2008

**Under Construction: Towards a More Deferential Standard of Review in Claim Construction Cases**

Jeffrey Peabody  
*Indiana University Maurer School of Law*

Follow this and additional works at: [https://www.repository.law.indiana.edu/student_articles](https://www.repository.law.indiana.edu/student_articles)

Part of the Intellectual Property Law Commons

**Recommended Citation**

[https://www.repository.law.indiana.edu/student_articles/1](https://www.repository.law.indiana.edu/student_articles/1)

This Article is brought to you for free and open access by the Student Scholarship at Digital Repository @ Maurer Law. It has been accepted for inclusion in Student Articles by an authorized administrator of Digital Repository @ Maurer Law. For more information, please contact rvaughan@indiana.edu.
Under Construction: Towards a More Deferential Standard of Review in Claim Construction Cases

Jeffrey Peabody*

Introduction

In patent law, a patent’s claims define its metes and bounds; broader claims grant the patentee greater power to exclude others from practicing the invention.1 Similarly, more narrow claims will give the patentee less ability to control the actions of others. While other patent validity requirements (nonobviousness, novelty, and utility) act as outer limits on claim scope, the general rule is that patent applicants seek to have the broadest claims possible.

The United States Patent and Trademark Office must approve a patent applicant’s claims before the patent can be issued.2 Issuing a patent, however, does not mean that the patent’s ‘metes and bounds’ are conclusively established; trial courts are left to determine what exactly the claim terms mean.3 This process of claim construction is particularly important in infringement cases. Whether the claim covers, or reads on, an allegedly infringing device depends on what meaning the trial judge assigns to the words contained within the patent itself. To reach this decision, the trial judge may rely on several sources of information: the patent and its supporting documents, technical dictionaries, even evidence from experts within the technological field.4 While claim construction is often viewed as a preliminary matter, and

---

* J.D. Candidate, 2008, Indiana University School of Law—Bloomington, registered patent agent. Thanks to my wife Melissa and daughter Emerson for their love and inspiration. Thanks also to Kevin Collins for his advice and feedback.

1 See In re Vamco Mach. & Tool, Inc., 752 F.2d 1564, 1577 n.5 (Fed. Cir. 1985) (“[C]laims are not technical descriptions of the disclosed inventions but are legal documents like the descriptions of lands by metes and bounds in a deed which define the area conveyed but do not describe the land.”).


3 See In re Vamco, 752 F.2d at 1577 n.5.

4 These sources of evidence are typically divided into two classes: intrinsic evidence (the patent specification, claims, and prosecution history), and extrinsic evidence (dictionaries, expert testimony, etc.). See John M. Romary & Arie M. Michelsohn, Patent Claim Interpretation After Markman: How the Federal Circuit Interprets Claims, 46 AM. U. L. Rev. 1887 n.11 (1997). Courts are only to turn to extrinsic evidence when necessary to properly
handled within a special *Markman* hearing, defining the claims' scope is often outcome-determinative of the broader question of infringement.\(^5\)

This article addresses the question of what standard of review is appropriate for appellate courts to use when reviewing the trial court's claim construction. Is claim construction purely a question of law? Is it some mix of fact and law? Should this affect how the Court of Appeals for the Federal Circuit (Federal Circuit), which has jurisdiction over all patent appeals, reviews claim construction decisions by lower courts? Perhaps most importantly, is the current de novo standard of review the best choice?

This article argues that the status quo fails to achieve the goals of consistency and accuracy which both Congress and the Supreme Court envisioned, and that a more deferential standard of review would yield better decisions. Part I discusses the history behind the Federal Circuit's use of de novo review as applied to claim construction issues. Part II points to signs suggesting that, at least internally, the Federal Circuit recognizes inherent limitations in the status quo, and yet is still reluctant to change the standard of review. Part III provides a survey of proposed changes, coupled with a normative view towards a more deferential standard such as *clearly erroneous*. Finally, Part IV discusses *Amgen, Inc. v. Hoechst Marion Roussel, Inc.*,\(^6\) and why the Supreme Court should have seized this opportunity to establish a more deferential standard for appellate claim construction review.

I. History of De Novo Review

A. The *Markman* Cases

Before discussing the history of the appellate standard of review for claim construction, it is important to outline the shifting conception of who is responsible for determining the meaning of patent claims at the trial level. Prior to 1995, claim construction issues were typically decided by the jury.\(^7\)


\(^7\) See, e.g., *Winans v. Denmead*, 56 U.S. 330, 343 (1853) (“[I]t is the duty of the courts and juries to look through the form for the substance of the invention—for that which
Arguably, the Seventh Amendment applied equally to patent infringement cases as to other cases. Thus, parties had a right to have a jury determine the ultimate scope of a patent claim.\(^8\)

However, in *Markman v. Westview Instruments, Inc.*,\(^9\) the trial judge instructed the jury to consider all relevant evidence in making their final claim construction.\(^10\) After the jury found in favor of a plaintiff, the trial judge determined that, *as a matter of law*, the correct claim construction precluded a finding of infringement, and entered judgment in favor of the defendant.\(^11\) The plaintiff appealed to the Federal Circuit, claiming that this violated his Seventh Amendment right to a jury trial.\(^12\) The Federal Circuit, sitting en banc, affirmed the lower court, finding that “the court has the power and obligation to construe *as a matter of law* the meaning of language used in the patent claim.”\(^13\) The Supreme Court, in *Markman II*,\(^14\) upheld the Federal Circuit opinion, finding that claim construction is “the exclusive province of the court.”\(^15\)

By holding that judges are responsible for claim construction, the Court in *Markman II* focused on practical considerations: the judge was simply better suited to handle this responsibility than the jury and a desire for uniformity.\(^16\) Comparing claim construction to the legal interpretation of other written documents, the unanimous majority stated that: “The judge, from his training and discipline, is more likely to give a proper interpretation to such instruments than a jury; he is, therefore, more likely to be right, in performing such a duty, than a jury can be expected to be.”\(^17\) The question, then, became one more about accuracy than about the propriety of which institutional body (the judge or the jury) should make the final determination. Given the fact that

\(^8\) U.S. CONST. amend. VII. (“In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved.”)


\(^10\) Id. at 973.

\(^11\) Id.

\(^12\) See id. at 984.

\(^13\) Id. at 979 (emphasis added).


\(^15\) Id. at 376.

\(^16\) Id. at 388–90.

\(^17\) Id. at 388–89 (quoting Parker v. Hulme, 18 F. Cas. 1138, 1140 (C.C.E.D. Pa. 1849) (No. 10,740)).
the claim construction is routinely dispositive of the entire case, granting trial judges complete control over claim construction often has the practical, if not legal, effect of completely depriving the parties of a jury trial.

A second consideration for the Court in Markman II was a desire for uniformity in the treatment of any given patent. Though the Court recognized that issue preclusion would “ordinarily foster uniformity,” even if the decision was left in the hands of the jury, the Court opted in favor of treating claim construction as a purely legal question, believing that stare decisis would “promote (though it will not guarantee) intrajurisdictional certainty” and that ultimately interjurisdictional uniformity would come through the authority of the single appeals court. This result, the Court argued, is consistent with the underlying purpose for the creation of the Federal Circuit in the first place—Congress wanted one appellate court that would have exclusive jurisdiction over patent cases.

This resolved the issue of the proper methodology for claim construction, but did nothing to resolve the question of what standard of review should be applied by the Federal Circuit when reviewing claim construction issues. This question was previously left ambiguous after earlier opinions of the Federal Circuit. In Markman I, the Federal Circuit held that claim construction should be reviewed at the appellate level under a de novo standard as a purely legal question. The Supreme Court passed on this question in Markman II, although it did reiterate that claim construction “falls somewhere between a pristine legal standard and a simple historical fact.” This created some doubt as to whether Markman I was still good law. The Federal Circuit responded quickly, in Cybor Corp. v. FAS Technologies, Inc. wherein the court

19 Markman II, 517 U.S. at 390.
20 Id. at 391.
21 Id. at 390.
22 But see Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448 (Fed. Cir. 1998) (en banc) (reaffirming that claim construction, as a purely legal question, is reviewed de novo).
23 See Markman v. Westview Instruments, Inc. (Markman I), 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc) (collecting inconsistent cases), aff’d, 517 U.S. 370 (1996).
24 Markman I, 138 F.3d at 979.
25 Markman II, 517 U.S. at 388 (quoting Miller v. Fenton, 474 U.S. 104, 114 (1985)).
27 138 F.3d 1448 (Fed. Cir. 1998) (en banc).
reestablished that claim construction was a purely legal question, subject to de novo review.28

B. Cybor Corp.

In Cybor, the Federal Circuit squarely addressed the question of what effect, if any, Markman II had on the holding in Markman I.29 A divided panel held that the Supreme Court did not intend to modify or reverse the Federal Circuit's holding that claim construction is subject to de novo review.30 In reaching this decision, the Cybor court had to overrule several post-Markman II cases applying a deferential standard of review.31 The Cybor court also had to contend with the language of Markman II itself which was accomplished through a semantic sleight-of-hand: "These characterizations [that claim construction is a mixed question of law and fact], however, are only prefatory comments demonstrating the Supreme Court's recognition that the determination of whether patent claim construction is a question of law or fact is not simple or clear cut . . . ."32 The Cybor court read the Supreme Court's silence on the standard of review issue as an implicit endorsement of the Federal Circuit's de novo standard.33

The Federal Circuit did not easily reach its decision in Cybor. The opinion generated four separate concurrences and "additional views," as well as an oft-quoted dissent by Judge Rader.34 These separate opinions form the beginning of the internal conflict within the Federal Circuit that continues to this day.35 They have also provided ammunition for critics of de novo review who point to empirical studies that undermine the rationale behind the standard.36 Part III will discuss Cybor's concurrences and dissent in greater detail.

28 Id. at 1451.
29 Id.
30 Id. at 1456.
31 Id. (overruling Fromson v. Anitec Printing Plates, Inc., 132 F.3d 1437 (Fed. Cir. 1997); Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F.3d 1547 (Fed. Cir. 1997); Wiener v. NEC Elecs., Inc., 102 F.3d 534 (Fed. Cir. 1996); Metaullics Sys. Co., L.P. v. Cooper, 100 F.3d 938 (Fed. Cir. 1996)).
32 Id. at 1455 (emphasis added).
33 Id. at 1455 n.4 (noting that if the Supreme Court had intended to leave claim construction a mixed question of fact and law, "surely the Supreme Court would have discussed whether subsidiary or underlying fact questions should be decided by the judge or jury").
34 See id. at 1450–51.
36 See infra Part II.C.
C. Phillips v. AWH

Cybor was the final word on the subject for seven years, until the Federal Circuit heard Phillips v. AWH Corp. In an unusual move, the Federal Circuit asked for briefing from the parties and amici on seven questions. While the majority of the questions dealt with the methodology of claim construction, namely the appropriate use of dictionaries and other extrinsic sources, Question Seven asked: “Consistent with the Supreme Court’s decision in [Markman II] and our en banc decision in [Cybor], is it appropriate for this court to accord any deference to any aspect of trial court claim construction rulings? If so, on what aspects, in what circumstances, and to what extent?”

Observers expected the Federal Circuit to squarely face the issue of appellate review of claim construction and the request for responses (which generated amicus briefs from a healthy response from the legal community, with over thirty companies, industry organizations, and government agencies). Yet, instead of addressing the mounting criticism and doubt over the Markman I and Cybor decisions, the Federal Circuit merely stated: “After consideration of the matter, we have decided not to address that issue at this time. We therefore leave undisturbed our prior en banc decision in Cybor.” The Federal Circuit provided no reasoning as to why the Federal Circuit passed on this opportunity to shore up its earlier arguments in favor of more stringent appellate review.

Judge Mayer, joined by Judge Newman, lashed out at the majority in his dissent for failing to give even provide a cursory explanation for why Question Seven was ignored: “[Today] we say nothing new, but merely restate what has become the practice over the last ten years—that we will decide cases according to whatever mode or method results in the outcome we desire, or at least allows us a seemingly plausible way out of the case.” Calling the Federal Circuit’s claim construction rulings nothing more than “interpretive necromancy,” Mayer predicted that any attempt to develop a consistent approach under the de novo standard would be pointless.

37 415 F.3d 1303 (Fed. Cir. 2005).
39 Id.
40 See Phillips, 415 F.3d at 1330 (Mayer, J., dissenting).
41 Id. at 1328 (majority opinion).
42 See id.
43 Id. at 1330 (Mayer, J., dissenting).
44 Id. (quoting The Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc., 535 U.S. 826, 833 (2002)).
D. Amgen, Inc. v. Hoechst Marion Roussel, Inc.

The final noteworthy decision dealing with whether the Federal Circuit should afford deference to lower court claim construction was actually a denial of rehearing en banc. In Amgen Inc. v. Hoechst Marion Roussel, Inc., the Federal Circuit considered a petition for rehearing that would have provided it with an opportunity to revisit the de novo standard. The rehearing was denied, but not without six separate opinions suggesting that a majority of the Circuit is ready to rethink at least some aspects of Cybor.

II. An Undercurrent of Doubt

As Part I discussed, the Federal Circuit did not easily conclude that de novo review was the appropriate standard to apply in claim construction cases. Part II discusses criticisms of the Cybor decision, both from Federal Circuit judges and from outside empiricists. It ends with an examination of empirical studies that have largely confirmed the failure of Cybor to create certainty and uniformity.

A. Cybor's Critics

In Cybor, the Federal Circuit had to decide what effect Markman II had on its earlier ruling that claim construction was a purely legal question subject to de novo review. Finding no clear command from the Supreme Court that Markman I was incorrectly decided, the majority in Cybor concluded that de novo review was still appropriate. Chief Judge Mayer's concurrence, as well as Judge Rader's dissent, took issue with this ruling.

Chief Judge Mayer's concurrence agrees with the majority's result, but not its reasoning. Stating the majority opinion "profoundly misapprehends" Markman II, he notes that the Supreme Court did not explicitly adopt or approve of the Federal Circuit's approach in Markman I, even though it could have easily done so. Chief Judge Mayer pointed out that the Federal Circuit,

46 Id.
47 See id.
48 See supra Part I.A–B.
50 Id. at 1456.
51 Id. at 1463 (Mayer, C.J., concurring); id. at 1473 (Rader, J., dissenting).
52 Id. at 1463 (Mayer, C.J., concurring).
53 Id. at 1463–64 ("It would have been a simple matter for the Court to give short shrift to this argument by proclaiming construction purely, solely, and always a matter of law that
only months before Cybor, had applied a clearly erroneous standard to factual findings made by the trial judge in Fromson v. Anitec Printing Plates, Inc., and questioned the court’s ability to overturn such recent precedent: “If this court does not believe the claim construction to be erroneous based on an independent review of the legal conclusions and a review of the constituent factual findings for substantial evidence, it must affirm.”

Judge Rader’s dissent was blunt: “[T]his rejection of the trial process as the ‘main event’ will undermine, if not destroy, the values of certainty and predictability sought by Markman I.” Judge Rader did not challenge the decision that claim construction should be the responsibility of the trial judge. Instead he questioned the implicit notion of the majority that the process of claim construction involved no fact-finding. His complaint was not about who did claim construction, but rather how it was done. By reviewing claim construction de novo, the Federal Circuit intentionally ignored the obvious, namely that trial judges are not universally equipped to properly construe claim terms without resorting to outside help. Claim construction is fundamentally different from contract interpretation because the question is not simply what do the terms mean, but rather what do the terms mean to a person of ordinary skill in the art. Judge Rader’s dissent quoted a district court that was already frustrated with the Federal Circuit’s head-in-the-sand approach: “[W]hen the Federal Circuit Court of Appeals states that the trial court does not do something that the trial court does and must do to perform the judicial function, the court knowingly enters a land of sophistry and fiction.”

Judge Rader noted that the rationale behind Markman I was that earlier certainty in claim construction disputes would lead to earlier settlement. Providing litigants with a clear idea of what to expect at trial would foster settlements and reduce both litigation expense and administrative burden.

would never have gone to the jury.

54 132 F.3d 1437 (Fed. Cir. 1997).
55 Id. at 1465.
56 Id. at 1474 (Rader, J., dissenting).
57 See id. at 1478.
58 See id. (“In Markman I, this court en banc declared that claim interpretation resides solely with the judge. The Supreme Court agreed. By removing lay juries from complex technological decisions, these decisions promised to improve the predictability and uniformity of patent law.”) (citations omitted).
59 See id. at 1474 (“When confronted with sophisticated technology, district court judges often seek testimony from experts to help them understand and interpret the claim.”).
60 See id. at 1475.
62 Id.
on the courts.\textsuperscript{63} If the purpose of \textit{Markman I} was to provide early claim construction, subjecting that determination to de novo review eliminates any advantage that an early claim interpretation could provide. Because a trial court's interpretation of a patent claim is given no deference at the appellate level, litigants must wait until the entire litigation process has concluded before they can reasonably assess their case, "at which point, of course, every outcome is certain anyway."\textsuperscript{64}

\section*{B. The \textit{Amgen} Denial}

The Federal Circuit's decision to not rehear \textit{Amgen} is a missed opportunity to reconsider the Federal Circuit's decision in \textit{Cybor}. Although the court decided to pass on the case, six separate opinions document the internal belief by a majority of the Federal Circuit that some form of change is needed.\textsuperscript{65}

In a joint dissent, Judges Michel and Judge Rader point to four "practical problems" that the de novo standard created.\textsuperscript{66} Given Judge Rader's strong dissent in the original case to adopt a \textit{no deference} standard, it is not surprising that both judges question the analogy of claim construction to statutory interpretation and would be willing to reconsider all aspects of the \textit{Cybor} decision.\textsuperscript{67}

Judge Newman's dissent challenges the methodology of claim construction adopted by the court.\textsuperscript{68} In \textit{Phillips v. AWH Corp.}, the court held that claims cannot be construed more broadly than the invention itself.\textsuperscript{69} Judge Newman argues that in doing just that, the panel majority in \textit{Amgen} impermissibly broadened the scope of the claim so that it was invalidated by prior art.\textsuperscript{70} Asking only that the Federal Circuit faithfully apply the appropriate standard, regardless of how the issue is framed, Judge Newman hesitates to answer the question of whether claim construction is a matter of law or a matter of fact.\textsuperscript{71} If claim construction is truly a matter of law, then the court must follow the "fundamental principles" of claim construction set forth

\textsuperscript{63} Id. This is particularly true in infringement cases that are typically won or lost based on the meaning assigned to the critical claims at issue.

\textsuperscript{64} Id. at 1476.

\textsuperscript{65} See \textit{Amgen Inc. v. Hoechst Marion Roussel, Inc.}, 469 F.3d 1039, 1040 (Fed. Cir. 2006), \textit{cert. denied}, 127 S. Ct. 2270 (2007).

\textsuperscript{66} Id. (Michel, C.J., dissenting).

\textsuperscript{67} See \textit{id.} at 1040-41.

\textsuperscript{68} Id. at 1041 (Newman, J., dissenting).

\textsuperscript{69} Id.

\textsuperscript{70} Id.

\textsuperscript{71} See \textit{id.} at 1043.
in earlier cases.\textsuperscript{72} If claim construction is based on a case-specific finding of fact, then “appellate review warrants deference to the trier of fact, a deference here lacking.”\textsuperscript{73} Finally, Judge Newman argues that appellate review of claim construction should be modeled after how courts handle \textit{Daubert} scientific findings,\textsuperscript{74} and the Federal Circuit’s insistence on a more stringent standard of review has “not well withstood the test of experience.”\textsuperscript{75}

In his dissent, Judge Rader openly attacks the court’s insistence on de novo review, despite the Supreme Court’s own remark that claim construction is a mixed question of law and fact.\textsuperscript{76} Because the trial court “has more tools, more time, and more direct contact with factual evidence,” Judge Rader would give greater deference to the inherently factual determinations made by trial judges.\textsuperscript{77}

Judges Gajarsa, Linn, and Dyk concurred jointly in the denial.\textsuperscript{78} Their concurrence indicates a willingness to reconsider “limited aspects” of \textit{Cybor} if the appropriate case were to arise.\textsuperscript{79} For these judges, the appropriate case would be one where the final claim construction necessarily required the district court to resolve conflicting expert testimony.\textsuperscript{80} Because the district court in \textit{Amgen} construed the claims without resort to expert evidence, no deference was due to the lower court’s legal interpretation.\textsuperscript{81}

Even a cursory examination of these dissenting opinions reveals that, for many of the Federal Circuit judges, the \textit{Cybor} decision did not clarify or bring uniformity to the claim construction process.\textsuperscript{82} Because the Federal Circuit has chosen not to address this issue en banc, the Supreme Court should have stepped in and provided clear guidance to the lower courts; instead, the problems of de novo review persist. With the Court’s recent focus on patent

\textsuperscript{72} \textit{Id.} at 1042–43.
\textsuperscript{73} \textit{Id.} at 1043.
\textsuperscript{74} \textit{Id.} at 1043 (referring to \textit{Daubert} hearings as created in \textit{Daubert} v. Merrell Dow Pharm., Inc., 509 U.S. 579 (1993)).
\textsuperscript{75} \textit{Id.} (Newman, J., dissenting).
\textsuperscript{76} \textit{Id.} at 1044 (Rader, J., dissenting).
\textsuperscript{77} \textit{Id.}
\textsuperscript{78} \textit{Id.} at 1045 (Gajarsa, Linn & Dyk, JJ., concurring).
\textsuperscript{79} \textit{Id.}
\textsuperscript{80} \textit{Id.}
\textsuperscript{81} \textit{Id.} This highlights a problem pointed out by Judge Rader—district courts understand that they are not allowed to rest their decision on expert testimony, yet they need that testimony in order to even understand the issues. \textit{Id.} at 1044 (Rader, J., dissenting). The district courts have learned to take in the testimony, but disavow any reliance upon it in reaching their legal conclusion. \textit{Id.}
\textsuperscript{82} See \textit{id.} at 1040 (Michel, C.J., dissenting) (arguing that \textit{Cybor} creates unpredictability about appellate outcomes, confounding trial judges and discouraging settlements).
law, many believe that the Court should have seized upon the *Amgen* case as its vehicle for exploring the policy implications of de novo review.83 Part IV, infra, will discuss the *Amgen* writ in greater detail and why the Court should have accepted it.

**C. Empirical Studies of the Current De Novo Standard of Review**

Since the Federal Circuit seems reluctant to change its de novo review standard, the question becomes whether there is any need for change. If the current review system generates the uniformity and certainty that *Markman II* sought to create, then perhaps adopting a more deferential standard is unnecessary. This section explores the empirical studies conducted post-*Cybor* and concludes that the current system is *not* creating uniformity or certainty.

One of the earliest empirical studies of post-*Cybor* Federal Circuit opinions was conducted by Christian Chu in 2001.84 After reviewing 502 patent appeals heard between January 1998 and April 2000, Chu noted that the reversal rate for all issues, including claim construction, hovered around 37%.85 When Chu focused on claim construction cases, he noted that there was an increase in the rate that the Federal Circuit changed claim construction on appeal.86 Perhaps more significantly, when the Federal Circuit modified the claim interpretations, the reversal rate rose dramatically to 68%.87 This highlights the uncertainty that de novo review brings to patent law—not only are claims frequently reinterpreted at the appellate level, but such modifications very often bring a reversal of the lower court decision. Despite this increasing trend towards reversal, Chu noted that the overall reversal rate for claim construction cases was actually lower (29.6%) than the 37.3% rate of claim construction reversal cited by Judge Rader in *Cybor*.88

Judge Moore, now sitting on the Federal Circuit, conducted a more recent study and determined that the Federal Circuit held that the district court incorrectly interpreted 34.5% of all claim terms that were appealed.89 The Federal Circuit reversed or vacated the district court’s decision in 29.7% of

---

83 *But see* Amgen Inc. v. Hoechst Marion Roussel, Inc., 127 S. Ct. 2270 (2007), denying cert. to 469 F.3d 1039 (Fed. Cir. 2006).


85 *Id.* at 1098–1100 (finding overall reversal rate of 47.3% among written opinions and a reversal rate of 36.6% when summary affirmances were included).

86 *Id.* at 1101.

87 *Id.* at 1104.

88 *Id.*

the cases where the district court was found to have misinterpreted the patent claims. The study confirms that while there was a slight decrease in reversal rates as time passed after Markman, the post-Cybor time span has seen increasing claim construction reversal rates. Judge Moore placed the blame squarely with the Federal Circuit because the court failed to develop clear guidelines for claim construction. The higher reversal rate, however, must also be attributed to the non-deferential scrutiny the district courts face. Unfettered de novo review allows the Federal Circuit, which already has exclusive jurisdiction over patent appeals, to position itself as the sole arbiter of what constitutes valid claim construction. The institutional limitations of the Federal Circuit, as discussed earlier, are only exasperated by the lack of restraints placed upon the Circuit's review of district court decisions.

III. Proposed Changes

Since Markman I, the Federal Circuit has held that claim construction, despite its dependence on factual underpinnings, is exclusively a legal question, and should be reviewed de novo at the appellate level. But is this the right approach? Does de novo review promote the Supreme Court’s twin goals in its Markman II decision, namely uniformity and accuracy? This Part will discuss the relative merits of de novo review as opposed to the more deferential standard of clearly erroneous.

A. Structural Versus Methodological Status Quo

In discussing the current claim construction appellate review system, it is easy to conflate the questions of who should do claim construction and how claim construction should be done. While this paper focuses more on the how of claim construction review, a few words about the structure of the appeals process is necessary. Several papers have proposed changes to the current one court to rule them all approach to patent appeals, most operating under the assumption that the de novo standard would continue to control how the Federal Circuit reviews claim construction. After briefly exploring some of these proposals, this section will suggest that organizational changes may

---

90 Id. at 239.
91 Id. at 246.
92 See id. at 247.
be appropriate, even if the Federal Circuit were to adopt a more deferential standard of review.

1. Specialized Trial Courts

Recognizing that patent law involves complex issues of fact, some commentators have suggested creating a specialized trial court to handle patent cases. Arguably, this would have two benefits: first, since the court would have greater expertise in claim construction issues than a typical district court, we can expect the trial court to 'get it right' more often, and second, the Federal Circuit may feel obligated to afford greater deference to the factual determinations made by such a specialized court. Of course, if the Federal Circuit were to adopt a more deferential standard of review, such deference would be automatic. However, the notion of specialized trial courts obviates some of the present difficulties faced by the Federal Circuit.

Creating a specialized patent trial court would not come without costs. The investment in training, time, and money to create a parallel judicial system, replete with trained judges and possibly trained juries, would be massive if not impractical. One possible way to decrease this investment would be to minimize the role of the jury at the trial level, and instead rely more heavily on court-appointed experts. To some degree this has already taken place in many cases involving complex scientific facts. The Supreme Court's decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.* emphasizes the judge's role in evaluating and admitting expert testimony. By extending *Daubert* to the patent field, it may be possible to create a specialized patent trial court with circumscribed jury participation.

If the Federal Circuit were to adopt a more deferential standard of review, the benefits associated with developing a specialized trial court likely would not outweigh the substantial costs. Furthermore, many already see the patent system as too segregated from the rest of the legal field; having a separate

---


99 See Id. at 592–93. The *Daubert* standard places responsibility on trial judges to act as gatekeepers of scientific evidence. Under a two-prong analysis, judges are required to determine the relevancy and reliability of expert testimony before it is admitted. *Id.*
judicial track for the entire patent process would increase uniformity at the expense of breadth and diversity. Finally, creating a specialized court system for patents creates a line-drawing problem: if the rationale for the creation of this trial court is the complex factual nature of patent cases, why not create special trial courts for the many other areas of law that involve highly complicated scientific or technical issues? Our legal system has generally avoided the segregation of cases into separate tracks; patent law is one of the few areas (along with tax and bankruptcy law) where the need for a special appellate court system was deemed important enough to justify this separation.

2. Patent Pilot Program

An alternative to specialized trial courts is to create specialized patent judges. Congress has considered a pilot program that would allocate additional resources to certain district courts (those facing the greatest number of patent cases) in order to train their judges in patent law, and to hire additional law clerks with patent law knowledge. The current version of this bill, H.R. 34, passed the House and was referred to the Senate Committee on the Judiciary on February 13, 2007.

The patent pilot program would choose at least five district courts, from among the fifteen districts that decide the most patent and plant protection cases, to participate in the program. The districts must also contain at least three judges who have volunteered to participate in the program. Once a district has been selected for participation in the pilot program, cases are distributed randomly among all of the district's judges. If a judge is assigned a patent case, and has not elected to participate in the program, he or she can decline the case, and have it reassigned to one of the 'patent' judges.

Ideally, this would funnel patent cases to a select group of judges in each of these districts; those judges would gain experience by handling a larger number of patent cases and would also be given "educational and professional development" in matters relating to patent law. However, while this program may lead to more accurate trial-level decisions, there is no guarantee that it will lead to fewer Federal Circuit reversals.

100 See Bruff, supra note 96, at 331.
101 Id. at 332–37.
103 H.R. 34.
104 H.R. 34 § 1(b).
105 H.R. 34 § 1(a)(A), (b)(2).
106 H.R. 34 § 1(a)(1)(B)–(D).
107 H.R. 34 § 1(a)(1)(C)–(D).
108 See H.R. 34 § 1(f).
Indeed, some evidence already suggests that such a program may have little impact. Several districts, including the district court for the Northern District of California, already have judges with extensive experience in patent law cases, yet the reversal rate of decisions from these judges is not always better than from less-experienced judges. There is also no guarantee that the judges who self-select for the pilot program will have any greater qualification to handle patent cases; the current proposal does not limit who can participate. Additionally, like specialized trial courts, restricting who hears patent cases to a select few will increase tunnel vision and eliminate the breadth of viewpoints and experience that contribute to a healthy backdrop of case law.

3. Expanding Appellate Review of Patent Cases

Another proposed institutional change would be to expand appellate review so that it is no longer the sole province of the Federal Circuit. Craig Allen Nard and John F. Duffy propose an expansion of appellate review in patent cases to two or three extant circuit courts. They argue that the pursuit for uniformity in patent law, culminating in the creation of the Federal Circuit in 1982, has lead to a system plagued by insularity and structurally unable to develop incremental innovations. Uniformity, though clearly a laudable goal, should be balanced by two other objectives: diversity and competition. Nard and Duffy identify at least four benefits that decentralization would bring: (1) expansion of appellate review to circuit courts will result in a more robust and efficient development of common law; (2) sister-circuit consideration of issues will create confidence in commonly-reached solutions and provide signals to the Supreme Court in disputed approaches; (3) competitive pressure between the circuits will lead to better-articulated opinions and rationales; and (4) competition between circuits will foster greater candor, open debate, and thoughtfulness. In addition, allowing other courts to hear patent appeals will allow a more diverse jurisprudence to develop and will foster a closer connection between the appellate courts and the patent community as a whole.

One of the main criticisms of this proposed expansion of appellate review jurisdiction is that it creates the risk that the different circuits will interpret

---

109 See Chu, supra note 84, at 1121-24 (finding that in general, "more active" tribunals did experience a lower reversal rate, but that even some highly-regarded districts, such as the district court of Delaware, faced high reversal rates).

110 See H.R. 34 § 1(a).


112 See id. at 1624-51.

113 Id. at 1651-55.
the claims from a particular patent in different ways. For example, the Federal Circuit may interpret a particular claim narrowly in one infringement case, whereas one of its sister circuits may interpret it broadly in a subsequent infringement case. This would lead to a situation in which the patentee has different enforceable rights against different infringers. Critics argue that this is the exact problem Congress sought to avoid by creating a single appellate court.

Although Nard and Duffy acknowledge that this issue exists and could become a common occurrence, they question how detrimental this would be to the patent regime. Noting that patents are a "probabilistic property right," Nard and Duffy suggest that patent holders have always suffered from some uncertainty in the scope of their rights and so this result is perhaps unavoidable and, indeed, expected. Finally, they argue that the circuits may choose to afford greater deference to the claim construction rulings of their sister circuits, reducing the risk of disparate treatment of the same patent claim.

B. Adopting a More Deferential Review Standard

Empirical studies have shown that the current de novo review standard creates several problems: high reversal rates, increased litigation costs, and frustration for trial level judges. Adopting a clearly erroneous standard would alleviate many of these issues without having to sacrifice uniformity and consistency in claim construction interpretation. Indeed, such a standard would foster early settlement and claim scope determination, as well as ease the burden of the Federal Circuit by reducing the need for time-intensive review of trial court factual determinations. Finally, applying a more deferential standard of review is not precluded by the Supreme Court's decision in Markman II. In fact, this standard finds significant support in Markman II.

114 See id. at 1670.
115 See id. at 1620.
116 Id. at 1671–72.
117 See id. at 1672.
118 Id. at 1671–72.
121 See id.; Wallace, supra note 94, at 1401.
122 See Krinsky, supra note 120, at 213–14; Wallace, supra note 94, at 1400.
A Deferential Standard of Review in Claim Construction Cases

One of the more significant benefits of adopting a more deferential standard of review is that the parties receive an earlier decision on claim construction. While trial courts will often hold a Markman hearing at the beginning of trial, or after discovery has taken place, the rulings made on claim construction have no sense of finality, since the Federal Circuit can (and often does) reverse the original claim construction.

Some commentators have suggested employing interlocutory appeals in order to arrive at early, definitive claim construction. While the Federal Circuit has jurisdiction and authority to hear interlocutory appeals on claim construction, they have been very reluctant to do so, preferring instead to rehear the entire case after an appealable judgment has been entered. Would interlocutory appeals provide an answer? One potential pitfall is that interlocutory appeals would take place pre-trial, before any substantial record has been established. Because many patent claims cannot be interpreted without at least some outside references, it may become difficult for the Federal Circuit

---

123 See Wallace, supra note 94, at 1400-01.
124 See Krinsky, supra note 120, at 211.
125 See Fiet, supra note 119, at 1321 (arguing that interlocutory appeals retain “the positive attributes of de novo review (unfettered expert review and expedited, pre-trial claim construction) while mitigating its detrimental effects (inefficiency and trivialized trial court proceedings)”; Krinsky, supra note 120, at 211; Craig Allen Nard, Process Considerations in the Age of Markman and Mantras, 2001 U. Ill. L. Rev. 355, 378 (suggesting that Markman decisions should be appealable by right).

Some industry groups have come out against the idea of interlocutory appeals by right—for example, the Intellectual Property Owners Association (a trade organization for patent holders) passed a Board Resolution in December, 2006, in opposition to proposed Senate legislation that would grant interlocutory appeals on claim construction as of right. Intellectual Property Owners Association, 2006 Resolution, http://www.ipo.org/AM/Template.cfm?Section=Board_Resolutions_and_Position_Statements&Template=/CM/ContentDisplay.cfm&ContentID=1746.

126 28 U.S.C. § 1292(c)(1) (2000) (providing the Federal Circuit with exclusive jurisdiction to hear interlocutory appeals arising out of claim construction issues). Since the Markman I decision, the Federal Circuit has declined to hear any interlocutory appeals predicated on an erroneous trial-level claim construction. See Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1479 (Fed. Cir. 1998) (en banc) (Newman, J., concurring) (“The Federal Circuit has thus far declined all such certified questions”); but cf. Regents of the Univ. of Cal. v. Dako N. Am., 477 F.3d 1335, 1336–37 (Fed. Cir. 2007) (granting interlocutory appeal for a patent claim construction) (“This is not an ordinary case of claim construction in which, for example, a district court has decided a claim construction issue and one party asserts error. . . . Because the matters in the recent order are thus intertwined with the issues in the pending appeals, we determine that granting the petition in these unusual circumstances are warranted.”) (emphasis added).

127 See Fiet, supra note 119, at 1322.
to reach the proper claim construction without any fact-finding. Adopting a deferential standard of review, in contrast, would promote accuracy and early certainty without increasing the Federal Circuit's caseload.

Early claim construction is also important because a reliable claim construction allows the parties to efficiently and accurately forecast how the trial itself would turn out. This in turn promotes earlier settlement between the parties and decreases the overall expense of litigation. Adopting a more deferential standard would also reduce litigation expense by discouraging losing parties from filing questionable appeals to the Federal Circuit. Given the high reversal rate faced by winning parties under the current system, it makes sense for the losing party to take another bite at the apple at the appellate stage. In addition to increasing the Federal Circuit's the administrative burden, this practice also diminishes the importance of the trial round. Indeed, Judge Rader predicted this as one of the biggest problems with de novo review in his dissenting opinion in Cybor.

C. Criticisms of a More Deferential Standard

While a deferential standard of review would likely alleviate many of the current problems plaguing claim construction, it is not a perfect solution. Critics argue that a deferential standard may lead to inconsistent claim construction, forum-shopping, and the insulation of trial level decisions from meaningful appellate review. This section addresses each of these concerns.

---

128 Under the current regime, of course, claim construction is regarded as a pure legal question, so arguably there should be no difficulty in reaching the correct result without any trial-level record. The Federal Circuit's reluctance to take on claim construction at a preliminary stage may be an implicit recognition that fact-finding is generally beneficial to reaching the proper claim construction. See Fiet, supra note 119, at 1322 (questioning the ability of the Federal Circuit to perform interlocutory appeals without a developed trial record).

129 For a similar discussion of the benefits of early claim determination, see Craig Allen Nard, Certainty, Fence Building, and the Useful Arts, 74 IND. L.J. 759, 767 (1990) ("Early certainty... will (1) provide the patentee with a greater degree of proprietary security, which in turn will facilitate the commercialization of the claimed invention; and (2) spur the patentee's competitors... to either (a) enter into informed licensing negotiations...; (b) attempt to improve upon the patented invention; or (c) design around the patented invention.").

130 See Fiet, supra note 119, at 1292.

131 See Cybor, 138 F.3d at 1474 (Rader, J., dissenting) ("To my eyes, this rejection of the trial process as the 'main event' will undermine, if not destroy, the values of certainty and predictability sought by Markman I.").

132 See Wallace, supra note 94, at 1401-02.
1. Inconsistent Claim Construction

Perhaps the strongest argument against a deferential standard of review is that it threatens to undermine the principal justification for creating the Federal Circuit: uniformity. Having a single appellate court review cases de novo allows for much greater uniformity than if each trial court were to operate independently; this uniformity would be eliminated if each trial court decision were only reversible for clear error.

In particular, critics argue that a deferential review standard would lead to the same claim having different constructions in different districts. For example, a patent holder may sue Company A for patent infringement in District 1 and receive a broad claim construction from that judge. The same patent holder, perhaps emboldened by this ruling, may file a patent infringement case against Company B in District 2. But District 2, hearing different testimony, may decide that the patent claims are not very broad and may find no infringement. Critics argue that this would lead to an untenable situation where the patent has two different meanings to two different companies (and perhaps geographic regions).

This argument is unpersuasive for two reasons. First, inter-circuit inconsistencies are not a new problem and are not unique to patent law; courts facing such an issue frequently apply the concept of collateral estoppel to reach a more uniform outcome. Also, while circuits are generally not bound by decisions of their sister circuits, there is no reason to believe that the district courts, either informally or formally, would not consider staying their claim construction ruling while another district entertains the same legal question.

133 Id. at 1402.
134 Id.
135 Indeed, the Supreme Court in Markman II suggests that claim construction, as a question of law, is subject to the principle of stare decisis, rather than the less controlling issue preclusion doctrine. See Markman v. Westview Instruments (Markman II), 517 U.S. 370, 391 (1995), affg 52 F.3d 967 (Fed. Cir. 1995). If, on the other hand, claim construction is properly seen as a mixed question of fact and law, then the principle of stare decisis should not be applied. See Krinsky, supra note 120, at 222 (arguing that the Supreme Court can provide for appropriate deference without undermining uniformity).
137 It is not difficult to find cases in which a district court shows at least some deference to another court's claim construction. See, e.g., KX Indus. v. PUR Water Purification Prods., 108 F. Supp. 2d 380, 387 (D. Del. 2000), aff'd, 18 Fed. Appx. 871 (Fed. Cir. 2001) (“While the court's previous opinion does not have issue preclusive effect against [the defendant] in this case, to the extent that the parties do not raise new arguments, the court will defer to its previous construction of the claims.”); TM Patents, LP v. IBM Corp., 72 F. Supp.
Furthermore, rulings from other district courts would surely carry some persuasive power in any subsequent cases that arise.138 Second, a more deferential review standard does not create any more substantial risk for a patent holder than under the current system; the Federal Circuit is always free to affirm a narrow district court interpretation or reject a broad construction.139 Uncertainty for the patentee now rests between the trial and appellate courts; deference would instead shift this uncertainty to between districts.140 Lastly, there is no reason to think that such a result would necessarily create more harm to patent value than under the current system.141

2. Forum Shopping

Having a more deferential standard of review creates some forum-shopping issues; knowing that the district court’s ruling holds significant weight will encourage litigants to file in a more hospitable forum. To some degree, this is a moot point. The vast majority of patent cases are already handled by just a few jurisdictions either through self-selection or convenience, the forum-shopping choices are already narrow.142 Granting more deference to the trial court is unlikely to cause a dramatic upheaval in most circuit dockets. Major litigants are comfortable where they are already filing and will be likely to risk ‘trying the waters’ in another circuit. In addition, the patent judge pilot program, if enacted, may prove more of an attraction than any change in the standard of review would cause. In the end, while forum-shopping is a legitimate concern, it is unclear that there would be any major impact from a change in the status quo.

3. Insulation from Appellate Review

Finally, a more deferential standard of review may permit trial judges to insulate their decisions by engaging in even some minimal fact-finding in all

2d 370, 379 (S.D.N.Y. 1999) ("[Collateral estoppel] is of marginal practical importance, because I agree with just about everything Judge Young did when he construed the claims in the [past] action.").

138 For a novel suggestion on how to gain collateral estoppel effect in claim construction, see Garza, supra note 136, ¶ 4 (suggesting the use of motions for vacatur in order to achieve the finality needed for collateral estoppel to apply to prior claim construction rulings).

139 See Nard & Duffy, supra note 111, at 1670–71.

140 See id.

141 See id., at 1672 n.150 ("Nonetheless, a duopolistic patent—one with a dual claim construction—can still be a powerful tool. Even a narrow scope resulting from the initial action will have some leveraging authority because while issue preclusion may be available to a subsequent alleged infringer, there always remains a degree of uncertainty in litigation.").

142 See Chu, supra note 84, at 1121.
of their cases.\textsuperscript{143} While this is a valid concern, the vast majority of cases are determined based on the intrinsic evidence itself—no outside testimony is needed.\textsuperscript{144} In these cases, the de novo standard of review would still apply. In those cases where factual findings were necessary, the Federal Circuit would have to apply a more deferential standard, but this is not necessarily a bad thing. As stated previously, in many situations, the trial judges are better equipped to make these factual determinations, which makes deference appropriate. Furthermore, the Federal Circuit could help guide lower courts by taking on so-called tone-setting cases—cases where the court does not actually change the underlying law or doctrine, but instead takes a case and sends a signal to the lower courts either to tighten or loosen how they are applying the rules. The Supreme Court uses this approach in a number of areas where the Court does not want to set a firm policy, but at the same time wants to retain some control over how lower courts, acting within their own discretion, apply the general guidelines.\textsuperscript{145} In short, there are good reasons to insulate lower court decisions from appellate review in some circumstances. This does not mean, however, that the Federal Circuit will become powerless or unable to promote certain ideals that it sees as fundamentally important or necessary for patent law.

\textbf{IV. \textit{Amgen} and the Supreme Court’s Missed Opportunity}

Just as the Federal Circuit passed on a chance to reconsider its de novo review standard, the Supreme Court also missed an opportunity to instruct the lower courts and resolve any confusion created by \textit{Markman II}. The \textit{Amgen} case asked the Court to determine whether the appellate court should be more deferential when reviewing the factual findings that underlie a district

\textsuperscript{143} An analogous argument has been made in the wake of \textit{eBay Inc. v. MercExchange}, \textit{L.L.C.}, 547 U.S. 388 (2006); see \textit{Availability of Injunctive Relief}, 120 Harv. L. Rev. 332, 338 (Nov. 2006) (“The fact that eBay provides district courts with broad discretion … combined with the deferential abuse of discretion standard, may effectively insulate these courts from Federal Circuit review.”). \textit{But see} Arti K. Rai, \textit{Engaging Fact and Policy: A Multi-Institutional Approach to Patent System Reform}, 103 Colum. L. Rev. 1035, 1057–60 (2003) (arguing the Federal Circuit will not give deference to factual findings in claim construction cases because the claim is often determinative).

\textsuperscript{144} See Romary & Michelsohn, \textit{supra} note 4, at 1891.

\textsuperscript{145} This is perhaps best seen in the criminal procedure context; the Supreme Court will provide a basic rule then take subsequent cases when needed to correct how the lower courts are applying the rule. \textit{Compare} Brady v. Maryland, 373 U.S. 83, 87 (1963) (providing general rule that prosecutors must disclose “material” evidence favorable to the accused), \textit{with} United States v. Bagley, 473 U.S. 667, 682 (1985) (defining “material”), \textit{and} Kyles v. Whitley, 514 U.S. 419, 435–37 (1995) (demonstrating how to apply the \textit{Brady} doctrine).
court's claim construction. Based on the troubled legacy of Markman II, the Supreme Court should have answered this question in the affirmative. Deference would have brought benefits to the patent community and would have acknowledged the understated, but strong, convictions of many of the Federal Circuit judges.

Why did the Supreme Court choose not to hear Amgen? There are at least three possible explanations, one more worrisome than the others. First, the Supreme Court may have wanted to give the Federal Circuit a brief reprieve; Amgen would have been only the latest in a recent string of Supreme Court cases to address major issues in patent law. Given the clear intra-circuit disagreement on how to properly handle claim construction, the Supreme Court's denial should permit the Federal Circuit to develop a coherent, well-reasoned process for claim construction, which may or may not warrant later Supreme Court review.

Second, and more worrisome, is that the Supreme Court sees nothing wrong with the status quo. The Federal Circuit's approach is not clearly at odds with the precedent set out by Markman II; its fault is more pragmatic than philosophical. Only by witnessing the high reversal rates, the frustration expressed by lower courts, and the lack of a clear framework for claim construction is it apparent that a change is needed. This explanation is worrisome because it suggests that the current problems facing the patent system may not be resolved for quite some time.

Regardless of the reason for denial, it is clear that the Federal Circuit needs to move away from de novo review as the touchstone for claim construction. A more deferential standard of review would not contradict the teachings of Markman II. The Supreme Court's focus in that case was on who should bear responsibility for claim construction: the judge or jury. Throughout the opinion, the Court notes that claim construction is a mixed question of fact and law; the decision to place it in the hands of the judge was a practical one, born out of policy. In Cybor, the Federal Circuit chose to minimize

---

146 The second issue raised by Amgen is whether the Federal Circuit has “effectively resurrected the categorical bar to a claim of infringement under the doctrine of equivalents that was expressly rejected in Festo and Warner-Jenkinson.” Petition for a Writ of Certiorari at i, Amgen, Inc. v. Hoechst Marion Roussel, Inc., 127 S. Ct. 2270 (2007) (No. 06-1291).


149 See id. at 378, 386.
the significance of the Court's dicta in *Markman II*; perhaps by heeding the Court's words a better solution can be drafted.\textsuperscript{150}

Looking past the potential benefits to litigants if the courts adopt a more deferential standard of review, practical considerations of how claim construction is done at the trial level weigh against de novo review. Unlike contract interpretation, where judges rely on the “four corners” of the contract itself to provide answers, claim construction often requires the judge to consider outside sources of information.\textsuperscript{151} While both benefit from the judge's “training in exegesis,” claim construction also benefits from credibility determinations.

**Conclusion**

Congress created the Federal Circuit in 1982 with the hope that a single appellate court would foster uniformity and consistency in how patents are treated.\textsuperscript{152} The Federal Circuit's decisions in *Markman I* and *Cybor*, which declared claim construction to be a purely legal inquiry subject to de novo review, were also reached with the hope that they would increase certainty within the field.\textsuperscript{153} These hopes have not been realized, however, in the post-*Cybor* world—district courts continue to face reversal rates as high as 40%,\textsuperscript{154} while the Federal Circuit has struggled to develop a framework or consistent guidelines for the lower courts to follow.\textsuperscript{155} Echoing the dissenting voices in every major claim construction case the Federal Circuit has decided, scholars and practitioners alike have called for a reevaluation of the de novo review standard.\textsuperscript{156}

While the Federal Circuit has been unwilling, or unable, to move away from de novo review, the Supreme Court missed an excellent opportunity with *Amgen* to reconsider these earlier decisions. The Court's acknowledgment that

\textsuperscript{150} Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc).

\textsuperscript{151} Compare Richard A. Posner, *The Law and Economics of Contract Interpretation*, 83 Tex. L. Rev. 1581, 1596 (2005) (discussing the common law tradition which bars extrinsic evidence which is outside the “four corners” of the written contract), *with Cybor*, 138 F.3d at 1454 (discussing how the extrinsic evidence can be helpful in claim construction), and *Markman v. Westview Instruments, Inc.* (Markman 1) 52 F.3d 967 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996) ("[Extrinsic] evidence may be helpful to explain scientific principles, the meaning of the technical terms, and terms of art that appear in the patent and prosecution history.").

\textsuperscript{152} See Nard & Duffy, *supra* note 111, at 1624–25.

\textsuperscript{153} See *Cybor*, 138 F.3d at 1455; *Markman I*, 52 F.3d at 979.

\textsuperscript{154} See Wallace, *supra* note 94, at 1391.

\textsuperscript{155} See Dreyfuss, *supra* note 94, at 773 ("One concern is that the Federal Circuit is failing to articulate the law at the appropriate level of detail, thereby leaving those who rely on it with insufficient guidance.").

\textsuperscript{156} See Wallace, *supra* note 94, at 1400.
a more deferential standard of review would foster uniformity and accuracy would have reduced the Federal Circuit's caseload and decreased uncertainty and expense for litigants, while treating the trial courts with respect and appreciation. While Judge Newman noted in *Cybor* that "perfection is elusive,"\(^\text{157}\) perhaps soon the courts will take this important step in the right direction.

\(^{157}\) See *Cybor*, 138 F.3d at 1418 (Newman, J., additional views).