appropriate release of innovations into the public domain. Other, similar reforms would also fit the structure of the proposals made. For example, there could be pre-litigation hearings to determine the scope of “equivalents” of patent claims\footnote{Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 732 (U.S. 2002) (holding that “[t]he scope of a patent is not limited to its literal terms but instead embraces all equivalents to the claims described”).} similar to the proposed claim scope hearings. Whatever reforms are proposed, the legislature
should consider whether the disparate needs of different industries are served, whether
the poorest of patentees are too severely disadvantaged, whether the distribution of
benefits between patentees and third parties are fair, and whether each reform benefits the
courts and society.