NOTES

PATENT CLAIM CONSTRUCTION: AN APPEAL FOR *CHEVRON* DEFERENCE

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INTRODUCTION

THE U.S. Court of Appeals for the Federal Circuit is well acquainted with claim construction controversies. Since the mid-1990s, the court has sat en banc on numerous occasions to resolve various conflicts in its claim construction jurisprudence,[1] with one decision culminating in U.S. Supreme Court review.[2]

Cybor Corp. v. FAS Technologies, Inc. remains perhaps the most controversial Federal Circuit decision in recent memory: the majority held that patent claim construction was a purely legal issue to be reviewed de novo on appeal and thus without any deference to the trial court.[3] This opinion has since become the focus of increas-

[1] See Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005) (en banc); Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448 (Fed. Cir. 1998) (en banc); Markman v. Westview Instruments, Inc. (*Markman I*), 52 F.3d 967 (Fed. Cir. 1995) (en banc).

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

[3] *Cybor*, 138 F.3d 1448.

ing criticism and empirical studies sharply questioning the wisdom of de novo review.

Perhaps in response to this growing disenchantment, and its own subsequent personnel changes, the Federal Circuit has recently expressed a willingness to reconsider its standard of review for patent claim construction. Prior to its recent en banc decision in *Phillips v. AWH Corp.*,[4] the court included this issue among others in its order for briefing by the parties and interested amici curiae. Yet, despite substantial briefing, the *Phillips* court ultimately decided that case without addressing the standard of review controversy, further prolonging *Cybor*'s controversial reign.[5]

Most recently, in November 2006, the Federal Circuit expressed a renewed interest in addressing the proper standard of review when it issued a divided opinion in *Amgen Inc. v. Hoechst Marion Roussel, Inc.*[6] Although denying the petition for en banc rehearing, the *Amgen* opinion is significant for its numerous concurring and dissenting opinions, which collectively expressed a substantial shift toward reconsidering *Cybor*'s regime of de novo review. This latest development has led some prominent commentators to predict that the days of de novo review may be numbered.[7]

This Note will present a previously unexplored approach to patent claim construction and its appellate review. Briefly summarized, the Note will suggest that *Chevron* deference is the proper appellate standard of review for patent claim construction, and that trial courts should adopt the narrowest reasonable claim interpretation whenever ambiguities arise. Together, these combined rules would reduce the indeterminacy and information costs associated with patent claim interpretation, and thus improve the overall efficiency and effectiveness of the patent system. The argument will proceed in six parts. Part I will introduce the concept of claim construction, its central role in patent law, and recent controversies.

[4] *Phillips*, 415 F.3d 1303.

[5] Id. at 1328.

[6] Amgen Inc. v. Hoechst Marion Roussel, Inc., 469 F.3d 1039 (Fed. Cir. 2006), cert. denied, 127 S. Ct. 2270 (2007).

[7] See Dennis Crouch, In Fractured Decision, CAFC Refuses to Reexamine De Novo Claim Construction, Patently-O Patent Law Blog (2006), http://www.patentlyo.com/patent/2006/11/in_fractured_de.html; Harold C. Wegner, Wegner's Top Ten Supreme Court Patent Cases 1 (2006), http://cs.foley.com/06.2689_tacpi/tacp_downloads/Top10/TopTenNOV30.pdf.

Part II will question the popular assumption that the Federal Circuit's alarmingly high claim construction reversal rate reflects erroneous interpretations by trial courts, and suggests instead that trial courts may actually be deriving equally reasonable alternative interpretations. Part III will build upon that analysis to demonstrate why *Chevron* deference should replace the current regime of de novo review. Part IV will explain how narrowly interpreting ambiguous patent claims serves as a crucial adjunct to *Chevron* deference by acting as a vital information-forcing rule. Part V will respond to potential criticisms, and Part VI will assess the broad reform potential of this *Chevron*-based approach, emphasizing its comparative advantages over previous patent reform proposals.

I. PATENT CLAIM CONSTRUCTION: A BRIEF OVERVIEW

Patent claims are single sentences listed at the end of a patent that define the scope of the inventor's patent rights.[8] They are the most important part of the patent document, as their interpretation is typically the central issue in most patent disputes.[9] It is often quoted that "the name of the game is the claim,"[10] because "to decide what the claims mean is nearly always to decide the case."[11]

Claim interpretation, typically referred to as claim construction, is the crucial process of interpreting patent claims to determine their proper scope and meaning. Claim construction affects all actors within the patent system at varying points in time. For instance, during patent prosecution, the Patent Office must construe an applicant's patent claims in order to determine whether the claimed invention satisfies various patentability requirements such as novelty, nonobviousness, written description, and enablement.[12] Because claim scope serves as the analytical baseline against which

[8] See Christopher A. Cotropia, Patent Claim Interpretation and Information Costs, 9 Lewis & Clark L. Rev. 57, 72 (2005).

[9] John F. Duffy, On Improving the Legal Process of Claim Interpretation: Administrative Alternatives, 2 Wash. U. J.L. & Pol'y 109, 109 (2000).

[10] Giles S. Rich, Extent of Protection and Interpretation of Claims—American Perspectives, 21 Int'l Rev. Indus. Prop. & Copyright L. 497, 499 (1990).

[11] Markman v. Westview Instruments, Inc. (*Markman I*), 52 F.3d 967, 989 (Fed. Cir. 1995) (en banc) (Mayer, J., concurring).

[12] See Joseph Scott Miller, Enhancing Patent Disclosure for Faithful Claim Construction, 9 Lewis & Clark L. Rev. 177, 192 (2005); see also 35 U.S.C. §§ 102–103, 112 (2000).

these criteria are assessed, claim construction plays an important role in maintaining the quality of the patent examination process.

Likewise, at various times a patentee's competitors will consult and interpret the patent claims in order to assess their ability to design around or improve upon the claimed invention.[13] Claim construction similarly affects patent licensing negotiations, as parties must agree on patent claim scope when assessing the value of potential licenses.[14] The patent claims' public notice function thus substantially affects the interplay between competing firms in innovation markets.

Finally, during patent litigation, claim construction determines not only whether a defendant has infringed the patent, but also whether the patent itself is valid or invalid.[15] An infringement analysis involves first construing the patent claims and then comparing the construed claims to the defendant's allegedly infringing conduct.[16] A validity analysis requires comparing the construed claims to the prior art—to assess novelty and nonobviousness—as well as to the patent disclosure itself—to assess the written description and enablement requirements. Claim construction is frequently outcome determinative and is therefore often the first and last step in patent disputes.[17]

Because of its paramount role in patent law, claim construction has repeatedly sparked numerous controversies regarding its proper allocation, methodology, and appellate review. Several landmark patent cases address these controversies and serve as the doctrinal foundation for the proposal developed in this Note.

A. Markman v. Westview*: Judge Versus Jury*

In *Markman v. Westview Instruments, Inc.*, the Federal Circuit (*Markman I*) sought to resolve whether and to what extent claim construction was a legal, factual, or mixed question, since its own

[13] Cotropia, supra note 8, at 63.

[14] See Miller, supra note 12, at 199.

[15] See Kimberly A. Moore, Are District Court Judges Equipped to Resolve Patent Cases?, 15 Harv. J.L. & Tech. 1, 2 (2001) ("[C]laim construction is the touchstone for any infringement or validity analysis.").

[16] See *Markman I*, 52 F.3d at 976.

[17] Cotropia, supra note 8, at 74–75.

precedent contained inconsistencies on this issue.[18] The en banc court held that claim construction was purely a matter of law for the court, even in jury trials, and should therefore be reviewed de novo on appeal.[19] In reaching this conclusion, the Federal Circuit compared claim construction to statutory interpretation, noting their various conceptual parallels, along with the idea that since "only one correct interpretation" exists, both matters were properly treated as legal questions strictly for the court.[20]

In *Markman II*, the Supreme Court affirmed claim construction as a task for the judge rather than the jury.[21] After observing that history and precedent provided no clear guidance, the Court turned to various "functional considerations,"[22] such as the relative interpretive abilities of judges versus juries and the likely policy consequences of allocating claim construction duties to one actor versus the other.[23] The Court believed that judges, with their training and experience in construing complex documents, were better suited for interpreting patent claims.[24] Furthermore, the importance of uniformity was yet another reason to reserve claim construction duties for the court; treating interpretive issues as purely legal was thought to better promote certainty and uniformity through the application of stare decisis, thus fulfilling an original mandate of the Federal Circuit.[25]

B. Cybor*: The Proper Standard of Review*

Although *Markman I* established claim construction as a purely legal issue to be reviewed de novo on appeal,[26] the Supreme Court's *Markman II* decision never explicitly addressed the standard of review, focusing instead on the proper allocation between judge and jury. In subsequent years, various Federal Circuit panels

[18] *Markman I*, 52 F.3d at 976.
[19] Id. at 979.
[20] See id. at 987.
[21] See Markman v. Westview Instruments, Inc. (*Markman II*), 517 U.S. 370, 372 (1996) ("[T]he construction of a patent, including terms of art within its claim, is exclusively within the province of the court.").
[22] Id. at 388.
[23] See id. at 384.
[24] Id. at 388–89.
[25] Id. at 390–91.
[26] *Markman I*, 52 F.3d at 979.

adopted conflicting approaches to appellate review of claim construction. Some panels reviewed claim construction de novo in accordance with *Markman I* while others granted partial deference to the trial court,[27] apparently heeding the Supreme Court's observation in *Markman II* that claim construction was a "mongrel practice" that stood "somewhere between a pristine legal standard and a simple historical fact."[28]

To resolve these interpanel conflicts, the Federal Circuit decided *Cybor* en banc less than two years after *Markman II*. Interpreting the Supreme Court's unanimous affirmance in *Markman II* as an endorsement of de novo review, the Federal Circuit reemphasized that "claim construction, as a purely legal issue, is subject to *de novo* review on appeal."[29] The *Cybor* decision, however, featured multiple opinions revealing substantial division among several judges who either substantially qualified or vehemently rejected the majority's de novo approach.[30] In the years since, the *Cybor* opinion has prompted several empirical studies and provoked

[27] See *Cybor*, 138 F.3d at 1454.

[28] *Markman II*, 517 U.S. at 378.

[29] *Cybor*, 138 F.3d at 1451.

[30] For instance, Judge Plager concurred with the qualification that, although claim interpretations would be reviewed de novo in the formal sense, "common sense dictates that the trial judge's view will carry weight. That weight may vary depending on the care, as shown in the record, with which that view was developed, and the information on which it is based." Id. at 1462 (Plager, J., concurring). Likewise, Judge Bryson felt it was important to note that de novo review

> does not mean that we intend to disregard the work done by district courts in claim construction or that we will give no weight to a district court's conclusion as to claim construction . . . . Simply because a particular issue is denominated a question of law does not mean that the reviewing court will attach no weight to the conclusion reached by the tribunal it reviews.

Id. at 1463 (Bryson, J., concurring). Judge Mayer, joined by Judge Newman, criticized the *Cybor* decision for misapprehending *Markman II*, noting that in cases involving conflicting factual determinations and evidence, as claim construction often does, "all that *Markman* stands for is that the judge will do the resolving, not the jury. Wisely, the Supreme Court stopped short of authorizing us to find facts *de novo* when evidentiary disputes exist as part of the construction of a patent claim . . . ." Id. at 1464 (Mayer, C.J., concurring). Judge Rader, in his dissent, agreed that the Supreme Court "did not address appellate review of claim construction" in its *Markman II* decision and cautioned that de novo review "has the potential to undercut the benefits of *Markman I*." Id. at 1473, 1475 (Rader, J., dissenting).

sharp criticisms within the academic literature, all questioning the efficiency and legitimacy of de novo review.[31]

C. Phillips v. AWH Corp.*: Claim Construction Methodology*

Post-*Cybor*, the combined effect of de novo review and divergent claim construction methodologies led to an increase in claim construction reversal rates by the Federal Circuit. The Federal Circuit's alarmingly high claim construction reversal rates are by now well-known in the literature. In one prominent study, Christian Chu conducted an empirical analysis which revealed that the Federal Circuit reversed 29.6% of appealed claim constructions; another study by Kimberly Moore, then a law professor and now herself a Federal Circuit judge, found a similar reversal rate of 34.5%.[32]

Diverging claim construction methodologies undoubtedly contributed to these high reversal rates, as trial judges struggled with unclear guidance on how to interpret patent claims.[33] Although general rules of thumb, known as canons of claim construction, purport to guide the interpretive process, it is widely accepted that these canons "are notoriously soft and often conflict" with each other, and therefore are not always useful.[34] By the Federal Circuit's own admission, "there is no magic formula or catechism for conducting claim construction," nor is there any "rigid algorithm"

[31] See Christian A. Chu, Empirical Analysis of the Federal Circuit's Claim Construction Trends, 16 Berkeley Tech. L.J. 1075, 1075 (2001) ("This study reveals an increasing trend in claim construction modifications and claim interpretation-based reversals since *Cybor Corp.*'s reaffirmation of the de novo review standard."); Kimberly A. Moore, *Markman* Eight Years Later: Is Claim Construction More Predictable?, 9 Lewis & Clark L. Rev. 231, 231 (2005) ("[An] analysis of the reversal rate supports the growing criticism that *Markman* has created confusion, not guidance, in claim construction cases, and the confusion is getting worse."); M. Reed Staheli, Deserved Deference: Reconsidering the De Novo Standard of Review for Claim Construction, 3 Marq. Intell. Prop. L. Rev. 181, 183 (1999); William H. Burgess, Comment, Simplicity at the Cost of Clarity: Appellate Review of Claim Construction and the Failed Promise of *Cybor*, 153 U. Pa. L. Rev. 763, 763–64 (2004) (criticizing *Cybor* for its doctrinal inconsistency and unintended practical effects).

[32] Chu, supra note 31, at 1104; Moore, supra note 31, at 233.

[33] See Moore, supra note 31, at 246–47.

[34] Alan R. Madry, Legal Indeterminacy and the Bivalence of Legal Truth, 82 Marq. L. Rev. 581, 588 (1999); see also R. Polk Wagner & Lee Petherbridge, Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance, 152 U. Pa. L. Rev. 1105, 1117–20 (2004).

to be applied.[35] Instead, the court may consult a variety of sources in its search for claim meaning, both intrinsic and extrinsic.[36] Intrinsic evidence includes "the patent itself, including the claims, the specification, and, if in evidence, the prosecution history."[37] In contrast, extrinsic evidence consists of all remaining evidence, and typically includes expert testimony, dictionaries, and treatises.[38]

The flexible nature and varied sources for determining claim meaning eventually gave rise to two competing and divergent claim construction methodologies. One approach, exemplified in *Vitronics Corp. v. Conceptronic Inc.*, emphasized the primacy of the intrinsic record over extrinsic evidence, in order to maximize the public notice function of patents.[39] Conversely, a competing approach, embodied in *Texas Digital Systems, Inc. v. Telegenix, Inc.*, heavily favored extrinsic evidence such as dictionary definitions over the intrinsic record in an apparent effort to avoid importing limitations from the written description into the claims, a cardinal canon of claim construction.[40]

Concerned by this reality of increasing reversal rates and competing claim construction methodologies, the Federal Circuit embarked upon yet another attempt to harmonize its increasingly inconsistent claim construction jurisprudence. In *Phillips v. AWH Corp.*, the Federal Circuit issued an order granting rehearing en banc, and invited briefing with respect to the proper approach to claim construction.[41] Among the court's questions were the proper roles of intrinsic versus extrinsic evidence, as well as the appropriate standard of review.[42] Despite extensive briefing addressing the standard of review issue, however, the *Phillips* court largely restricted its en banc opinion to an endorsement of the intrinsic record as the preferred source of claim meaning, due to its greater reliability and public notice function relative to extrinsic evidence.[43]

[35] Phillips v. AWH Corp., 415 F.3d 1303, 1324 (Fed. Cir. 2005).
[36] Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).
[37] Id. at 1582.
[38] *Markman I*, 52 F.3d at 980.
[39] See *Vitronics*, 90 F.3d at 1583.
[40] See *Phillips*, 415 F.3d at 1319–20.
[41] 376 F.3d at 1382–83.
[42] See id. at 1383.
[43] See *Phillips*, 415 F.3d at 1318–19. The court noted that extrinsic evidence was less reliable than the intrinsic record for several reasons. First, because extrinsic evidence

The court explicitly declined to address the proper standard of review for claim construction, leaving the *Cybor* de novo regime fully intact.[44]

D. Amgen v. HMR*: Revisiting the Proper Standard of Review*

Most recently, in November 2006, the Federal Circuit issued a divided opinion in *Amgen Inc. v. Hoechst Marion Roussel, Inc.* denying a petition for rehearing en banc.[45] The decision is significant not for its ultimate outcome but rather for its separate concurring and dissenting opinions, which reveal a renewed receptiveness to reconsidering *Cybor*'s rule of de novo review. Chief Judge Michel, in a dissent joined by Judge Rader, acknowledged that "practical problems have emerged under the *Markman-Cybor* regime," ultimately concluding that "the time has come for us to re-examine *Cybor*'s no deference rule. I hope that we will do so at our next opportunity, and I expect we will."[46] Judge Moore, noting that the district court's claim construction was "thorough, detailed, thoughtful, and competent," also would have granted en banc re-

was divorced from the patent document itself, it lacked the intrinsic record's benefit "of being created at the time of patent prosecution for the purpose of explaining the patent's scope and meaning." Id. at 1318. Second, whereas claims are construed from the vantage point of a skilled artisan, extrinsic evidence is frequently not written from this perspective and therefore creates potential inaccuracy. Id. Third, the court noted that "extrinsic evidence consisting of expert reports and testimony is generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence." Id. Fourth, because "there is a virtually unbounded universe of potential extrinsic evidence," any of which might be introduced during litigation, "each party will naturally choose the pieces of extrinsic evidence most favorable to its cause, leaving the court with the considerable task of filtering" through it for the appropriate evidence. Id. Finally, the court felt that "undue reliance on extrinsic evidence" posed the risk of claim interpretations inconsistent with the intrinsic record, "thereby undermining the public notice function of patents." Id. at 1319.

[44] See id. at 1328.

[45] Amgen Inc. v. Hoechst Marion Roussel, Inc., 469 F.3d 1039, 1040 (Fed. Cir. 2006), cert. denied, 127 S. Ct. 2270 (2007).

[46] Id. at 1040–41 (Michel, C.J., dissenting) ("[F]our practical problems have emerged under the *Markman-Cybor* regime: (1) a steadily high reversal rate; (2) a lack of predictability about appellate outcomes, which may confound trial judges and discourage settlements; (3) loss of the comparative advantage often enjoyed by the district judges who heard or read all of the evidence and may have spent more time on the claim constructions than we ever could on appeal; and (4) inundation of our court with the minutia of construing numerous disputed claim terms (in multiple claims and patents) in nearly every patent case.").

view to reconsider *Cybor*.[47] Judges Gajarsa, Linn, and Dyk, in their concurrence, likewise expressed a future willingness to reconsider *Cybor*, "[i]n an appropriate case."[48]

E. The Simultaneous Challenges of Claim Construction—Inefficiency, Indeterminacy, and Information Costs

As the *Markman-Cybor-Phillips* trilogy illustrates, claim construction at both the trial and appellate levels presents the simultaneous challenges of inefficiency, indeterminacy, and information costs. Claim construction duties must be efficiently allocated among the trial and appellate courts in accordance with their respective institutional advantages and limitations. The indeterminate nature of claim language presents significant information costs that threaten the efficiency and effectiveness of the patent system as a whole, as competitors and courts continually struggle to understand a given patent claim's precise scope. Thus, the challenge is to identify an approach that simultaneously addresses and reduces each of these critical obstacles.

The Supreme Court's *Markman II* decision sought to address these problems by designating claim construction as a legal question for the judge, in hopes of promoting certainty and uniformity via the combined action of judicial expertise and stare decisis. Although widely regarded as a correct decision in principle, in practice it has become increasingly clear that these intended benefits remain largely unrealized. The Federal Circuit's recent deliberations in *Phillips* and *Amgen* seem to reflect the recognition that *Cybor* is the underlying source of this failure.[49]

[47] Id. at 1046 (Moore, J., dissenting).

[48] Id. at 1045 (Gajarsa, Linn & Dyk, JJ., concurring) ("In an appropriate case we would be willing to reconsider limited aspects of the *Cybor* decision.").

[49] Some Federal Circuit judges apparently predicted the potential need to reconsider de novo review as early as the *Cybor* decision itself. For instance, Judge Plager noted that "[w]hether this approach to patent litigation will in the long run prove beneficial remains to be seen. . . . But it may be some time before we have enough experience with 'Markman hearings' and with appellate review under the new regime to draw any empirically sound conclusions." *Cybor*, 138 F.3d at 1463 (Plager, J., concurring). Likewise, Judge Rader noted that the *Cybor* majority's "enthusiastic assertion of . . . [de novo review] has the potential to undercut the benefits of *Markman I*." Id. at 1475 (Rader, J., dissenting).

The current *Cybor* regime has failed because the aggressive application of wholesale de novo review has clearly produced corresponding increases in inefficiency and information costs. As Judge Rader has observed:

> The meaning of a claim is not certain . . . until nearly the last step in the process—decision by the Court of Appeals for the Federal Circuit. To get a certain claim interpretation, parties must go past the district court's *Markman I* proceeding, past the entirety of discovery, past the entire trial on the merits, past post trial motions, past briefing and argument to the Federal Circuit—indeed past every step in the entire course of federal litigation, except Supreme Court review. In implementation, a *de novo* review of claim interpretations has postponed the point of certainty to the end of the litigation process . . . .[50]

This Note suggests that the underlying premise of *Cybor* is misguided—it assumes the existence of a single best claim meaning as the justification for de novo review, an assumption that imposes drastic inefficiencies and information costs in the quest to eliminate indeterminacy. A better approach, described below, is to embrace the inherent indeterminacy of claim construction as a justification for deferential review—an understanding that will ultimately promote a more effective solution to all of the various claim construction problems.

II. DEBUNKING DE NOVO REVIEW: ARE DISTRICT COURTS REALLY WRONG?

Thus far, the debate surrounding de novo review has suffered from two misguided assumptions. First, most observers assume that the Federal Circuit's steadily high rate of claim construction reversals is due to erroneous interpretations by the district court.[51] Second, de novo review is premised on the false notion that there exists only one single best claim meaning for any given patent claim. Together these assumptions have created the vast inefficiency and indeterminacy that plague the current *Cybor* regime.

[50] Id. at 1476 (Rader, J., dissenting).
[51] See Moore, supra note 15, at 2.

While some observers have raised the possibility that it is the Federal Circuit that may be reaching erroneous claim constructions,[52] it is unnecessary to exclusively assign error to one court or another. Instead, there are compelling reasons to believe that multiple reasonable interpretations exist for many patent claims, and the district courts and the Federal Circuit are frequently *both* reasonably correct in construing such claims.[53]

A. Sources of Indeterminacy in Claim Construction

For various reasons, claim construction is an inherently indeterminate process with no single correct answer but rather multiple reasonable interpretations.[54] First, as a matter of interpretive theory, the Federal Circuit has acknowledged that claim construction is not a rigid process by which only a single algorithm is applied.[55] Instead, a single claim can support several reasonable meanings because different judges may select different interpretive canons or may simply apply the same canons in different ways to generate differing yet equally reasonable interpretations.[56]

Second, from a practical perspective, the realities of modern claim drafting and interpretation also generate significant indeterminacy. Patent claims are often intentionally drafted with vague and ambiguous language in order to preserve sufficient maneuver-

[52] See id. at 18 ("Is it possible that it is the Federal Circuit judges' constructions that are in error and the district court judges are actually correct?").

[53] District court judges experienced in patent litigation have previously suggested the existence of multiple reasonable interpretations. See The Honorable Kathleen M. O'Malley, The Honorable Patti Saris & The Honorable Ronald H. Whyte, A Panel Discussion: Claim Construction from the Perspective of the District Judge, 54 Case W. Res. L. Rev. 671, 676 (2004) (Judge Saris: "Often when I get to claim construction . . . I see a couple of reasonable interpretations. Rarely is there only one possible way to construe a claim.").

[54] See Dan L. Burk & Mark A. Lemley, Quantum Patent Mechanics, 9 Lewis & Clark L. Rev. 29, 56 (noting the "inherent indeterminacy of patent claims"); Kenneth Kress, Legal Indeterminacy, 77 Cal. L. Rev. 283, 283 (1989) ("Law is indeterminate to the extent that legal questions lack single right answers."); Andrew S. Brown, Note, *Amgen v. HMR*: A Case for Deference in Claim Construction, 20 Harv. J.L. & Tech. 479, 492 (2007) ("[T]here might not be a single 'correct' construction of any given claim term. . . . [R]easonable minds could disagree without being wrong . . . .").

[55] Phillips v. AWH Corp., 415 F.3d 1303, 1324 (Fed. Cir. 2005).

[56] See Craig Allen Nard, Deference, Defiance, and the Useful Arts, 56 Ohio St. L.J. 1415, 1481 (1995).

ability for future litigation.[57] *Markman* hearings, the procedure by which district courts construe patent claims, are not uniformly conducted. Instead, district courts have great discretion in both the manner and timing of their claim construction hearings.[58]

Together, these observations make it unrealistic to expect only one single correct interpretation. Subjecting vaguely drafted patent claims to myriad interpretive canons, each of which can be applied in various ways, during a procedure that varies by district court and by judge, renders the prospect of uncovering a single true claim interpretation highly unlikely.

B. Proving Indeterminacy as a Matter of Logic and Empirical Observation

Perhaps the most compelling proof of patent claims' multiple reasonable meanings in lieu of a single best meaning can be demonstrated by applying simple logic to empirical observations of claim construction. First, we begin with the premise that Federal Circuit judges, and therefore the panels which they comprise, will always formulate reasonable claim interpretations given their extensive experience with the process. Second, if there is indeed a

[57] See Gretchen Ann Bender, Uncertainty and Unpredictability in Patent Litigation: The Time is Ripe for a Consistent Claim Construction Methodology, 8 J. Intell. Prop. L. 175, 210–211 (2001). Bender notes that "some commentators instruct patent practitioners to draft claims as vaguely as possible." Id at 210. She cites one practical treatise's advice:

> The greatest possible effort should be exerted to avoid adopting a position in which the applicant may later be placed in a corner. It is much better technique, when possible, not to pinpoint the essence of patentability to a particular feature and, instead, to attempt to leave a certain amount of ambiguity or room to maneuver should very pertinent prior art be subsequently unearthed . . . .

Id. at 210–11 (quoting Arthur H. Seidel et al., What the General Practitioner Should Know About Patent Law and Practice 65 (5th ed. 1993)). Bender thus finds that "the patentee and the patent drafter have practical reasons to keep the scope and subject matter of the patent fluid and malleable." Id. at 211. See also Michael Risch, The Failure of Public Notice in Patent Prosecution, 21 Harv. J.L. & Tech. 179, 188 (2007) ("[Patent applicants intentionally draft vague claims] so that they can mold the claims to fit the future product of a currently unknown, potential infringer or to avoid invalidation if previously undiscovered prior art comes to light.").

[58] See Jennifer Gordon & Victor G. Hardy, After the *Markman* Hearing—Practical Guidance to the Problems Caused By the Timing, Lack of Finality and Preclusive Effect of Claim Construction Rulings, *in* How to Prepare & Conduct *Markman* Hearings 2006, at 255–56 (2006).

single best claim meaning, then Federal Circuit panels should consistently isolate it. Any hopes of ascertaining the single "best" answer if it exists must rest with the Federal Circuit, the foremost patent law experts in the nation. Third, normatively speaking, de novo review is only justified if there is indeed a single best claim meaning that is readily identifiable by the Federal Circuit, or else Federal Circuit reversals risk simply replacing one acceptable meaning with another.

From these premises, it is possible to construct a logical proof that demonstrates that patent claims are indeed "multivalent," characterized by multiple reasonable interpretations rather than a single true meaning. The proof proceeds via the following conditional statement. "*If* a single best meaning existed, *and* the Federal Circuit could consistently isolate it, *then* there would be no panel dependency." In other words, each Federal Circuit panel, presented with the same claim language and evidence, should consistently arrive at the same single best answer if it existed.

If we accept this statement as true, then its contrapositive must also be true: "If there *is* panel dependency, *then* either a single best meaning does *not* exist, or the Federal Circuit can *not* consistently isolate it." Empirical studies reveal that this contrapositive accurately describes current realities. Claim construction is, in fact, significantly panel dependent; different Federal Circuit panels derive differing claim interpretations.[59] Per the above contrapositive, there are two potential explanations for this panel dependency: either there is no single best claim meaning or the Federal Circuit is unable to isolate it.

The better explanation is simply that there is no single best claim meaning for a given patent claim, particularly in light of the various sources of indeterminacy described in Section III.A. In contrast, it is unlikely that Federal Circuit panels would be unable to reliably

[59] See Wagner & Petherbridge, supra note 34. As part of a larger study of claim construction, in which they examined a sample of Federal Circuit opinions from 1996 to 2002, the authors found that the Federal Circuit is "sharply divided between two basic methodological approaches to claim construction, each of which leads to distinct results." Id. at 1105. The authors also noted that these "significantly different approaches to claim construction followed by individual Federal Circuit judges has led to panel dependency . . . ." Id. Stated differently, the authors found that their "data reveals that the composition of the panel that hears and decides an appeal has a statistically significant effect on the claim construction analysis." Id. at 1112.

isolate the single correct meaning, if one existed, given their extensive experience and expertise with claim construction. Either way, the important implication for appellate review is that de novo review is unjustified because either a single best answer does not exist whatsoever, or one exists but evades consistent isolation by our best available apparatus for identifying it, the Federal Circuit.

An often cited example dramatically illustrates this reality. In *CVI/Beta Ventures, Inc. v. Tura LP*, the Federal Circuit essentially reversed its own earlier interpretation of the claim limitation "3% elasticity."[60] In two related cases involving the same patent and the same claim language, the Federal Circuit had first affirmed a Maryland district court,[61] only to later reverse a New York district court adopting the very same claim interpretation.[62] The *CVI/Beta* cases vividly demonstrate how two different Federal Circuit panels, faced with the same claim language, facts, and interpretive tools, can arrive at dramatically different—yet both presumably reasonable—claim interpretations. This revelation highlights the possibility that many district courts, like the New York court in *CVI/Beta*, could be suffering reversals despite having performed perfectly reasonable claim constructions and further illustrates the concern that the uniformity and stare decisis originally intended by the Supreme Court in *Markman II* have been undermined by de novo review.[63]

Thus, appellate review of claim construction would greatly benefit from a more deferential approach that simply assesses whether the district court derived a reasonable claim interpretation, in place of the currently inefficient pursuit of a single best answer. An important legal framework for judicial review already operates in precisely this manner: *Chevron* deference.

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[60] See CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1157–58 (Fed. Cir. 1997).

[61] CVI/Beta Ventures, Inc. v. Custom Optical Frames Inc., Nos. 96-1070, 95-1486, 1996 WL 338388, at *1 (Fed. Cir. June 19, 1996).

[62] See *Cybor*, 138 F.3d at 1476–77 (Rader, J., dissenting).

[63] The disparity between the two panels in *CVI/Beta* was noteworthy in light of the Supreme Court's endorsement of applying stare decisis to Federal Circuit claim constructions, in addition to the well-established rule that Federal Circuit panel decisions are binding upon subsequent panels. See Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563 (Fed. Cir. 1991). The second Federal Circuit *CVI/Beta* panel justified its departure from the previous panel's construction by noting that the earlier decision was both "nonprecedential" and decided in the preliminary injunction context. *CVI/Beta*, 112 F.3d at 1160 n.7.

III. *CHEVRON* DEFERENCE: A NEW APPROACH TO APPELLATE REVIEW OF CLAIM CONSTRUCTION

Although patent claim construction is predominantly thought of as an exercise performed by Article III courts such as district courts and the Federal Circuit, it is also conducted by two administrative agencies, the International Trade Commission ("ITC") and the Patent and Trademark Office ("PTO"). Therefore, principles of administrative law offer relevant guidance regarding the appellate review of claim construction.

Chevron deference is a fundamental principle of administrative law whereby judicial review of agency statutory interpretations is based upon a range of permissible interpretations, rather than a single prescriptive meaning.[64] Patent claim construction would greatly benefit from a *Chevron*-based system of appellate review, since the inherent indeterminacy of claim language prevents the consistent isolation of a single prescriptive meaning. Applying *Chevron* deference would eliminate the current inefficiencies of *Cybor*'s de novo regime and simultaneously address the indeterminacy and information costs associated with claim construction. This section first provides a brief overview of *Chevron* deference, its operation, and justifications, to demonstrate how and why this important framework should also apply to the appellate review of patent claim construction.

A. Chevron *Deference: Overview and Operation*

In *Chevron, U.S.A., Inc. v. Natural Resources Defense Council*,[65] the Supreme Court announced the revolutionary principle that reviewing courts will accept an agency's reasonable interpretation of ambiguous statutes.[66] In doing so, the Court articulated a simple two-step framework for the judicial review of agency statutory interpretations. First, the court must consider whether the plain language of the statute itself is ambiguous ("*Chevron* Step One"). If

[64] See E. Donald Elliott, Symposium, *Chevron* Matters: How the *Chevron* Doctrine Redefined the Roles of Congress, Courts and Agencies in Environmental Law, 16 Vill. Envtl. L.J. 1, 11–12 (2005).

[65] 467 U.S. 837 (1984).

[66] See The Honorable Antonin Scalia, Lecture, Judicial Deference to Administrative Interpretations of Law, 1989 Duke L.J. 511, 511.

the statute is unambiguous, then the analysis stops there, as the court must give effect to this unambiguous congressional intent.[67] Second, if the statute is ambiguous, then the court proceeds by inquiring only whether the agency's interpretation was reasonable ("*Chevron* Step Two").[68] Thus, when confronted with ambiguity, a reviewing court must uphold any reasonable statutory interpretation offered by an administrative agency, and avoid imposing its own construction.[69] Subsequent cases have further clarified the proper application of *Chevron* deference. In *United States v. Mead Corp.*, for instance, the Supreme Court indicated that *Chevron* deference is typically warranted only when the agency has congressional authorization to engage in informal rulemaking or formal adjudication and has used that authority to create the interpretation under review.[70]

B. Applying Chevron *to Patent Claim Construction*

Patent claim construction would greatly benefit from a *Chevron*-based system of deferential review, since many of the theoretical and practical justifications for *Chevron* deference apply with equal force in the claim construction context. First, observers have commented that *Chevron* deference best captures agencies' "certain well-recognized advantages" and superior experience with interpreting their own statutes.[71] Likewise, Judge Rader has observed that trial judges enjoy a similar advantage over appellate courts in claim construction:

> [T]he trial judge enjoys a potentially superior position to engage in claim interpretation. . . . Trial judges can spend hundreds of hours reading and rereading all kinds of source material, receiving tutorials on technology from leading scientists, formally questioning technical experts and testing their understanding against that of various experts, examining on site the operation of the principles of the claimed invention, and deliberating over the

[67] *Chevron*, 467 U.S. at 842–43.
[68] See id. at 843.
[69] See Kenneth W. Starr, Judicial Review in the Post-*Chevron* Era, 3 Yale J. on Reg. 283, 288 (1986).
[70] See United States v. Mead Corp., 533 U.S. 218, 229–31 (2001).
[71] Starr, supra note 69, at 309.

> meaning of the claim language. If district judges are not satisfied with the proofs proffered by the parties, they are not bound to a prepared record but may compel additional presentations or even employ their own court-appointed expert.
>
> *An appellate court has none of these advantages*.[72]

Thus, just as *Chevron* deference to an agency's statutory interpretation is proper because of that agency's repeated contact with the same statute, deference to a district court's claim construction is justified by virtue of that court's greater familiarity with evaluating evidence.

A second justification for *Chevron* is that it maintains separation of powers between the judiciary and the executive branch, by preventing courts from intruding upon administrative agencies' policymaking responsibilities.[73] Similarly, applying *Chevron* deference to claim construction would reinforce the fundamental allocation of responsibility between the trial and appellate courts, thereby improving the legitimacy of claim construction appeals. As the Supreme Court intimated in *Markman II*, claim construction is a "mongrel practice"[74] with "evidentiary underpinnings"[75] that render it "somewhere between a pristine legal standard and a simple historical fact."[76] Appellate review, based on briefs and fifteen minutes of oral argument per side, is not suited for de novo findings of disputed technological factual questions.[77] Applying *Chevron* deference to claim construction appeals would prevent the Federal Circuit from disregarding or repeating the trial court's previous fact-finding efforts, thus improving the legitimacy of appellate review and preserving the time-honored fundamental allocation of factual versus legal questions between trial and appellate judges.

Third, *Chevron* deference is thought to improve the quality of agency proceedings, by giving the agencies "more interpretive au-

[72] *Cybor*, 138 F.3d at 1477 (Rader, J., dissenting) (emphasis added).

[73] See Starr, supra note 69, at 309 ("*Chevron* vindicates the appropriate and traditional function of judicial review. It confirms the judiciary's historic role of declaring what the law is, but prevents the judiciary from going beyond that venerable, legitimate role . . . ."); id. at 312 ("*Chevron* chastens the excessive intrusion of courts into the business of agency policy-making.").

[74] *Markman II*, 517 U.S. at 378.

[75] Id. at 390.

[76] Id. at 388 (quoting Miller v. Fenton, 474 U.S. 104, 114 (1985)).

[77] See *Markman I*, 52 F.3d at 1003 (Newman, J., dissenting).

thority" and thus incentives "to take more responsibility for interpreting" relevant statutes.[78] Similarly, the quality of arguments by litigants before the agencies should also improve because deferential review increases the incentive to litigate "clearly and aggressively[] before the agency rather than waiting for the main event at the courthouse."[79] Federal Circuit judges have in fact remarked upon these arguments in the claim construction context, noting that they provide a compelling justification for applying *Chevron* deference to patent claims. For instance, Judge Moore has suggested that greater deference would potentially result in "more thoughtful claim construction by district court judges" by encouraging them "to invest more time in the process, resulting in better decisions."[80] Likewise, Judge Rader has lamented that *Cybor* is responsible for excessive claim construction appeals which reduce the trial court to a mere "ticket to the real center stage, the Court of Appeals for the Federal Circuit."[81] In his view, granting deference would wisely "restore the trial court's prominence in the claim interpretation function."[82]

The final justification for *Chevron* deference, and the most important for purposes of improving claim construction, is that deferential review encourages clearer draftsmanship. Like patent claims, many statutes are intentionally drafted with imprecision and ambiguity.[83] *Chevron* deference improves legislative drafting by informing Congress that any ambiguities "will be resolved [only] within the bounds of permissible interpretation,"[84] providing an incentive to limit agency discretion by drafting clearer, more specific statutes.[85] This preference for clarity over vagueness applies with equal if not greater force to patent claim language. *Chevron* deference would provide a powerful incentive for patentees to draft their claims with greater precision, or face the risk of an unfavorable in-

[78] See Starr, supra note 69, at 311.
[79] See id.
[80] Moore, supra note 15, at 28–29.
[81] *Cybor*, 138 F.3d at 1477 (Rader, J., dissenting).
[82] Id. at 1478 (Rader, J., dissenting).
[83] See Starr, supra note 69, at 310 ("Many statutes, moreover, contain terms that are intentionally imprecise.").
[84] See Scalia, supra note 66, at 517.
[85] See Starr, supra note 69, at 311.

terpretation that need only be reasonable to be affirmed by the Federal Circuit.

Thus, the theoretical and practical justifications for *Chevron* deference to agency statutory interpretations are equally relevant to patent claim interpretations. Examining the precise nature of claim construction in various contexts reveals important insights as to the proper reach and limits of *Chevron* deference.

C. The Proper Scope of Chevron *Deference in Claim Construction*

Before reaching Federal Circuit review, claim construction may first be performed by any of three government actors: the ITC, the district courts, and the PTO. Several considerations explain why *Chevron* deference should only apply to claim interpretations performed during patent litigation by the ITC and district courts, and not to PTO claim interpretations.

1. ITC Section 337 Actions

First and foremost, the best argument for applying *Chevron* deference to patent claim construction originates with ITC Section 337 patent litigation. The ITC has jurisdiction to hear patent disputes under Section 337 of the Smoot-Hawley Tariff Act of 1930,[86] a protectionist measure designed to insulate U.S. industries from unfair competition and infringing imports by foreign competitors.[87] Unlike district courts, the ITC provides no monetary damages to a prevailing plaintiff. Instead, the only available remedies are injunctive relief, including "exclusion orders that ban the importation of infringing products[] and cease-and-desist orders that bar the continued sale" of previously imported products.[88] As an alternative forum for patent infringement litigation, ITC Section 337 proceedings have become increasingly popular in recent years, particularly for electronic products, which are typically manufactured overseas.[89]

[86] Smoot-Hawley Tariff Act of 1930, Pub. L. No. 71-361, § 337, 46 Stat. 590, 703–04 (codified as amended at 19 U.S.C. § 1337 (2000)).

[87] See Robert W. Hahn, Assessing Bias in Patent Infringement Cases: A Review of International Trade Commission Decisions 1, 12 (2007), http://ssrn.com/abstract=950583.

[88] See id. at 3–4.

[89] See id. at 2.

ITC Section 337 patent litigation presents the ideal vehicle for introducing *Chevron* deference to claim construction appeals. As established in *Chevron*, and refined by *Mead*, reviewing courts must uphold an agency's reasonable interpretation of an ambiguous statute when that interpretation results from informal rulemaking or formal adjudication. Each of these conditions is satisfied either directly or by analogy during ITC Section 337 patent litigation. First, by the Federal Circuit's own reasoning, patent claims are analogous to statutes.[90] This analogy, first articulated in *Markman I* to justify claim construction as "a matter of law strictly for the court,"[91] should now be extended to the appellate review of patent claim construction. Under this view, the ITC frequently interprets ambiguous "statutes" when it construes patent claims during Section 337 infringement litigation. Second, ITC claim construction qualifies for *Chevron* deference under the *Mead* test because patent claims are interpreted via formal adjudication. ITC Section 337 litigation constitutes formal adjudication under the Administrative Procedure Act, because it features "trial-type oral hearings conducted by an impartial presiding officer in which the parties are entitled to present evidence and cross-examine" opposing witnesses.[92] Thus, the Federal Circuit's statute analogy, together with the formal adjudicatory nature of ITC Section 337 proceedings, compels the conclusion that ITC claim construction should be reviewed with *Chevron* deference.

2. District Courts

Although the initial avenue for introducing *Chevron* deference originates with the ITC, the patent system would be well-served by also extending *Chevron* deference to district court claim constructions. Because the district courts serve as the ITC's Article III counterpart for patent litigation, the same justifications for *Chevron* deference applicable in the ITC context would apply to the district courts as well. First, patent claims are analogous to statutes, whether before agencies or district courts. Second, the hallmark

[90] See *Markman I*, 52 F.3d at 987.

[91] Id.

[92] Stuart Minor Benjamin & Arti K. Rai, Who's Afraid of the APA? What the Patent System Can Learn from Administrative Law, 95 Geo. L.J. 269, 298 (2007).

features of formal adjudication are fundamental aspects of district court patent litigation; in fact, formal adjudication is often described in terms of its "trial-type" nature.[93]

Most importantly, harmonizing the standard of review between the ITC and district courts would help prevent forum shopping, an original impetus for the Federal Circuit's creation.[94] ITC proceedings already significantly favor patent holders,[95] and imposing a more deferential review standard would further distort the incentives to bring suit before the ITC because a patentee's favorable results would be less likely to be disturbed on appeal.

ITC Section 337 proceedings favor patent holders for several reasons. First, the ITC's *in rem* jurisdiction attaches to the allegedly infringing imports themselves, thus avoiding the often-complex *in personam* jurisdiction requirements of district court litigation.[96] Second, ITC proceedings feature substantially accelerated timetables for discovery and ultimate determination.[97] Speedier adjudication favors plaintiffs by limiting the defendant's ability to prepare for trial and develop a successful defense.[98] These perceived advantages are confirmed by empirical evidence which finds that "the ITC favors patent holders vis-à-vis district courts by a wide margin," with a greater likelihood of finding infringement before the ITC.[99] Furthermore, the ITC is also more likely to impose injunctive relief than district courts, with ITC injunctive relief accompanying ninety-six percent of infringement findings compared to only twenty percent of district court findings.[100] This disparity is likely to become even more dramatic in light of the Supreme Court's recent decision in *eBay Inc. v. MercExchange*, in which the Court held that patentees seeking permanent injunctions must satisfy the traditional four-factor test for relief, thus reversing the

[93] See, e.g., United States v. Mead Corp., 533 U.S. 218, 243 (2001). ("The most formal of the procedures the Court refers to—formal adjudication—is modeled after the process used in trial courts . . . .").

[94] See Burgess, supra note 31, at 765–66.

[95] See Hahn, supra note 87, at 3.

[96] See Robert G. Krupka, Philip C. Swain & Russell E. Levine, Section 337 and the GATT: The Problem or the Solution?, 42 Am. U. L. Rev. 779, 789–90 (1993).

[97] See id. at 795.

[98] See Kimberly A. Moore, Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation?, 79 N.C. L. Rev. 889, 908 (2001).

[99] Hahn, supra note 87, at 6.

[100] Id. at 7.

Federal Circuit's longstanding automatic application of permanent injunctions following findings of infringement.[101]

The combined effect of these procedural advantages is to induce patentees to bring suit before the ITC in disregard of Section 337's historical mission as a protectionist measure against foreign infringers.[102] Fewer cases before the ITC now involve domestic complainants against foreign defendants; instead, the ITC in recent years has heard more cases by domestic firms against other domestic firms.[103] This decreasing frequency of traditional "domestic-versus-foreign" cases before the ITC suggests that "the ITC is increasingly deviating from its original mission of protecting U.S. manufacturers from foreign infringers."[104]

Asymmetrically applying *Chevron* deference only to ITC claim constructions and not district court interpretations would further exacerbate this trend and lead to further misuse of ITC proceedings, as patentees would seek increasingly favorable results before the ITC which would be upheld upon appeal to the Federal Circuit. Although patent holders certainly remain free to pursue both ITC and district court litigation simultaneously,[105] harmonizing the standard of review between both forums should help reduce the excessive and unintended use of ITC Section 337 proceedings by reducing the comparative advantages of Section 337 actions over district court litigation. For these reasons, *Chevron* deference should be the standard of review applied to both ITC and district court claim constructions.

3. Patent Office

The PTO also construes claims in the course of its patent prosecution and patent reexamination activities. In fact, the intrinsic record, heralded in *Phillips* as the primary source of claim meaning, is exclusively the result of PTO proceedings. Despite this impor-

[101] 547 U.S. 388, 390 (2006).

[102] See Hahn, supra note 87, at 12 ("[T]he core purpose of Section 337 is to provide U.S. companies with a remedy against foreign companies that fail to respect patent rights and other U.S. intellectual property. . . . The ITC's historic mission was to protect U.S. industry from 'unfair' competition and imports.").

[103] See id.

[104] Id. at 13–14.

[105] See Robert L. Harmon, Patents and the Federal Circuit 817 (7th ed. 2005).

tant influence of PTO activity in construing claims, *Chevron* deference for the PTO's own claim interpretations would be inappropriate for several reasons.

First, PTO claim construction does not qualify for *Chevron* deference, because it "generally engages in neither of the proceedings—informal rulemaking or formal adjudication—that the *Mead* Court indicated would clearly merit deference."[106] Second, Patent Examiners by and large are not lawyers and are hired instead based on their technical qualifications.[107] Because examiners typically do not possess any formal legal training, the functional considerations set forth in *Markman II* counsel against granting deference to examiners' claim constructions.[108]

Most importantly, PTO claim constructions do not deserve deference because they are largely the product of incomplete information, especially prior art, which courts have widely recognized as a valuable claim construction tool.[109] For instance, prior art cited in the intrinsic record "gives clues as to what the claims do not cover."[110] In *Vitronics Corp. v. Conceptronic, Inc.*, the Federal Circuit likewise observed that prior art, "whether or not cited in the specification or the file history," can often be used "to demonstrate how a disputed term is used by those skilled in the art."[111] In practice, the PTO typically performs claim construction absent much of this useful prior art information. Patent applicants are not required to perform prior art searches; even when they do, their searches are often limited in scope since thoroughly exhaustive searches are simply not cost-effective. Examiners themselves only spend approximately eighteen hours examining a patent application "from

[106] Benjamin & Rai, supra note 92, at 297.

[107] See United States Patent and Trademark Office, Online Job Search, http://www.usptocareers.gov/Pages/PEPositions/Jobs.aspx (last visited Apr. 5, 2008) ("Basic qualifications for Patent Examiners include United States citizenship and a minimum of a bachelor's degree in physical science, life science, engineering discipline or computer science.").

[108] Cf. *Markman II*, 517 U.S. at 388–89 ("The construction of written instruments is one of those things that judges often do and are likely to do better than jurors unburdened by training in exegesis.").

[109] See Miller, supra note 12, at 200.

[110] Autogiro Co. of Am. v. United States, 384 F.2d 391, 399 (1967).

[111] 90 F.3d 1576, 1584 (Fed. Cir. 1996).

start to finish,"[112] and are therefore unable to uncover all relevant prior art sources—hence, the empirical finding that uncited prior art more frequently invalidates patents than does cited art.[113] At least some of this uncited invalidating prior art is likely also relevant to claim construction, suggesting that claim construction by the PTO fails to incorporate highly salient information. Furthermore, during patent reexamination, third parties requesting PTO reconsideration of an issued patent may only submit certain types of prior art, specifically patents and printed publications.[114] Lastly, because PTO proceedings are largely ex parte in nature, it seems intuitively unfair to grant deference to claim constructions in which interested third parties cannot participate. In sum, the limited amounts and types of prior art considered by the PTO, together with insufficient third party participation, illustrate why PTO claim constructions should not receive *Chevron* deference.

Patent litigation before the ITC and district courts, in contrast, avoids these deficiencies. During litigation, "lawyers and technical experts will spend hundreds and perhaps even thousands of hours searching for and reading prior art"[115] that can be used to guide the judge's claim construction analysis. Likewise, prior art offered during litigation is not subject to any of the categorical limitations present during reexamination. Finally, litigation is by definition an adversarial and *inter partes* proceeding. Because both parties have an opportunity to be heard and influence the ultimate claim construction, granting deference to litigation-borne claim constructions is warranted from a fairness perspective. Thus, *Chevron* deference is warranted for ITC and district court claim constructions because they are higher-quality interpretations, produced by more complete information and fair adversarial proceedings in contrast to those proceedings before the PTO.

As a concluding observation, PTO claim constructions are also systematically biased and distorted because examiners are required

[112] Mark A. Lemley, Rational Ignorance at the Patent Office, 95 Nw. U. L. Rev. 1495, 1502 (2001).

[113] John R. Allison & Mark A. Lemley, Empirical Evidence on the Validity of Litigated Patents, 26 AIPLA Q.J. 185, 234 (1998).

[114] See Jay P. Kesan & Gwendolyn G. Ball, How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes, 84 Wash. U. L. Rev. 237, 241 (2006).

[115] Lemley, supra note 112, at 1502.

to apply the "broadest reasonable interpretation consistent with the specification."[116] Granting deference to such broad interpretations, particularly when the PTO lacks complete prior art information, would impose an undesirable chilling effect on competitors and undermine the accuracy of claim construction.[117] Fortunately, *Chevron* deference, properly applied in the patent litigation context, can be used to create a valuable information-forcing rule that removes the chilling effect of ambiguous patent claims and improves the overall quality of patent draftsmanship and litigation.

IV. A *CHEVRON* ADJUNCT: NARROWEST REASONABLE CLAIM CONSTRUCTION

The discussion thus far has focused on the ex post benefits of *Chevron* deference and its potential to reduce the inefficiencies currently associated with claim construction. The analysis now turns to *Chevron*'s potential to reshape the patent system from an ex ante perspective. This Section describes how *Chevron* deference can be implemented as part of an information-forcing regime which creates incentives for patentees to improve their claim drafting and disclosure in order to facilitate claim construction efforts for all actors in the patent system. Briefly stated, this Section proposes that adopting the "narrowest reasonable construction" would serve as a useful information-forcing rule that would effectively alleviate many of the information costs and related obstacles currently plaguing the patent system.

A. Information Costs in Patent Law

The patent system features substantial information costs, as various actors seek information about inventions that is difficult

[116] In re Bond, 910 F.2d 831, 833 (Fed. Cir. 1990) ("It is axiomatic that, in proceedings before the PTO, claims in an application are to be given their broadest reasonable interpretation consistent with the specification."). For a convincing discussion of the shortcomings of the "broadest reasonable construction" rule, see Michael Risch, The Failure of Public Notice in Patent Prosecution, 21 Harv. J.L. & Tech. 179, 180 (2007) (arguing for "the abandonment of the 'broadest reasonable construction' rule for interpreting claims in pending patent applications in order to enhance certainty in claim construction for those who rely on patents").

[117] See Ian A. Lampl, Comment, Establishing Rules for Resolving *Markman* Failures, 72 U. Chi. L. Rev. 1025, 1037–38 (2005).

"to produce, collect, and comprehend."[118] First and foremost, courts necessarily require sufficient information to perform claim construction during district court *Markman* hearings and Federal Circuit appeals. Other actors, however, also seek to collect the same information for equally important applications. Competitors, for instance, will want to know the precise boundaries of a claimed invention "so that they can design around or improve upon the invention,"[119] thus providing a valuable source of follow-on innovation. Likewise, the PTO must construe claims when evaluating patent applications to determine whether the claimed invention satisfies the various requirements for patentability.[120]

To address these information costs, patent law requires various information disclosures that are codified in Title 35 of the United States Code, Section 112.[121] Together, three important requirements—the written description, enablement, and best mode—are designed to provide public access to valuable invention-specific information.[122] The written description requirement ensures that a patent applicant describes the claimed invention in sufficient detail to demonstrate their possession of the invention as of the filing date, so that the public can better understand the invention.[123] To satisfy the enablement requirement, a patent applicant must provide enough information to enable a skilled artisan to make and use the invention.[124] Finally, applicants must disclose the best mode for practicing their invention, as of the patent filing date.[125]

Unfortunately, the various Section 112 requirements have failed to adequately address the information costs associated with claim construction, and indeterminate patent claims have prevailed. Cur-

[118] Cotropia, supra note 8, at 59.
[119] See id. at 63.
[120] See Miller, supra note 12, at 192.
[121] See 35 U.S.C. § 112 (2000) ("The specification shall contain a *written description* of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to *enable* any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the *best mode* contemplated by the inventor of carrying out his invention.") (emphasis added); see also Cotropia, supra note 8, at 68.
[122] See Cotropia, supra note 8, at 68.
[123] See id. at 68–69.
[124] See id. at 69.
[125] See id. at 70.

rent limitations in PTO resources and capabilities,[126] combined with *Cybor*'s de novo review, have provided patentees with perverse incentives to strategically exploit these informational asymmetries.[127] One such strategic behavior is the intentional drafting of vague and ambiguous patent claims in hopes of creating uncertainty with regard to the scope of the patent.[128]

This intentional uncertainty is unacceptable from a public policy perspective. "[U]ncertain patent rights either chill legitimate inventive activity or force competitors to engage in costly information gathering and/or litigation to assess the validity of the patent right"[129]—efforts which would be better deployed towards more productive research and development. Diverting valuable resources in this manner reduces competition in innovation markets, ultimately reducing the patent system's "efficacy as a means for promoting innovation."[130] The end result is suboptimal investment in innovation and excessive investment in legal transaction costs.

The challenge is thus to design a system that simultaneously achieves certainty and clearly defined patent rights, while also properly considering the relative burdens incurred by both inventors and the public in overcoming patent law's information costs.[131] *Chevron* deference, when combined with narrow claim meaning as a default penalty rule, would efficiently achieve this desired outcome.

B. Narrowest Reasonable Meaning as an Information-Forcing Chevron *Adjunct*

Chevron deference, applied in isolation, would address the inefficiencies of claim construction, but would fail to fully resolve the related problems of information costs and indeterminacy. Risk-tolerant patent applicants might continue purposely drafting ambiguous patent claims in hopes of subsequently convincing a trial

[126] See Lemley, supra note 112, at 1502.

[127] See R. Polk Wagner, Reconsidering Estoppel: Patent Administration and the Failure of *Festo*, 151 U. Pa. L. Rev. 159, 214–15 (2002).

[128] Id. at 216.

[129] Arti K. Rai, Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform, 103 Colum. L. Rev. 1035, 1079 (2003).

[130] Moore, supra note 98, at 928.

[131] See Cotropia, supra note 8, at 67.

court to adopt a broad interpretation, which would presumably be upheld as "reasonable" upon appeal to the Federal Circuit. Risk-averse competitors would then potentially be deterred from competing within the vicinity of these claimed inventions, thus propagating the current syndrome of ambiguous and indeterminate patent claims. At best, *Chevron* deference alone represents an incomplete solution, since information costs, indeterminacy, and their related chilling effects might continue to plague the patent system.

To remedy this situation and realize the full potential of *Chevron* deference, trial courts interpreting ambiguous patent claims should always adopt the narrowest reasonable claim meaning,[132] to which the Federal Circuit would then apply *Chevron* deference. At this point, it is important to distinguish between the narrowest reasonable meaning rule, to be applied by the trial court, and *Chevron* deference, to be applied by the Federal Circuit. Although the proposed regime employs these two rules in tandem, each rule remains analytically distinct and the exclusive domain of one judicial actor versus the other. It is the trial court that selects the narrowest reasonable claim meaning in the first instance. On appeal, the Federal Circuit applies *Chevron* deference by simply asking whether the patent claim was ambiguous, and if so, whether the trial court was reasonable in its application of the narrowest reasonable meaning rule and the other canons of claim construction.[133]

[132] See generally Lampl, supra note 117. Lampl has previously suggested a narrow meaning default rule to assist courts faced with "two competing and *equally plausible* definitions." Id. at 1026 (emphasis added). Likewise, Professors Burk and Lemley have proposed that ambiguous claim terms should be initially interpreted narrowly, and subsequently enhanced via the doctrine of equivalents. Dan L. Burk & Mark A. Lemley, Quantum Patent Mechanics, 9 Lewis & Clark L. Rev. 29, 32 (2005). The proposal set forth in this Note is conceptually similar, but provides potentially greater information-forcing effects for two reasons. First, the narrowest reasonable construction imposes the narrowest interpretation reasonably possible, rather than simply selecting the narrower of two equally plausible definitions. Second, it applies in all cases of ambiguity, not just when there are "equally plausible definitions."

[133] Under the proposed regime, partitioning the narrowest reasonable meaning rule and *Chevron* deference between the trial and appellate courts, respectively, is necessary to preserve the *Chevron* standard of review. The Federal Circuit cannot itself reapply the narrowest reasonable meaning rule on appeal, because this would involve a de novo search for a single best answer, in conflict with *Chevron* deference, which contemplates a reasonable range of permissible meanings. Therefore, the narrowest reasonable meaning rule must be the exclusive domain of the trial court who applies it

This tandem action of the narrowest reasonable interpretation applied by the trial court, followed by *Chevron* deference by the Federal Circuit, would operate as an effective information-forcing rule. Specifically, this rule would provide ex ante incentives to draft precise and unambiguous patent claims,[134] pushing the benefits of improved certainty and predictability further upstream in the patent process for the benefit of all involved. As the Federal Circuit has noted,

> the patent drafter is in the best position to resolve the ambiguity in the patent claims, and it is highly desirable that patent examiners demand that applicants do so in appropriate circumstances so that the patent can be amended during prosecution rather than attempting to resolve the ambiguity in litigation.[135]

This proposal is a new application of an analytical template first described by Professor R. Polk Wagner, who observed that patent law doctrine might be better "evaluated by its impact on ex ante incentives rather than solely on the basis of ex post factors."[136] As Professor Wagner explains:

> The importance of this general insight is twofold. The first is the recognition that the ex ante effects of a given decision concerning liability will have efficiency implications; thus, considering only the ex post results is analytically incomplete. Second, in a world where the determination of liability ex post is costly

in the first instance; the Federal Circuit on appeal simply inquires whether the trial court acted reasonably in applying that rule, together with the other canons of claim construction.

[134] See Lampl, supra note 117, at 1039.

[135] Halliburton Energy Servs., Inc. v. M–I LLC, No. 2007-1149, 2008 WL 216294, at *9 (Fed. Cir. Jan. 25, 2008).

[136] Wagner, supra note 127, at 167 ("The basic insight here—the benefits that flow from shifting the analytic focus from the doctrine as an ex post (after the patent issues) attempt to cabin patent scope to an instrumental tool with important ex ante effects—is generalizable. That is, features of the patent administration system make many of the doctrines particularly amenable to a similar form of exegesis, where a legal rule is evaluated by its impact on ex ante incentives rather than solely on the basis of ex post factors. Accordingly, the analysis here might be seen as a template, suggesting further avenues of inquiry across the patent law.").

> (and/or prone to error), the ex ante effects of a legal rule become highly important.[137]

On this view, *Cybor*'s fundamental failure is its excessive ex post reliance on Federal Circuit de novo review. While *Chevron* presents a significant improvement by restoring the prominence of the trial court's claim construction, it remains largely an ex post remedy lacking any significant ex ante benefits. It is the simultaneous action of both *Chevron* deference and a narrowest reasonable meaning default rule that promises to fully rehabilitate the patent system from both ex ante and ex post perspectives.

As Professor Wagner notes, a patentee possesses the most accurate and reliable information about its claimed invention and is thus the lowest-cost provider who can "best determine the type and form of useful information."[138] Therefore, a default rule that penalizes inadequate disclosures by narrowing claim scope would create "incentives for prospective patentees to avoid such a penalty by adjusting their behavior" to alleviate information costs.[139] There are two fundamental benefits of such an approach. First, the narrow meaning rule is socially *efficient* because the information costs are internalized by the lowest-cost provider, the patentee.[140] Second, the narrow meaning rule is *flexible* because the penalty is merely a "default condition," and patentees can either "avoid it by producing such information, or can choose to absorb the penalty."[141]

Ultimately, "[b]y imposing a penalty of limiting patent scope, the rule encourages patentees to take information-producing (and thus socially beneficial) steps to avoid the penalty."[142] More specifically, a default rule adopting the narrowest reasonable meaning would induce patentees to avoid drafting ambiguous claims and instead provide the necessary information to adequately support the broadest claims to which they are entitled.[143] Patent applicants would have a powerful incentive to act as "their own lexicogra-

[137] Id. at 243.
[138] Id. at 208.
[139] Id. at 168.
[140] See id. at 210.
[141] Id. at 212 (emphasis omitted).
[142] Id. at 221.
[143] Lampl, supra note 117, at 1039.

phers" to "explicitly define the critical aspects of their invention" and generally "pursue a course of clarity rather than one of vagueness."[144] *Chevron* deference would greatly amplify this incentive because any ambiguities would generally yield multiple reasonable interpretations, and the narrowest reasonable meaning would presumably be adopted by a trial court and affirmed by the Federal Circuit on appeal.

Together, *Chevron* deference, in conjunction with a narrowest reasonable meaning default rule, would simultaneously address all of the various claim construction controversies: information costs, indeterminacy, and efficiency. The primary benefit would be an ex ante reduction in information costs and indeterminacy. To varying degrees, patentees wishing to avoid the default penalty will attempt to draft clearer patent claims and support their claims with adequate disclosures, reducing the indeterminacy and information costs that currently impede modern claim construction. At a minimum, the proposed regime provides a bright-line rule that is both simple and predictable: a court interpreting an ambiguous claim simply selects the narrowest reasonable meaning and avoids difficult questions regarding the theoretically "best" answer. At a maximum, the proposed regime could achieve a "saturation effect": patentees wishing to avoid the default penalty may saturate their applications with such precision and information that only one reasonable interpretation is possible. In intermediate cases, improved claim drafting and disclosure would enhance the accuracy of claim construction, since there should be fewer potential claim interpretations consistent with a more fully developed intrinsic record. In any case, the end result is increased certainty and predictability of claim construction. The improved public notice function of patent claims would further the patent system's policy objectives by helping competitors avoid litigation altogether, settle litigation earlier, negotiate licenses with greater ease, and pursue design-around innovations.[145]

As a secondary benefit, the proposed regime would also achieve various ex post improvements in patent litigation. First, the infor-

[144] Id. at 1039 (quoting in part Tex. Digital Sys. v. Telegenix, Inc., 308 F.3d 1193, 1204 (Fed. Cir. 2002)).

[145] See Miller, supra note 12, at 198–99.

mation-forcing rule would generate a fuller contemporaneous record of claim meaning which would help reduce potential hindsight errors in claim construction. It is fundamental that claim language is generally given its ordinary and customary meaning, which is assessed from the perspective of a skilled artisan "at the time of the invention, i.e., as of the effective filing date of the patent application."[146] The temporal component of claim meaning is often problematic because several years often pass between the initial filing of a patent and its subsequent litigation.[147] The narrowest reasonable meaning rule, to the extent that it successfully induces more precise disclosures and definitions, provides a reliable contemporaneous record from which claims may be interpreted, thus avoiding "a construction that encompasses meanings acquired subsequent to the application date, especially when significant time passes between the patentee's filing of the application and the court's construing of the claims."[148]

Second, the narrowest reasonable meaning rule would reduce the logistical inefficiencies currently associated with *Markman* hearings and their related discovery. Under current practice, district courts enjoy great flexibility in scheduling *Markman* hearings.[149] As a result, litigants are often frustrated by the consequences resulting from the varied timing of claim constructions.[150] For instance, "[a] *Markman* decision that occurs late in the discovery process or after the close of discovery presents a substantial risk that one or both of the parties will find that much of their discovery has been rendered irrelevant by the court's construction."[151] Sometimes parties may even find that their entire legal posture has been rendered untenable by a particular claim construction, forcing them to inefficiently invest their efforts in preparation for multiple

[146] Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005).

[147] See O'Malley, Saris & Whyte, supra note 53, at 679 ("Many times judges are asked to construe a term and to define what one of ordinary skill in the art *at the time* would have understood. The problem is that 'at the time' may have been fifteen years ago.").

[148] Amber Hatfield Rovner, Canons of Patent Claim Construction, *in* How to Prepare & Conduct *Markman* Hearings 2006, supra note 58, at 118.

[149] See Gordon & Hardy, supra note 58, at 255–56.

[150] See id. at 256–57.

[151] Id. at 256.

alternative claim interpretations.[152] In contrast, early claim interpretation presents a host of related problems since performing claim construction "before the issues have been fully crystallized and the evidentiary record developed often requires reconsideration in later proceedings," and litigants thus find that they "still have to engage in much of the same strategies of anticipating and addressing multiple claim constructions as . . . with late *Markman* hearings."[153] A narrowest reasonable meaning information-forcing rule would help eliminate the need for these contingencies by simplifying and clarifying claim construction for both the parties and the court.

Finally, as a general matter, the proposed *Chevron* regime, together with a narrowest reasonable meaning default rule, would improve efficiency ex post by simply reducing the number of appeals to the Federal Circuit altogether. Patentees continuing to draft ambiguous claims would be subject to the trial court's narrowest reasonable interpretation, which would then receive *Chevron* deference and almost certainly be affirmed on appeal. This nearly inevitable outcome would likely discourage a significant number of parties from pursuing appeals. Likewise, parties swayed by the information-forcing default penalty would presumably draft claims with greater precision, either eliminating the need for litigation altogether or at least substantially reducing the associated uncertainty and subsequent incentive for Federal Circuit review.

C. Normative Justifications for a Narrow Meaning Rule

Implementing a narrowest reasonable meaning default rule is prudent policy and also normatively consistent with various interpretive theories and litigation incentives. First and foremost, applying a narrowest reasonable meaning default rule in conjunction with *Chevron* deference is highly consistent with current Federal Circuit precedent, which holds that narrower claim meanings should triumph over broader ones in order to preserve the public notice[154] and validity[155] of patent claims. According to the Federal

[152] See id.

[153] Id. at 262–63.

[154] See Athletic Alternatives, Inc. v. Prince Mfg., 73 F.3d 1573, 1581 (Fed. Cir. 1996) ("Where there is an equal choice between a broader and a narrower meaning of a

Circuit, this narrowing rule is applied only "when it is *reasonably* possible to do so."[156] Furthermore, the *Phillips* court specified that this presumptively narrow maxim is limited "to cases in which 'the court concludes, after applying all the available tools of claim construction, that the claim is still *ambiguous*.'"[157] Thus, Federal Circuit law seemingly already incorporates a variation of *Chevron* Step One, in that courts must honor the unambiguous meaning of claim language irrespective of validity concerns and only pursue further inquiry when the claim language is ambiguous. Furthermore, Federal Circuit precedent also reflects a tendency toward a narrow meaning default penalty because courts faced with ambiguity are instructed to select the narrower interpretation for public notice and validity purposes. Finally, much like *Chevron*, this narrowing interpretation must be reasonable. In sum, the proposed regime combining *Chevron* deference with the narrowest reasonable meaning already enjoys cautious endorsement under current Federal Circuit decisional law.

Second, the Federal Circuit's statute analogy demands an examination of other substantive regimes' approaches to legal interpretation. In criminal law, vague statutes are narrowly construed in favor of the accused under a doctrine known as the rule of strict construction, also called the rule of lenity.[158] Important similarities and differences between the patent and criminal laws illustrate why this doctrine is particularly salient. Under the criminal laws, notions of public notice and due diligence bear mention:

> Just as the concern for notice would require invalidation of laws that give no fair warning, it would also imply that remaining ambiguities be resolved against the state. . . .

claim, and there is an enabling disclosure that indicates that the applicant is at least entitled to a claim having the narrower meaning, we consider the notice function of the claim to be best served by adopting the narrower meaning.").

[155] See Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed. Cir. 1999) ("'[C]laims should be so construed, if possible, as to sustain their validity.'") (quoting Carman Indus., Inc. v. Wahl, 742 F.2d 932, 937 n.5 (Fed. Cir. 1983)).

[156] Karsten Mfg. Corp. v. Cleveland Golf Co., 242 F.3d 1376, 1384 (Fed. Cir. 2001) (emphasis added).

[157] Phillips v. AWH Corp., 415 F.3d 1303, 1327 (Fed. Cir. 2005) (quoting Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 911 (Fed. Cir. 2004)) (emphasis added).

[158] See John Calvin Jeffries, Jr., Legality, Vagueness, and the Construction of Penal Statutes, 71 Va. L. Rev. 189, 198 (1985).

> . . . Even where the defendant shows actual reliance on an interpretation of law and further shows that such reliance was prudent and reasonable, the law does not care. The individual must get it right, and no amount of good faith or due diligence is exculpatory.[159]

Public notice and diligence play similar roles in the patent context. Patent law resolves claim ambiguities in favor of narrow meanings that benefit the accused infringer due to public notice concerns. Likewise, patent infringement is a strict liability offense in which due diligence and reasonable reliance are irrelevant to liability determinations. Instead, they only serve to insulate defendants from willful infringement and enhanced damages.

Importantly, many attacks against strict construction in the criminal context simply do not apply to the patent system. For instance, fair notice is often criticized as a fictional justification for strict construction of criminal statutes, since most criminal defendants typically do not consult the statutes before committing crimes[160] and are typically accused of morally reprehensible and/or socially undesirable activity.[161] In contrast, a patentee's competitors rely heavily on the public notice function of patent claims, as this is their means of engaging in design-arounds, improvements, and other follow-on innovations, all of which are highly desirable from a social welfare perspective. Thus, the preference for narrow interpretation is even more compelling in the patent claim construction context.

In a similar vein, courts have narrowly construed federal statutes in order to avoid constitutional questions which might otherwise invalidate the statute.[162] Just as narrowly interpreting statutes can help preserve validity from a constitutional perspective, adopting a narrow claim meaning likewise preserves patent validity by reducing the universe of potentially invalidating prior art. Thus, a nar-

[159] Id. at 210.

[160] See id. at 219–20.

[161] See id. at 231.

[162] See Edward J. DeBartolo Corp. v. Fla. Gulf Coast Bldg. & Constr. Trades Council, 485 U.S. 568, 575 (1988) ("[W]here an otherwise acceptable construction of a statute would raise serious constitutional problems, the Court will construe the statute to avoid such problems unless such construction is plainly contrary to the intent of Congress.").

row meaning default rule finds normative support in the interpretive regimes of the patent, criminal, and constitutional laws.

A final justification for a narrow meaning default rule is its consistency with both parties' respective litigation incentives. Under the Patent Act, issued patents are presumed valid.[163] A narrowest reasonable meaning default rule, which would generally preserve validity, is consistent with this statutory presumption and also provides an outcome much preferred by patentees embroiled in patent litigation. This is because patent invalidation is truly devastating from a patentee's perspective, as any invalidated claims are invalid against every potential infringer and not just the immediate defendant.[164] For the same reason, accused infringers would much prefer a narrow default rule which allows them to escape liability on noninfringement grounds, since their patent invalidation efforts would not accrue solely to them but would also extend to any other potentially infringing competitors. Thus, both the universal impact and free-riding concerns associated with patent invalidation provide normative support for a presumptively narrow claim meaning due to its congruence with both parties' litigation incentives. In a rare instance of mutually aligned interests, both patentees and accused infringers would prefer a resolution based on infringement determinations over the more drastic consequences of claim invalidation. A narrow meaning default rule furthers the likelihood of achieving this mutually desired outcome.

V. POTENTIAL CRITICISMS OF *CHEVRON*-BASED DEFERENTIAL REVIEW

As with any newly conceived reform, the *Chevron*-based regime proposed here is subject to various potential criticisms. A closer examination reveals various ways to minimize or overcome such concerns.

A. Risk of Noncompliance

One immediate criticism of the *Chevron*-based regime proposed here is the potential risk of noncompliance. Compliance with the

[163] 35 U.S.C. § 282 (2000).
[164] See Blonder-Tongue Lab. v. Univ. of Ill. Found., 402 U.S. 313, 350 (1971).

Chevron-based regime would require clearer claim drafting and greater disclosure ex ante in order to avoid the narrow meaning default penalty. As a result, patent prosecution could become more expensive to the extent that these efforts would require either patent attorneys to spend more billable time drafting patent applications or more qualified patent attorneys who charge higher rates. If these compliance costs outweigh the corresponding benefits, rational patent applicants may willingly absorb the narrow meaning default penalty rather than incur excessive costs. This outcome could occur for either of two reasons. First, across-the-board compliance for every patent application could simply be cost prohibitive—patent applicants may be unable or unwilling to pay for the increased patent prosecution costs associated with enhanced claim drafting and disclosure.[165] Second, cost-effectively targeting only the most promising inventions for compliance may also be impossible if these inventions cannot be reliably identified ex ante.

However, empirical research reveals why these concerns are largely unfounded, and rational patent actors can indeed readily comply with the proposed *Chevron*-based regime in a cost-effective manner. First, patentees understand that the overwhelming majority of patents are never litigated, and thus across-the-board compliance is simply an unrealistic and irrational aspiration.[166] Second, the ex ante identification of the most highly valued and litigation-prone patents is indeed a feasible cost-effective compliance mechanism, because these patents have been empirically demonstrated to "differ in substantial ways from ordinary patents both at the time the applications are filed and during their prosecution."[167] Such characteristics include, inter alia, more prior art citations, more claims, and longer prosecution span relative to non-litigated patents.[168] Importantly, these characteristics are "within the control

[165] This is particularly true for prolific patent applicants like IBM that typically file thousands of patent applications each year. See Martyn Williams, IBM Leads 2005 U.S. Patent Ranking, InfoWorld, Jan. 13, 2006, http://www.infoworld.com/article/06/01/13/73895_HNpatentranking_1.html ("[IBM] filed for 2,941 patents in 2005, which is down from 3,248 applications in 2004 . . . .").

[166] See Lemley, supra note 112, at 1501 ("[A]t most only about two percent of all patents are ever litigated, and less than two-tenths of one percent of all issued patents actually go to court.").

[167] John R. Allison et al., Valuable Patents, 92 Geo. L.J. 435, 438 (2004).

[168] See id.

of the applicant or at least known before or during patent prosecution,"[169] and thus "something that patent owners themselves can predict in advance."[170]

Cost-effective compliance with the information-forcing default rule is therefore a realistic goal. Patent applicants can effectively respond ex ante by identifying their most valuable and litigation-prone inventions and by strengthening their corresponding patent applications via improved claims drafting and disclosures. The empirical nature of patent litigation and litigated patents demonstrates why any initial fears of noncompliance are largely unfounded.

B. Risk of Non-uniformity

A second potential risk common to any system of deferential review is the risk of non-uniform claim interpretations. The most frequently cited scenario involves the same patent claims being litigated in multiple district courts, with different judges adopting divergent interpretations that will likely be affirmed on appeal.[171] The concern therefore is that deference will achieve efficiency at the expense of accuracy and uniformity.[172]

For various reasons, these contingencies should present relatively minimal concern. First, the doctrine of issue preclusion, or collateral estoppel, may provide a useful adjunct that is helpful for maintaining uniformity and accuracy.[173] Second, the role of the intrinsic record as the primary source of claim meaning serves as an important safeguard which minimizes the risk of divergent claim interpretations. Under both current Federal Circuit practice and the proposed *Chevron*-based regime, if the intrinsic record reveals an unambiguous claim meaning, then it must be adopted.[174] Extrinsic evidence may only be used where the intrinsic record is am-

[169] Id. at 460.

[170] Id. at 461.

[171] See Craig Allen Nard, A Theory of Claim Interpretation, 14 Harv. J.L. & Tech. 1, 75 (2000); see also Staheli, supra note 31, at 195–96.

[172] See Kyle J. Fiet, Restoring the Promise of *Markman*: Interlocutory Patent Appeals Reevaluated Post-*Phillips v. AWH Corp*., 84 N.C. L. Rev. 1291, 1314 (2006). But cf. Nard, supra note 171, at 75 (arguing that a deferential review standard would promote certainty and uniformity).

[173] See Nard, supra note 171, at 75.

[174] Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1584 (Fed. Cir. 1996).

biguous and may not be used to contradict the intrinsic record.[175] The intrinsic record thus performs an important policing role which constrains the permissible range of claim meaning, and minimizes the potential for divergent claim meanings.

Finally, and perhaps most importantly, *Chevron* deference is a more stringent standard of review than previous proposals arguing for "clear error" deference under Federal Rule of Civil Procedure 52(a).[176] Proponents of Rule 52(a) deference argue that claim construction involves underlying factual inquiries that should be reviewed for "clear error,"[177] which the Supreme Court has described as the "definite and firm conviction that a mistake has been committed."[178] Clear error deference is thus highly deferential and presents a far greater risk of non-uniformity because divergent interpretations could still be upheld provided that neither was clearly erroneous. *Chevron* deference, in contrast, requires interpretations to be "reasonable," a more stringent threshold that dictates a narrower range of permissible claim meanings. Ultimately, any measure of appellate deference poses some inherent risk of non-uniform, divergent claim meanings arising in multiple litigations. *Chevron* deference, the most stringent alternative to de novo review, best minimizes this risk, particularly when applied alongside the various forms of estoppel.[179]

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[175] Id.

[176] Fed. R. Civ. P. 52(a).

[177] See *Markman I*, 52 F.3d at 991 (Mayer, J., concurring) ("[A]ny facts found in the course of interpreting the claims must be subject to the same standard by which we review any other factual determinations: for clear error in facts found by a court."); see also David Krinsky, The Supreme Court, Stare Decisis, and the Role of Appellate Deference in Patent Claim Construction Appeals, 66 Md. L. Rev. 194, 202–03 (2006) ("An appellate court that emphasized the technical nature of patent documents would likely review claim interpretation only for clear error."); Timothy J. Malloy & Patrick V. Bradley, Claim Construction: A Plea for Deference, 7 Sedona Conf. J. 191, 200 (2006) ("[T]his paper's primary position is that certain district court claim construction findings, i.e. those based upon the weighing of extrinsic evidence as well as the application of that evidence to the claim language, should similarly be reviewed for clear error."); Rai, supra note 129, at 1057 ("Federal Rule of Civil Procedure 52(a) provides that factual findings made by trial court judges are to be reviewed under the clearly erroneous standard . . . . [W]hen a court is reviewing questions of law application that involve subsidiary findings of fact, the doctrinal framework suggests that the court should review the underlying factual findings deferentially.").

[178] United States v. U.S. Gypsum Co., 333 U.S. 364, 395 (1948).

[179] See Krinsky, supra note 177, at 226 ("The various forms of estoppel achieve many of the same goals while better assuring a result that has been derived in the correct

VI. *CHEVRON*'S POTENTIAL: A COMPARATIVE ASSESSMENT

The proposed *Chevron*-based regime also compares favorably with previously suggested patent reform proposals. Each of these previous proposals suffers from both specific drawbacks and general deficiencies, all of which are largely avoided by the proposed *Chevron*-based regime.

A. Previous Patent Reform Proposals

1. Clear Error Deference

Previous proposals endorsing deference under Rule 52(a) rely on the elusive distinction between law and fact, as only factual components would be entitled to "clear error" deference. Commentators have long understood that because there is often "no coherent mechanism for drawing such a distinction,"[180] the law/fact dichotomy has "plagued and confused [the] courts."[181] This reality not only makes clear error deference difficult to apply, but it also makes appellate deference easy to evade. Indeed, "to the extent that an appellate court refuses to recognize a particular question as involving a fact-finding component, it can avoid deference and adopt entirely de novo review."[182] In contrast, *Chevron* deference requires no law/fact distinctions and, in fact, abandons this elusive inquiry entirely,[183] simply asking instead whether a proposed meaning is reasonable. As a result, *Chevron* deference is much easier to apply and significantly more difficult to evade than clearly erroneous deferential review.

context and through adversarial advocacy by the interested parties. Nonmutual collateral estoppel may always be employed against a patentee on issues of claim construction; judicial estoppel may bind a patentee to the patentee's previous proposed constructions even where that patentee did not originally prevail.").

[180] Rai, supra note 129, at 1042.

[181] Nard, supra note 56, at 1423.

[182] Rai, supra note 129, at 1057; see also Martin B. Louis, Allocating Adjudicative Decision Making Authority Between the Trial and Appellate Levels: A Unified View of the Scope of Review, the Judge/Jury Question, and Procedural Discretion, 64 N.C. L. Rev. 993, 1018 (1986).

[183] See Nard, supra note 56, at 1424–25 ("[T]he *Chevron* decision did away with this law-fact distinction.").

2. Interlocutory Appeals

Interlocutory appeals are another widely discussed patent reform proposal, which would allow district courts to certify their claim constructions for interlocutory review before proceeding further with patent trials.[184] Thus far, the Federal Circuit has declined to entertain any such appeals,[185] and for good reason. Patent appeals represent a minority of the Federal Circuit's docket but require a disproportionate amount of the court's time and energy due to their highly complex nature.[186] Interlocutory appeals would thus dramatically increase the Federal Circuit's workload, as many parties who otherwise would have settled after their *Markman* hearing would instead be inclined to appeal claim constructions as a prudent precautionary pre-settlement measure.[187] Likewise, "district court judges would likely be eager to certify claim construction questions for interlocutory appeal before proceeding with a full blown trial," particularly in the present environment of frequent claim construction reversals.[188] Thus, although in theory interlocutory appeals could provide earlier certainty, in practice such appeals would decrease settlement incentives and overwhelm the Federal Circuit with an unmanageable workload.

3. Specialized Trial Courts

Previous commentators have also proposed specialized trial courts as a means for improving patent litigation.[189] The limitations of this approach, however, have already been recognized. First,

[184] See Moore, supra note 15, at 33; see also Fiet, supra note 172, at 1326.

[185] See *Cybor*, 138 F.3d at 1479 (Newman, J., dissenting).

[186] See Moore, supra note 15, at 34 ("[Whereas] patent appeals only represent about 20% of the Federal Circuit's docket in terms of the number of cases, they are the most complex and time consuming of the cases the court hears."); see also Marcia Coyle, Critics Target Federal Circuit, Nat'l L.J., Oct. 19, 2006, http://www.law.com/jsp/article.jsp?id=1161162317072 ("Patent cases represent about one-third of the court's total caseload . . . but if time devoted to those cases is measured, instead of just number of cases, the judges spend 50 percent more time adjudicating the patent cases than others on the docket.").

[187] See Moore, supra note 15, at 34–35.

[188] Id. at 35.

[189] See Rai, supra note 129, at 1097. See generally Gregory J. Wallace, Note, Toward Certainty and Uniformity in Patent Infringement Cases After *Festo* and *Markman*: A Proposal for a Specialized Patent Trial Court with a Rule of Greater Deference, 77 S. Cal. L. Rev. 1383 (2004).

there is to some extent already a de facto group of specialized patent courts—ten district courts currently conduct about forty-four percent of the nation's patent litigation.[190] These courts, despite their more frequent contact with patent cases, fare no better before the Federal Circuit, as empirical research reveals no statistically significant difference in reversal rates between these more active patent tribunals and their less experienced counterparts.[191] Second, to the extent that specialized trial courts would require judges with scientific expertise, finding these judges would be difficult, since the existence of a "group of judges who not only are sophisticated in the law but also have expertise in all of the various areas of science and technology" is unlikely.[192] Finally, "because specialized courts are prone to certain institutional pathologies, such as bias and tunnel vision, we should be cautious about creating such courts."[193] Thus, these various empirical, logistical, and functional considerations suggest that specialized patent trial courts would be of marginal value.

4. Third Party Participation

Another increasingly popular proposal is the use of third-party participation, such as post-grant opposition proceedings[194] and pre-grant Community Patent Review,[195] to improve the quality of pat-

[190] See Rai, supra note 129, at 1097.

[191] Chu, supra note 31, at 1121–23. At first glance, this empirical finding that experienced district courts have failed to acquire expertise over time would seemingly undermine the argument for *Chevron* deference, which is premised upon the initial tribunal's expertise. However, the narrowest reasonable meaning rule helps mitigate such concerns over expertise because it simplifies the process of claim construction and thus artificially increases the trial court's relative "expertise." Rather than canvassing the entire universe of potential claim meanings in search of a single best answer, trial courts would now need only select the narrowest reasonable meaning, something they should perform with much greater success.

[192] Rai, supra note 129, at 1098.

[193] Id. at 1099.

[194] See Benjamin & Rai, supra note 92, at 320–21.

[195] See Beth Simone Noveck, "Peer to Patent": Collective Intelligence, Open Review, and Patent Reform, 20 Harv. J.L. & Tech. 123, 128 (2006) ("[T]he USPTO will implement the model of 'Peer-to-Patent' open review as a pilot called Community Patent Review. The pilot focuses on integrating an open peer review process with the USPTO, creating and amalgamating a vetted database of prior art references to inform examination, and developing deliberation methodologies and technologies that allow community ranking of the data forwarded to the patent examiner.").

ent examination and issuance. With post-grant oppositions, the idea is that allowing competitors to assert prior art in proceedings before the PTO would improve patent quality by removing unwarranted patents from the system prior to litigation.[196] Likewise, pregrant Community Patent Review proposes a system of open patent examination in which the scientific community conveys its knowledge of prior art to assist the patent examiner in assessing patentability.[197] A primary difficulty with these proposals is the existence of collective action or free-rider concerns, since the benefits of successful oppositions or reviews are nonexcludable. A prevailing challenger cannot prevent other competitors from also practicing an invalidated invention.[198] Although providing a reward or bounty might help alleviate this collective action problem, such bounties "are subject to problems of collusion and are also notoriously difficult to calibrate appropriately."[199] Therefore, third-party participation may be useful in some instances but may sometimes be hindered by collective action problems.

B. Comparing and Contrasting Chevron*-Based Review*

In addition to the specific drawbacks described above, each of these previously suggested patent reforms suffer from a more fundamental drawback: an excessive ex post emphasis that undermines their overall efficiency. Because clear error deference, interlocutory appeals, and specialized trial courts are all ex post measures that do not operate until litigation has already commenced, their purported benefits are only realized far downstream after significant costs have already been incurred. Although third-party participation operates further upstream, it inefficiently allocates informational burdens by requiring third parties to provide relevant information, rather than the lowest-cost provider, the patent applicant. This inefficiency also plagues clear error deference, interlocutory appeals, and specialized trial courts, because alleged infringers and courts must expend great effort clarifying patentees'

[196] See Benjamin & Rai, supra note 92, at 320–21.
[197] See Noveck, supra note 195, at 127.
[198] See John R. Thomas, Collusion and Collective Action in the Patent System: A Proposal for Patent Bounties, 2001 U. Ill. L. Rev. 305, 333.
[199] Benjamin & Rai, supra note 92, at 325; see also Thomas, supra note 198, at 345.

intentional ambiguities. Thus, as predominantly ex post measures, these previous proposals will fail to efficiently resolve the undesirable chilling effects and unanticipated litigation resulting from patentees' ex ante incentives to exploit ambiguities.

In contrast, the proposed *Chevron*-based regime operates much farther upstream, providing a more efficient delivery of early certainty and accuracy. The narrow meaning default penalty, by providing ex ante incentives to draft clearer claims and greater disclosures, delivers earlier certainty and accuracy at the prosecution stage, rather than waiting for litigation. Likewise, forcing these informational burdens upon the patentee is the most efficient mechanism for addressing the indeterminacy and information costs of claim construction, because the patentee is the lowest-cost provider of this valuable information. Importantly, this information flows from the lowest-cost provider to the highest-value recipients—the competitors—who then use this information to promote further innovation. The net effect of realigning these ex ante incentives is to reduce the chilling effects and unanticipated litigation that would otherwise arise from ambiguous patent claims. Ex post, *Chevron* deference also provides greater efficiency by simplifying claim construction efforts and imposing a more certain and predictable appellate outcome, which should decrease litigation costs and effectively decrease parties' incentives to reflexively pursue claim construction appeals, respectively. Taken together, the *Chevron*-based proposal offers simultaneous ex ante and ex post benefits which offer a more comprehensive solution than any regimes proposed thus far.

As a final observation, the previous reform proposals are relatively radical and novel interventions with which we have little or no experience. As a result, there may be unanticipated consequences which simply create new problems in the course of resolving old ones. *Chevron* deference, in contrast, is nearly as old as the Federal Circuit. Courts are well acquainted with the overall operation and consequences of *Chevron* deference, and applying this familiar doctrine in the patent context benefits from this well-established knowledge base. Likewise, narrow interpretive canons exist in various other regimes and are thus a relatively familiar tool which can be applied with greater confidence and certainty than entirely novel proposals. Importantly, the Federal Circuit itself

regularly reviews whether the PTO has properly applied the "broadest reasonable construction" during prosecution,[200] making the Federal Circuit already well situated to adapt to the proposed *Chevron*-based review and its accompanying narrowest reasonable construction rule. All things being equal, a patent reform proposal that is more familiar should be preferred over more radical or novel interventions in order to best avoid unforeseen complications.

The proposed *Chevron*-based regime is thus more advantageous than previous proposals in two important respects. First, it offers a more comprehensive solution which reforms the patent system from both ex ante and ex post perspectives. Second, it is based upon well-established legal doctrines, and thus can be implemented with greater certainty and confidence and less risk of unanticipated consequences.

CONCLUSION

The problematic nature of claim construction results from patent applicants' intentionally vague claim drafting strategies, rather than any shortcomings of the district courts or Federal Circuit. Accordingly, an effective cure must target this underlying source of claim construction difficulties, unlike the current regime of de novo review that simply targets the symptoms.

A regime of *Chevron* deference, together with a narrow meaning default penalty, would effectively achieve this result and provide an important policy instrument with broad patent reform potential. The proposed regime's upstream focus would facilitate multi-institutional reforms benefiting the Patent Office, district courts, the Federal Circuit, and competitors, by encouraging clearer claim drafting ex ante and discouraging unnecessary appeals ex post. Both the public notice function of patent claims and the prominence of the trial court would be properly restored.

Importantly, *Chevron*-based appellate review would achieve these important policy objectives in a manner that is doctrinally consistent with the leading claim construction precedent. First,

[200] See, e.g., In re Icon Health & Fitness, Inc., 496 F.3d 1374, 1379 (Fed. Cir. 2007) ("[T]he Board's construction properly represents the broadest reasonable construction.").

Chevron analysis is consistent with the Federal Circuit's "patent claims as statutes" analogy, originally set forth in *Markman I*. Second, the narrow meaning default rule, which encourages applicants to engage in clearer claim drafting and greater disclosure, promotes the intrinsic record heralded in *Phillips*. Finally, a renewed focus on the prominence and effectiveness of the trial court is consistent with the "functional considerations" described in *Markman II*. Together, these various aspects of the proposed *Chevron*-based regime would wisely implement an old axiom: "an ounce of prevention is worth a pound of cure."