

A Functional Approach to Judicial Review of PTAB Rulings on Mixed Questions of Law and Fact

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ABSTRACT: The Court of Appeals for the Federal Circuit (“Federal Circuit”) has long relied on active appellate review to bring uniformity and clarity to patent law. It initially treated the PTO the same as the federal district courts, reviewing its factual findings for clear error and its legal conclusions de novo. Following reversal by the Supreme Court in Dickinson v. Zurko, the Federal Circuit began giving greater deference to PTO factual findings. But it continued to review the PTO’s legal conclusions de novo, while coding an expansive list of disputed issues in patent cases as legal conclusions, even when they rest on subsidiary factfinding.

Congress expanded the role of the PTO in adjudicating challenges to patent validity in the Leahy–Smith America Invents Act of 2011 (“AIA”), authorizing new adjudicatory proceedings before the Patent Trial and Appeal Board (“PTAB”) as an alternative to federal district court litigation. The AIA provides for Federal Circuit review of PTAB decisions, without specifying standards of review. The scope of review could determine the success of these proceedings as a quicker, cheaper, and more expert alternative to district court litigation of patent challenges. The Federal Circuit applies the same standards of review to PTAB decisions in AIA proceedings that it applies to other PTO rulings, reviewing legal conclusions de novo and factual findings for substantial evidence. It also follows the same characterizations of issues as legal or factual that it has long used in the context of court/court review. In the past, by maximizing the scope of appellate review, these characterizations allowed the Federal Circuit to exercise greater quality control over generalist trial courts with limited competence to resolve patent matters. The net benefits are more dubious as applied to decisions of expert PTAB panels in AIA adjudications. Yet reversal rates at the Federal Circuit are essentially the same for PTAB decisions as for decisions of district courts in patent cases,

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threatening to frustrate a system designed to improve patent quality while limiting litigation costs.

This Essay reconsiders the proper scope of judicial review of PTAB rulings on two issues that the Federal Circuit codes as legal conclusions with factual underpinnings: nonobviousness and claim interpretation. Drawing on a functional approach to judicial review of mixed questions of law and fact, it argues for more deferential review of PTAB rulings on nonobviousness and claim interpretation given the expertise of the administrative tribunal and the case-specificity of the rulings. The Federal Circuit would do better to confine de novo review to generalizable legal rulings that provide guidance in future matters rather than replicating the work of the PTAB from the appellate bench on routine case-specific rulings.

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I. INTRODUCTION

During the heyday of *Chevron* deference to agencies' interpretations of the laws they administer,¹ the Court of Appeals for the Federal Circuit ("Federal Circuit") took a notably less deferential approach toward the Patent and Trademark Office ("PTO").² Treating the PTO the same as federal district courts, the Federal Circuit reviewed its factual findings for clear error and its legal conclusions *de novo*.³

1. *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 842–43 (1984).

2. See 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, 299–300 (2007); John M. Golden, *Working Without Chevron: The PTO as Prime Mover*, 65 DUKE L.J. 1657, 1672–73 (2016); Jonathan S. Masur, *Regulating Patents*, 2010 SUP. CT. REV. 275, 277; Sarah Tran, *Administrative Law, Patents, and Distorted Rules*, 80 GEO. WASH. L. REV. 831, 834–35 (2012); Melissa F. Wasserman, *The Changing Guard of Patent Law: Chevron Deference for the PTO*, 54 WM. & MARY L. REV. 1959, 1975 (2013).

3. See, e.g., *In re Alton*, 76 F.3d 1168, 1172 (Fed. Cir. 1996) ("We review questions of fact arising from Board rejections under a clearly erroneous standard. . . . We review questions of law

The Supreme Court held that the Administrative Procedure Act (“APA”) requires greater deference to PTO factual findings in its 1999 decision in *Dickinson v. Zurko*.⁴ After that, the Federal Circuit recited that it reviews such findings for “substantial evidence” in the administrative record rather than for clear error.⁵ But it continued to review the PTO’s conclusions of law *de novo*, reasoning that *Chevron* deference was not appropriate because the Patent Act did not give the PTO rulemaking authority over substantive issues of patent law.⁶ Meanwhile, the Federal Circuit defined an expanding list of disputed issues in patent matters as questions of law.⁷

A potential game changer occurred in 2011 when Congress expanded the PTO’s authority to engage in both rulemaking and adjudication in the Leahy–Smith America Invents Act (“AIA”).⁸ Concerned about the impact of patents of dubious validity on innovation, Congress sought to provide a quicker, cheaper, and more expert alternative to federal district courts for adjudicating validity challenges.⁹ The AIA authorizes the PTO to resolve such challenges in adjudicatory proceedings before the Patent Trial and Appeal Board (“PTAB”),¹⁰ and to prescribe regulations for the conduct of these proceedings.¹¹ Some commentators argue that these new delegations of authority call for greater deference to the PTO’s interpretations of ambiguous

de novo.”); *In re King*, 801 F.2d 1324, 1326 (Fed. Cir. 1986) (“[A]nticipation is a fact question subject to review under the clearly erroneous standard. . . . [The analysis] is the same whether it was made by the [PTO B]oard or by a district court.”).

4. See *Dickinson v. Zurko*, 527 U.S. 150, 163–65 (1999).

5. See, e.g., *In re Gartside*, 203 F.3d 1305, 1313 (Fed. Cir. 2000).

6. E.g., *In re Swanson*, 540 F.3d 1368, 1374 n.3 (Fed. Cir. 2008) (“[T]he Board’s statutory interpretation in a particular case is given no deference . . .”). On procedural matters, the Federal Circuit deferred to the PTO’s interpretations through rulemaking authorized by statute. 35 U.S.C. § 2(b)(2) (2012); *Cooper Techs. Co. v. Dudas*, 536 F.3d 1330, 1335–40 (Fed. Cir. 2008) (discussing availability of continuation applications).

7. See Paul R. Gugliuzza, *The Federal Circuit as a Federal Court*, 54 WM. & MARY L. REV. 1791, 1831 (2013) (noting the Federal Circuit has enhanced its authority over district courts by casting important issues as questions of law); Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1065–66 (2003) (arguing that Federal Circuit decisions to limit deference to district courts and the PTO may reflect lack of confidence in the competence of these institutions to decide issues correctly).

8. Leahy–Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.).

9. Rochelle Cooper Dreyfuss, *Giving the Federal Circuit a Run for Its Money: Challenging Patents in the PTAB*, 91 NOTRE DAME L. REV. 235, 235–36 (2015).

10. See Leahy–Smith America Invents Act § 7(a). These new adjudicatory proceedings include post-grant review proceedings (“PGR”) to adjudicate any available ground of invalidity during the first nine months after a patent issues. *Id.* § 6(d). They also include *inter partes* review proceedings (“IPR(s)”) after the nine-month PGR period has expired to adjudicate challenges based on prior art consisting of patents or printed publications. *Id.* § 6(a). Finally, these proceedings include a transitional program to review the validity of covered business method patents (“CBM”) on expanded grounds. *Id.* § 18(a).

11. *Id.* § 7(a).

provisions in the Patent Act.¹² On the other hand, some Federal Circuit judges argue that administrative factfinding in the AIA PTAB proceedings should get *less* deference than the Supreme Court required in *Dickinson v. Zurko*.¹³

An important category of PTAB determinations falls outside much of this discourse: rulings that apply general legal standards to particular cases. Arguably such rulings amount to statutory gap-filling under implicit delegation of authority to the PTO from Congress, and are thus entitled to *Chevron* deference.¹⁴ But the Federal Circuit calls these determinations “conclusions of law” and reviews them *de novo*.¹⁵ In their specificity and grounding in the evidence, these “legal conclusions” resemble fact finding more than statutory interpretation, and they may indeed rest on subsidiary findings that the Federal Circuit codes as factual.¹⁶ The Federal Circuit recites that it reviews the underlying factual findings for substantial evidence, while it reviews the ultimate rulings *de novo*.

Such issues predominate in *inter partes* review proceedings (“IPR(s)”), which account for more than 90% of filings to date seeking AIA adjudications before the PTAB.¹⁷ Although the PTAB may consider a broader set of issues in other proceedings, the AIA limits the use of IPRs to challenges under sections 102 and 103 of the Patent Act (i.e., lack of novelty and obviousness) based on prior art consisting of patents and printed publications.¹⁸ Both determinations compare the challenged patent claim(s) to the prior art, often raising disputes about the meaning of the claim language.¹⁹ Most IPRs thus

12. See, e.g., Stuart Minor Benjamin & Arti K. Rai, *Administrative Power in the Era of Patent Stare Decisis*, 65 DUKE L.J. 1563, 1564 (2016); Tran, *supra* note 2, at 837; Wasserman, *supra* note 2, at 1977–2006; cf. Golden, *supra* note 2, at 1659 (arguing that *Chevron* deference is inappropriate because the AIA does not give the PTAB authority to act with force of law, but that nonbinding *Skidmore* deference may be appropriate).

13. See *infra* notes 61–67 and accompanying text.

14. *INS v. Cardoza-Fonseca*, 480 U.S. 421, 448 (1987) (“In th[e] process of filling ‘any [statutory] gap left, implicitly or explicitly, by Congress,’ the courts must respect the interpretation of the agency to which Congress has delegated the responsibility for administering the statutory program.” (quoting *Chevron U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 843 (1984))).

15. See, e.g., *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000).

16. For example, whether prior art anticipates an invention under 35 U.S.C. § 102(b) is a question of fact. *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015). But whether prior art makes an invention obvious under 35 U.S.C. § 103 is a question of law based on underlying facts. *SSL Servs., LLC v. Citrix Sys., Inc.*, 769 F.3d 1073, 1082 (Fed. Cir. 2014). For an excellent review, see generally ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* ch. 10.A (7th ed. 2017).

17. U.S. PATENT & TRADEMARK OFFICE, *TRIAL STATISTICS IPR, PGR, CBM: PATENT TRIAL AND APPEAL BOARD 3* (2018), https://www.uspto.gov/sites/default/files/documents/trial_statistics_20180731.pdf.

18. 35 U.S.C. § 311(b) (2012).

19. See, e.g., *Owens Corning v. Fast Felt Corp.*, 873 F.3d 896, 902–03 (Fed. Cir. 2017) (reversing a PTAB decision rejecting an obviousness challenge after concluding that claim interpretation was incorrect); *Homeland Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372,

involve rulings on three issues: novelty, nonobviousness, and claim interpretation. The Federal Circuit codes novelty as a question of fact, reviewing agency findings for substantial evidence.²⁰ But it codes nonobviousness and claim interpretation as legal conclusions that it reviews *de novo* (although it reviews subsidiary factual findings for substantial evidence).²¹ This approach leaves considerable scope for appellate review of two of the three principal issues in IPRs.

The AIA provides for Federal Circuit review of PTAB decisions,²² without specifying standards of review. The scope of review could determine the success of these proceedings as a quicker, cheaper, and more expert alternative to district court litigation for adjudicating challenges to patent validity.²³ Liberal use of *de novo* review adds to the cost and duration of proceedings and prolongs uncertainty as to outcomes. The standards of review that the Federal Circuit applies to PTAB decisions in AIA proceedings today are generally preordained by its own prior characterizations of issues as factual or legal in the context of court/court review. Perhaps in the past, *de novo* review allowed the Federal Circuit to exercise greater quality control over generalist trial courts with limited competence to resolve patent matters.²⁴ The net benefits are more dubious as applied to decisions of expert PTAB panels in AIA adjudications. Yet, reversal rates at the Federal Circuit are essentially the same for PTAB decisions as for decisions of district courts in patent cases,²⁵ threatening to frustrate a system “designed to establish a more efficient and streamlined patent system that will improve patent quality and limit unnecessary and counterproductive litigation costs.”²⁶

The Supreme Court has not yet addressed the proper scope of judicial review of appealable PTAB rulings.²⁷ It has, however, provided guidance for

1377–79 (Fed. Cir. 2017) (reversing the PTAB determination that challenged claims were not anticipated where the PTAB failed to interpret a disputed claim term).

20. See *In re Morsa*, 713 F.3d 104, 109 (Fed. Cir. 2013).

21. *Merck & Cie v. Gnosis S.P.A.*, 808 F.3d 829, 833 (Fed. Cir. 2015); *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1297 (Fed. Cir. 2015), *overruled on other grounds by Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017).

22. 35 U.S.C. §§ 141(c), 319.

23. Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part II of II*, 21 FED. CIR. B.J. 539, 598–99 (2012); see *infra* notes 68–73 and accompanying text.

24. Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 46–52 (1989) (arguing that deferential review of fact finding in generalist district courts presented obstacles to achieving uniformity in the patent system through appellate review by specialized court); Rai, *supra* note 7, at 1040 (“The Federal Circuit’s exercise of *de novo* review over fact finding may be rationalized by the argument that, despite the court’s appellate status, it still has fact finding capabilities superior to those of the other decisionmakers in the patent system.”).

25. See *infra* notes 75–78 and accompanying text.

26. H.R. REP. NO. 112-98, pt. 1, at 40 (2011).

27. In *Cuozzo Speed Technologies, LLC v. Lee*, the Court held that PTAB decisions on whether to institute review are not reviewable on appeal and upheld a PTO rule that applies the broadest reasonable interpretation (“BRI”) to patent claims that are challenged in PTAB proceedings.

judicial review of lower court rulings (court-court review) on mixed questions of law and fact in other fields. The Court has embraced a nuanced, functional approach that focuses on the nature of the inquiry, the comparative advantages of the lower tribunal and the reviewing court in performing that function, and the specificity or generalizability of the ruling, without assigning talismanic significance to the labels “law” or “fact.”

This Essay borrows this functional analysis to reconsider the proper scope of judicial review of PTAB decisions on two issues that the Federal Circuit codes as legal conclusions with factual underpinnings: nonobviousness and claim interpretation. Part II contrasts the Federal Circuit approach to review of mixed questions of law and fact in patent law with the functional approach of the Supreme Court to judicial review of lower court decisions on similar questions in other fields, exemplified by the 2018 decision in *U.S. Bank National Ass’n v. Village at Lakeridge*.²⁸ Part III considers judicial review of PTAB rulings, looking to the APA and the AIA for guidance. Part IV applies a functional analysis to reconsider judicial review of mixed questions of law and fact that arise in PTAB proceedings, focusing on nonobviousness in Section IV.A and on claim interpretation in Section IV.B. Part V considers how functional considerations have shifted since the Federal Circuit was created, calling into question the continued wisdom of applying an approach laid down by an earlier generation of judges long before the creation of the PTAB.

II. MIXED QUESTIONS OF LAW AND FACT

The Federal Circuit’s approach to judicial review rests on a strict bifurcation of lower court rulings between legal conclusions and factual findings, with no room for an intermediate category of mixed questions of law and fact.²⁹ This leads to puzzling discontinuities in standards of review for similar questions based on apparently arbitrary differences in how they are coded.

An example is the difference in standards of review for rulings on “novelty” and “nonobviousness.” Legal standards for patentability require comparing inventions to previously available technology (“prior art”).³⁰ If a prior art reference (such as a prior patent or publication) identically discloses

Cuozzo Speed Techs., LLC v. Lee, 136 S. Ct. 2131, 2142 (2016) (relying on 37 C.F.R. § 42.100(b) (2015), which at the time stated: “A claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears”). In *SAS Institute, Inc. v. Iancu*, the Court held invalid as inconsistent with statutory language a PTO rule that allowed the PTAB to institute review on only a subset of challenged claims. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1354 (2018).

28. *U.S. Bank Nat’l Ass’n ex rel. CWC Capital Asset Mgmt. LLC v. Vill. at Lakeridge, LLC*, 138 S. Ct. 960 (2018).

29. For an extended treatment and analysis of this approach see Rai, *supra* note 7, at 1042–65.

30. 35 U.S.C. §§ 102, 103 (2012). Other legal rules and standards provide additional grounds for rejecting patent applications or for challenging the validity of issued patents but are beyond the scope of the discussion in text.

an invention, the invention is not patentable because it fails the legal standard of novelty.³¹ If there are differences between the invention and the prior art, but those differences would have been obvious at the time to a person having ordinary skill in the art, the invention is not patentable because it fails the legal standard of nonobviousness.³²

The Federal Circuit considers novelty determinations to be findings of fact reviewable for clear error if made by district courts³³ and for substantial evidence if made by the PTO.³⁴ But it considers nonobviousness determinations to be conclusions of law that rest on underlying factual findings.³⁵ The Federal Circuit purports to review the underlying factual findings with deference, while reviewing the ultimate determinations *de novo*.³⁶

The Supreme Court offers another approach, exemplified by the recent decision in *U.S. Bank National Ass'n v. Village at Lakeridge, LLC*.³⁷ That case considered whether a reviewing court should review *de novo* or for clear error a bankruptcy court ruling that a third party to whom a creditor transferred its interest in a claim against a debtor was not an “insider” of the debtor.³⁸ The bankruptcy court ruled that the transferee—whose romantic partner was both a corporate officer of the debtor and a board member of its owner—was not an insider.³⁹ The Ninth Circuit affirmed, reviewing the decision for clear error rather than *de novo*.⁴⁰ The Supreme Court granted certiorari solely on the question of whether the Ninth Circuit applied the correct standard of review.⁴¹

The Court’s analysis is not bankruptcy-specific, but draws on wide-ranging cases considering judicial review of other mixed questions of law and fact arising in other fields.⁴² There is nothing groundbreaking about this decision, which follows a long line of cases attempting to identify

31. *Id.* § 102.

32. *Id.* § 103.

33. The clearly erroneous standard is required by Federal Rule of Civil Procedure 52(a)(6), which provides: “Findings of fact, whether based on oral or other evidence, must not be set aside unless clearly erroneous, and the reviewing court must give due regard to the trial court’s opportunity to judge the witnesses’ credibility.” FED. R. CIV. P. 52(a)(6).

34. *REG Synthetic Fuels, LLC v. Neste Oil Oyj*, 841 F.3d 954, 958 (Fed. Cir. 2016).

35. *See infra* Section IV.A.

36. *See infra* Section IV.A.

37. *U.S. Bank Nat’l Ass’n ex rel. CWCapital Asset Mgmt. LLC v. Vill. at Lakeridge, LLC*, 138 S. Ct. 960, 967 (2018) (highlighting that the question at issue was a mixed question of law and fact).

38. *Id.* at 963.

39. *Id.* at 963–64.

40. *In re The Vill. at Lakeridge, LLC*, 814 F.3d 993, 1002 (9th Cir. 2016), *cert. granted in part sub nom. U.S. Bank Nat’l Ass’n v. Vill. at Lakeridge, LLC*, 137 S. Ct. 1372 (2017), *aff’d sub nom. Vill. at Lakeridge*, 138 S. Ct. at 969.

41. *Vill. at Lakeridge*, 137 S. Ct. at 1372.

42. *In re The Vill. at Lakeridge, LLC*, No. 11-51994-BTB, 2013 WL 1397447, at *8 (B.A.P. 9th Cir. Apr. 5, 2013).

circumstances that call for deferential review of mixed questions of law and fact.⁴³ The Court described the bankruptcy court's decision as involving some "purely legal" aspects (i.e., the correct legal test for identification of insiders) subject to *de novo* review, and some "purely factual" aspects (i.e., "who did what, when or where, how or why") reviewable for clear error.⁴⁴ But, the Court required a more nuanced approach for reviewing the ultimate determination of "whether the historical facts found satisfy the legal test . . . the so-called 'mixed question' of law and fact at the heart of this case."⁴⁵

The appropriate standard of review for such mixed questions depends on "the nature of the mixed question . . . and which kind of court (bankruptcy or appellate) is better suited to resolve it."⁴⁶ The Court asked whether the question "involves developing auxiliary legal principles of use in other cases" or whether it "immerse[s] courts in case-specific factual issues—compelling them to marshal and weigh evidence, make credibility judgments, and otherwise address what we have . . . called 'multifarious, fleeting, special, narrow facts that utterly resist generalization.'"⁴⁷

Under this functional analysis, greater appellate scrutiny is appropriate for decisions that announce legal principles likely to have broader implications for other matters, while greater deference is appropriate for case-specific decisions that rely on weighing evidence and are too narrow to be generalizable in other cases. Conventional wisdom holds that appellate courts charged with maintaining uniformity and coherence in the law are better than trial courts at elaborating legal principles with broader implications, while trial courts that are immersed in the evidence and can assess witness credibility are better than appellate courts at making case-specific determinations that rest primarily on an evidentiary record.⁴⁸

Narrower appellate review of case-specific rulings may also limit the costs of appellate review when the offsetting benefits are limited. These costs include scarce appellate judicial resources as well as the burden on the parties of prolonged litigation and delays in reaching final judgment.⁴⁹ Excessive immersion in case-specific details may distract appellate courts from broader issues of law development and dissipate their advantage over trial courts in taking in the big picture.⁵⁰ Developing the law through generalizable rulings

43. See Nika Aldrich, *Recent Supreme Court Cases May Require More Deference in Review of Obviousness Cases*, 56 J. FRANKLIN PIERCE CTR. FOR INTELL. PROP. 1, 6–14 (2016) (reviewing cases considering mixed questions of law and fact).

44. *Vill. at Lakeridge*, 138 S. Ct. at 965–66.

45. *Id.* at 966.

46. *Id.*

47. *Id.* at 967 (quoting *Pierce v. Underwood*, 487 U.S. 552, 561–62 (1988)).

48. For a thoughtful discussion, see Edward H. Cooper, *Civil Rule 52(a): Rationing and Rationalizing the Resources of Appellate Review*, 63 NOTRE DAME L. REV. 645, 649–57 (1988).

49. *Id.* at 649–52.

50. *Cf. Mucha v. King*, 792 F.2d 602, 605–06 (7th Cir. 1986) ("[T]he main reason for appellate deference to the findings of fact made by the trial court is not the appellate court's lack

may be a more valuable use of appellate attention than correcting case-specific errors. Standards of review may shape appellate dockets by encouraging certain appeals and discouraging others. Litigants may be less likely to appeal case-specific rulings if they will be reviewed with deference, and more likely to appeal rulings that will be reviewed *de novo*. The optimal approach may change over time depending on a number of factors, including the importance of developing and clarifying the law and of correcting particularly costly errors, the need to achieve uniformity, predictability and reliability of decisions in the field, the competence of lower tribunals, and the capacity of appellate courts.

III. JUDICIAL REVIEW OF PTAB DECISIONS (COURT-AGENCY REVIEW)

The cases applying the functional analysis discussed in the previous Section primarily involve judicial review of decisions of courts rather than decisions of agencies. Although court-agency review has generally been more deferential than court-court review,⁵¹ the implications of this line of cases for Federal Circuit review of PTAB decisions in AIA adjudications are nonetheless unclear. This Section considers whether the APA, common law administrative law, or the Patent Act call for a different standard of review.

The Supreme Court held in *Dickinson v. Zurko* that the APA governs judicial review of PTO factual findings, leading the Federal Circuit to shift from review for “clear error” to the more deferential “substantial evidence” standard.⁵² But by this point, the Federal Circuit had already minimized the significance of this shift through holdings that ultimate conclusions about claim interpretation and nonobviousness are legal conclusions subject to *de novo* review, even when they rest in part on subsidiary factual determinations.⁵³

of access to the materials for decision but that its main responsibility is to maintain the uniformity and coherence of the law, a responsibility not engaged if the only question is the legal significance of a particular and nonrecurring set of historical events.”).

51. See generally Bernard Schwartz, *Mixed Questions of Law and Fact and the Administrative Procedure Act*, 19 FORDHAM L. REV. 73 (1950) (describing the trend towards a narrower scope of judicial review of mixed questions in pre-APA cases and predicting continuation of that trend post-APA).

52. See *Dickinson v. Zurko*, 527 U.S. 150, 161–62 (1999); see also 5 U.S.C. § 706(2)(E) (2012) (“[T]he reviewing court shall . . . hold unlawful and set aside agency action, findings, and conclusions found to be . . . unsupported by substantial evidence in a case subject to sections 556 and 557 of this title [concerning requirements for administrative hearings] or otherwise reviewed on the record of an agency hearing provided by statute”); *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000) (“Although we have previously reviewed the Board’s factual determinations in an obviousness analysis for clear error, we now review them for substantial evidence.” (citations omitted)).

53. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc) (regarding claim interpretation), *abrogated on other grounds* by *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 904 F.3d 965 (Fed. Cir. 2018); *Aktiebolaget Karlstads Mekaniska*

The APA does not provide clear guidance as to the proper standard of review of legal conclusions by agencies. The statute arguably contemplates *de novo* review by providing that “the reviewing court shall decide all relevant questions of law” and that it shall “hold unlawful and set aside agency action, findings, and conclusions found to be—(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law; . . . [or] (C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right.”⁵⁴ But the actual practice of judicial review of agency decisions both before and after passage of the APA has generally been more deferential.⁵⁵

Under common law administrative law decisions, significant agency rulings interpreting the statutes they administer often receive either *Chevron* deference (on the theory that Congress has implicitly delegated to the agency authority to interpret ambiguous statutory provisions with the force of law) or *Skidmore* deference (if the court is persuaded by the thoroughness of the agency’s reasoning and moved by considerations of consistency in interpretation of the law over time).⁵⁶ Either way, these decisions argue for greater deference than the Federal Circuit currently gives to PTAB rulings that work out the meaning of general statutory standards by applying them to the facts of particular cases.⁵⁷

The Patent Act provides for appeal of final written decisions of the PTAB to the Federal Circuit⁵⁸ but does not specify the standard of review. On one view, failure to specify a different standard of review means that general APA provisions for judicial review of agency decisions govern Federal Circuit review of PTAB decisions.⁵⁹ On another view, the failure of Congress to specify a new standard indicates that it did not intend to disturb prior Federal Circuit practices in reviewing other PTO decisions.⁶⁰ On a third view, reflecting the preference of four out of twelve Federal Circuit judges, the changes brought

Werkstad v. U.S. Int’l Trade Comm’n, 705 F.2d 1565, 1575 (Fed. Cir. 1983) (“Obviousness is a legal conclusion based on factual determinations and not a factual determination itself.”).

54. 5 U.S.C. § 706 (emphasis added).

55. See MERGES & DUFFY, *supra* note 16, at 897–900; Schwartz, *supra* note 51, at 73–75.

56. MERGES & DUFFY, *supra* note 16, at 910–13. Some commentators have questioned whether these authorities are consistent with the language of the APA. See *id.*

57. See *supra* note 14 and accompanying text (discussing implications of *INS v. Cardoza-Fonseca* for deference to PTAB rulings).

58. 35 U.S.C. § 141(c).

59. See 5 U.S.C. § 701(a) (“This chapter applies, according to the provisions thereof, except to the extent that—(1) statutes preclude judicial review; or (2) agency action is committed to agency discretion by law.”). The Supreme Court relied on this language in *Dickinson*. *Dickinson v. Zurko*, 527 U.S. 150, 154 (1999).

60. Federal Circuit Judges O’Malley, Wallach, and Stoll evidently feel constrained to follow this view, although they believe less deference to PTAB factfinding would be more consistent with the goals of the AIA. See *Merck & Cie v. Gnosis S.P.A.*, 820 F.3d 432, 433 (Fed. Cir. 2016) (O’Malley, J., concurring in denial for rehearing en banc).

about by the new AIA proceedings argue for *less* deference to PTAB rulings rather than more.⁶¹

These judges make four arguments. First, Judge Newman argues that deferential review is inadequate to achieve the legislative goal of correcting PTO mistakes.⁶² Second, inasmuch as the new proceedings are designed to substitute for district court proceedings, Judge O'Malley argues that PTAB findings should be reviewed under the same clear error standard used in reviewing non-jury findings of district courts.⁶³ Third, because the statute sets the standard of proof before the PTAB as preponderance of the evidence,⁶⁴ rather than the higher clear and convincing evidence standard that patent challengers face in district court litigation,⁶⁵ Judge Newman argues that closer appellate scrutiny is necessary to ensure accuracy of PTAB rulings.⁶⁶ Fourth, Judge Newman argues that less deferential review is appropriate because Federal Circuit review is the only opportunity to correct errors in these proceedings, unlike other PTO decisions that are also subject to review by the Director or in *de novo* proceedings in the district courts.⁶⁷

Each of these arguments rests on the dubious premise that greater appellate scrutiny should counteract the effects of AIA design features that facilitate patent challenges before the PTAB. Congress chose to address the concern that examiners were issuing too many invalid patents by creating new administrative tribunals as an alternative to generalist trial courts for adjudicating patent challenges. This choice to depart from the model of district court litigation cautions against reflexive replication of its features. The lower statutory burden of proof for establishing invalidity before the PTAB⁶⁸ may indicate that Congress has greater confidence in PTAB panels, staffed by “persons of competent legal knowledge and scientific ability,”⁶⁹ than it has in district courts to reach correct decisions. Indeed, the Federal Circuit has justified the higher clear and convincing evidence burden in district courts as a form of deference to the expertise of the PTO, which issued the patent.⁷⁰ It seems a dubious interpretive move to use heightened appellate

61. *Merck & Cie v. Gnosis S.P.A.*, 808 F.3d 829, 839 (Fed. Cir. 2015) (Newman, J., dissenting), *reh'g en banc denied*, 820 F.3d 432, 433 (2016) (O'Malley, J., concurring).

62. *Id.* at 840–41.

63. *Gnosis S.P.A.*, 820 F.3d at 434–35 (per curiam) (O'Malley, J., concurring).

64. 35 U.S.C. §§ 316(e), 326(e).

65. *Par Pharm., Inc. v. TWi Pharm., Inc.*, 773 F.3d 1186, 1193 (Fed. Cir. 2014).

66. *Gnosis S.P.A.*, 808 F.3d at 841 (Newman, J., dissenting).

67. *Id.* at 840–42.

68. 35 U.S.C. §§ 316(e), 326(e) (providing that in IPR and PGR proceedings “the petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence”).

69. *Id.* § 6(a).

70. *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1359 (Fed. Cir. 2007) (“[D]eference to the decisions of the USPTO takes the form of the presumption of validity Since we must presume

scrutiny to cancel the effects of the Congressional choice to set a lower burden before the PTAB. Once these features are recognized as deliberate choices rather than inadvertent bugs, it is at least as plausible that Congress intended to bring about more deference to PTAB rulings rather than less.

Moreover, by making PTAB decisions on whether to institute an IPR or PGR proceeding “final and nonappealable,”⁷¹ Congress showed willingness to constrain judicial review in favor of quick and efficient resolution by the PTAB.⁷² Limiting opportunities for judicial review accelerates the resolution of patent challenges, a legislative goal that is manifest in the tight deadlines for each step in PTAB proceedings.⁷³

The statute also provides for appeal of PTAB decisions to the Federal Circuit.⁷⁴ Even though appellate review inevitably adds costs and delays that interfere with expeditious resolution of disputes, Congress plainly contemplated a role for judicial review. But the scope of Federal Circuit review of PTAB rulings could determine the success of these new proceedings in achieving legislative goals.

IV. FEDERAL CIRCUIT REVIEW OF NONOBVIOUSNESS AND CLAIM INTERPRETATION

The Federal Circuit’s characterization of mixed questions of law and fact as legal conclusions has the effect of calling for *de novo* review of case-specific rulings for which the Federal Circuit has no clear functional advantage over expert PTAB panels. *De novo* review of these decisions threatens to undermine the system that Congress has chosen to improve quality control in the patent system through expeditious adjudication before expert administrative tribunals.

It is important not to confuse the words courts use to define standards of review with the actual deference they give to decisions of lower tribunals. A court purporting to apply *de novo* review may routinely affirm rulings, while a court purporting to review for substantial evidence may review skeptically and reverse frequently. To tell the difference, one must examine what reviewing courts actually do, not merely what they say in rote language set forth in opinions.

Arguably, the Federal Circuit has been more deferential toward PTAB rulings in its actual decisions than in its articulations of standards of review.

a patent valid, the patent challenger bears the burden of proving the factual elements of invalidity by clear and convincing evidence.”)

71. 35 U.S.C. §§ 314(d), 324(e).

72. See *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016) (rejecting interpretation of statute to preclude only interlocutory appeals from institution determinations, while allowing eventual judicial review of such determinations on appeal from final decision).

73. E.g., 35 U.S.C. §§ 313 (“Preliminary response to petition”), 314(b) (“Institution of inter partes review”), 316 (“Conduct of inter partes review”).

74. *Id.* § 319.

The Federal Circuit has affirmed roughly three out of four PTAB decisions, although the rate of affirmance appears to be declining.⁷⁵ On the other hand, according to one recent statistical analysis of 2017 decisions, the Federal Circuit's rate of affirmance for PTAB rulings (76%) was almost the same as its rate of affirmance for district court decisions (74%),⁷⁶ suggesting only marginally greater deference to the PTAB than to district courts in actual outcomes.⁷⁷ This is particularly surprising given selection bias in the cases considered by the PTAB, which has nonreviewable discretion to decline to institute review and may only institute review if it determines "that there is a reasonable likelihood that the petitioner would prevail with respect to at least one of the claims challenged."⁷⁸ Parity in reversal rates for the PTAB and district courts is consistent with a formal approach to standards of review that rests on a strict bifurcation between law and fact regardless of the tribunal.

After initial ambiguity, the Federal Circuit and the Supreme Court now characterize both nonobviousness and claim interpretation as legal conclusions with evidentiary underpinnings. Both courts agree that underlying factual determinations should be reviewed with deference, while the ultimate conclusions should be reviewed *de novo*. Despite this formal similarity, in recent practice, Federal Circuit review of nonobviousness conclusions has become more deferential, with affirmance often following from a conclusion that evidence in the record supports implied underlying factual findings. At the same time, review of claim interpretation has become less deferential, with lower court interpretations often reversed on appeal notwithstanding support in the evidentiary record. The divergence reflects differences in the practices that the courts have approved to guide trial courts in making these determinations.

75. See Michael Joffe et al., *PTAB at 5: Part 3—Fed. Circ. Statistics*, LAW360 (Sept. 13, 2017, 1:44 PM), https://www.sterneckessler.com/sites/default/files/2018-01/PTAB_At_5_Part_3_%E2%80%9494_Fed._Circ._Statistics.pdf ("While affirmances have always been the predominant outcome, the affirmance rate has drifted down in the past two years.").

76. See Dan Bagatell, *Fed. Circ.'s 2017 Patent Decisions: A Statistical Analysis*, LAW360 (Jan. 5, 2018, 2:41 PM), <http://www.perkinscoie.com/images/content/1/8/v4/184121/Fed.-Circ.-s-2017-Patent-Decisions-A-Statistical-Analysis.pdf>.

77. Other studies have reached somewhat different results. One unpublished study—after excluding claim interpretation rulings, remands to the PTAB for insufficient explanation, and jury decisions from District Courts—concluded that the Federal Circuit affirms PTAB rulings on validity at a higher rate (91.1%) than it affirms similar rulings from District Courts (84.7%). Matthew G. Sipe, Experts, Generalists, Laypeople—and the Federal Circuit 46 (Aug. 1, 2018) (unpublished manuscript), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3228585. But that disparity is driven almost entirely by differences in rates of affirmance of fact finding, with legal conclusions affirmed at approximately the same rates for both tribunals. *Id.*

78. 35 U.S.C. § 314(a), (d). For PGR, the standard for instituting review requires a finding "that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable." *Id.* § 324(a).

A. *NONOBVIOUSNESS*

As the courts have elaborated the nonobviousness determination over the years, it has become highly case-specific, consisting primarily of consideration and weighing of evidence. Most of the cases involve court-court review, but cases involving court-agency review are remarkably similar.

The requirement of nonobviousness, now codified in section 103 of the Patent Act, began as a common law requirement for “invention” that courts treated as a question of fact.⁷⁹ The modern approach to the law/fact distinction for the codified standard of nonobviousness emerged from the following passage in the 1966 decision of the Supreme Court in *Graham v. John Deere*:

While the ultimate question of patent validity is one of law, the § 103 condition, which is but one of three conditions, each of which must be satisfied, lends itself to several basic factual inquiries. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.⁸⁰

It is unclear what the Court meant by “the ultimate question of patent validity is one of law.” The cases do not hold that every “condition” of patent validity presents a question of law. The Federal Circuit codes at least one such condition—novelty under section 102—as a question of fact.⁸¹ What is clear is that the Court saw nonobviousness as involving “several basic factual inquiries.”⁸²

The Supreme Court later took note of the ambiguity in *Dennison v. Panduit* and sought “the Federal Circuit’s informed opinion on the complex issue of the degree to which the obviousness determination is one of fact.”⁸³

79. *Keyes v. Grant*, 118 U.S. 25, 37 (1886) (reversing directed verdict where both sides introduced expert testimony because “this was a question of fact, properly to be left for determination to the jury”).

80. *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966) (citation omitted).

81. *Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001). Other validity requirements that have been coded as factual include utility under section 101, see *Newman v. Quigg*, 877 F.2d 1575, 1581 (Fed. Cir. 1989); the written description requirement under section 112, see *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 285 F.3d 1013, 1017 (Fed. Cir. 2002); and the best mode requirement under section 112 (although no longer a ground of invalidity). See *Northern Telecom Ltd. v. Samsung Elecs. Co.*, 215 F.3d 1281, 1286 (Fed. Cir. 2000).

82. *Graham*, 383 U.S. at 17.

83. *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 811 (1986).

Elaborating on remand, the Federal Circuit explained that after determining the factual issues identified in *Graham v. John Deere*:

[T]he decisionmaker confronts a ghost, i.e., “a person having ordinary skill in the art,” not unlike the “reasonable man” and other ghosts in the law. . . . In light of all the evidence, the decisionmaker must then determine whether the patent challenger has convincingly established that the claimed invention as a whole would have been obvious at that time to that person. The answer to that question partakes more of the nature of law than of fact, for it is an ultimate conclusion based on a foundation formed of all the probative facts.⁸⁴

It is not clear why a conclusion “formed of all the probative facts” is more legal than factual.⁸⁵ The court seems to recognize the mixed character of the conclusion by stating that it “partakes more of the nature of law than of fact” and in the analogy to the “reasonable man.”⁸⁶ The court justified its coding of the ultimate conclusion as legal as “[facilitating] a consistent application of that statute in the courts and in the [PTO],”⁸⁷ presumably by setting the stage for *de novo* review.

In its 2007 decision in *KSR v. Teleflex*,⁸⁸ the Supreme Court clearly accepted the Federal Circuit’s framing of nonobviousness as “a legal conclusion based on factual determinations and not a factual determination itself.”⁸⁹ Yet notwithstanding this coding, nonobviousness is a highly case-specific determination that requires immersion in an evidentiary record.⁹⁰

In both *Graham* and *KSR*, the Supreme Court stressed the case-specific nature of the ultimate conclusion of obviousness. In *Graham*, the Court said that “[w]hat is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context” but that it “should be amenable to a case-by-case development.”⁹¹ In *KSR* the Court rejected the Federal Circuit’s efforts to formalize the nonobviousness inquiry through

84. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1566 (Fed. Cir. 1987) (on remand) (citations omitted).

85. *Id.*

86. *Id.*

87. *Id.* at 1567.

88. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 427 (2007).

89. *Aktiebolaget Karlstads Mekaniska Werkstad v. U.S. Int’l Trade Comm’n*, 705 F.2d 1565, 1575 (Fed. Cir. 1983); *see also* *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1047 (Fed. Cir. 2016) (en banc) (“Obviousness is a question of law based on underlying facts.”); *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1356–57 (Fed. Cir. 2012) (finding the same).

90. *See* Ted L. Field, *Obviousness as Fact: The Issue of Obviousness in Patent Law Should Be a Question of Fact Reviewed with Appropriate Deference*, 27 *FORDHAM INTELL. PROP. MEDIA & ENT. L.J.* 555, 590 (2017) (arguing that courts should decide obviousness as a question of fact and not as a question of law).

91. *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 18 (1966).

“rigid and mandatory formulas . . . that deny factfinders recourse to common sense.”⁹² In both cases the analysis focuses on case-specific and evidentiary aspects of the determination.

In the years since *KSR*, the Federal Circuit has continued to recite that it reviews the underlying factual determinations of district courts for clear error (or for “substantial evidence” in jury cases) and the ultimate conclusion *de novo*. But this purported *de novo* review has become increasingly perfunctory, at least when the court finds sufficient evidence in the record to support the subsidiary findings. It is the evidentiary record behind these findings, not legal analysis of the conclusion, that dominates the decisions.

Increasing deference to lower courts may in part reflect expansion in the number and significance of factual determinations underlying nonobviousness. In addition to the statutory “factual inquiries” recited in *Graham*, the Federal Circuit elevated what the Supreme Court characterized as “secondary considerations [such] as commercial success, long felt but unsolved needs, failure of others, etc.”⁹³ to the status of a fourth factor of “objective evidence” that must be considered when offered.⁹⁴ The Federal Circuit treats findings on objective evidence as factual.⁹⁵ The Federal Circuit further expanded the evidentiary underpinnings of nonobviousness analysis in cases requiring a “teaching, suggestion, or motivation” to combine references (“TSM”) when a challenge for obviousness rests on more than one source of prior art.⁹⁶ Other factual underpinnings of nonobviousness include whether there was a reasonable expectation of success⁹⁷ and whether an invention produces unexpected results.⁹⁸ Litigants introduce evidence on these factual underpinnings, generating a record that supports factual findings and makes them difficult to reverse.

For cases tried to juries, appellate deference is even greater. First, factual findings of juries are reviewed under the more deferential “substantial evidence” standard⁹⁹ rather than the clear error standard applied to findings

92. *Teleflex Inc.*, 550 U.S. at 419, 421.

93. *Graham*, 383 U.S. at 17–18.

94. *Apple Inc.*, 839 F.3d at 1048 (“Objective indicia of nonobviousness must be considered in every case where present.”).

95. See *Circuit Check Inc. v. QXQ Inc.*, 795 F.3d 1331, 1336 (Fed. Cir. 2015).

96. E.g., *Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1289–90 (Fed. Cir. 2006) (“The presence or absence of a motivation to combine references in an obviousness determination is a pure question of fact.” (quoting *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000))).

97. E.g., *Par Pharm., Inc. v. TWi Pharm., Inc.*, 773 F.3d 1186, 1196 (Fed. Cir. 2014) (“The presence or absence of a reasonable expectation of success is also a question of fact.”).

98. E.g., *Bristol-Myers Squibb Co. v. Teva Pharm. USA, Inc.*, 752 F.3d 967, 976–78 (Fed. Cir. 2014), *reh’g and reh’g en banc denied*, 769 F.3d 1339 (Fed. Cir. 2014) (reviewing with deference findings on unexpected results).

99. *Apple Inc.*, 839 F.3d at 1040. The substantial evidence standard also applies to jury findings in other fields of law. *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938).

of trial court judges.¹⁰⁰ Second, although trial court judges typically enter written findings of fact and conclusions of law that provide a detailed account of the basis for their decisions, jury verdicts are less precise. Explicit reasoning is more amenable to appellate review¹⁰¹ than unexplained conclusions. The Federal Circuit does not require that juries specify the subsidiary facts that they find but allows trial courts to submit the ultimate determination on obviousness to juries.¹⁰² When a jury returns even a purely advisory verdict on the ultimate determination of obviousness, the Federal Circuit “first presume[s] that the jury resolved the underlying factual disputes in favor of the verdict [] and leave[s] those presumed findings undisturbed if they are supported by substantial evidence” before examining the ultimate legal conclusion “*de novo* to see whether it is correct in light of the presumed jury fact findings.”¹⁰³ Although, in theory, the Federal Circuit might reweigh these implicit factual findings to reach a different conclusion on *de novo* review, having identified presumed findings that are consistent with the jury’s conclusion, the Federal Circuit may be more likely to agree with it.

A deferential approach to lower court rulings on nonobviousness makes sense under a functional approach. A legal conclusion that rests on weighing explicit or implicit factual findings necessarily immerses courts in marshalling and weighing evidence and making credibility judgments. Appellate review of nonobviousness rulings requires exhaustive consideration of the record. The resulting conclusions are deeply entwined in analysis of the case-specific evidentiary record and are unlikely to have generalizable implications for other cases.

Similar considerations also call for deference to PTAB rulings on nonobviousness. The Federal Circuit articulates similar standards of review for PTAB decisions on obviousness, stating that it reviews underlying factual determinations for substantial evidence and the ultimate conclusion *de novo*.¹⁰⁴

100. FED. R. CIV. P. 52(a)(6) (“Findings of fact, whether based on oral or other evidence, must not be set aside unless clearly erroneous . . .”).

101. The Supreme Court, in *KSR*, stated that “[t]o facilitate review, this analysis should be made explicit.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

102. For an early example, see *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1547 (Fed. Cir. 1983) (“[I]t is not error to submit the question of obviousness to the jury. . . . [T]he role of the jury in determining obviousness is not unlike its role in reaching a legal conclusion respecting negligence. . . .”). See also *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1358, 1359 (Fed. Cir. 2001) (Michel, J., dissenting) (“The difficulty presented in this appeal is how to separate the role of the jury to find facts . . . from the role of trial judges in reaching, or for us freely reviewing, the ultimate legal conclusion of obviousness, *vel non*. . . with no identification of the jury’s resolution of genuine disputes over material factual issues.”).

103. *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1356–57 (Fed. Cir. 2012) (second alteration in original) (emphasis added) (quoting *Jurgens v. McKasy*, 927 F.2d 1552, 1557 (Fed. Cir. 1991)).

104. *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1360 (Fed. Cir. 2016) (citing *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000)).

But the PTAB, unlike juries, has to explain the evidentiary basis for its findings and the reasoning behind its conclusions,¹⁰⁵ making reversal much easier. If the PTAB fails to explain its decision, the Federal Circuit does not search the record for substantial evidence to support implicit findings. Instead, it will vacate and remand the case with instructions to make the necessary findings and to explain its reasoning more fully.¹⁰⁶

The contrast between the Federal Circuit's willingness to infer whatever subsidiary fact findings would support jury decisions, and its insistence that the PTAB explain the basis for its rulings, may look like less deferential review of PTAB rulings than of jury rulings on the same issue. Yet functional analysis seems to cut the other way. The greater expertise and experience of the PTAB make it well suited to the job of applying legal standards for nonobviousness to evidentiary records. The technological complexity of nonobviousness determinations may pose a challenge for juries and even for generalist trial courts, but these determinations are within the PTAB's wheelhouse. The AIA goal of accelerating resolution of patent challenges is an additional functional reason for deferential review of PTAB rulings.

But perhaps lack of deference is the wrong way to characterize Federal Circuit determinations that PTAB decisions lack adequate explanation. At least formally, the basis for remanding or reversing in these cases is not disagreement with the PTAB's conclusions, but rather failure of the PTAB to observe procedural requirements that apply to the PTO but not to juries. The Patent Act and the APA require the PTAB to explain the basis for its decisions in writing.¹⁰⁷ A written explanation allows the Federal Circuit to review whether the PTAB has complied with these and other procedural requirements.¹⁰⁸ When the Federal Circuit remands to the PTAB, it may be

105. *Id.* at 1363 (allowing the PTAB to invoke “common sense” in support of an obviousness determination but noting “it must still be supported by evidence and a reasoned explanation”); *see also* DSS Tech. Mgmt. v. Apple Inc., 885 F.3d 1367, 1374 (Fed. Cir. 2018).

106. *In re Nuvasive, Inc.*, 842 F.3d 1376, 1382 (Fed. Cir. 2016); *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367 (Fed. Cir. 2015).

107. 35 U.S.C. §§ 318(a), 328(a) (2012) (requiring “a final written decision with respect to the patentability of any patent claim challenged by the petitioner and any new claim added [by amendment]”); 5 U.S.C. § 555(e) (requiring “a brief statement of the grounds for denial” of a petition or request unless “the denial is self-explanatory”). The APA imposes additional requirements for formal adjudications, a category that the Federal Circuit has held includes IPRs. *See id.* §§ 554, 557(c)(3)(A) (requiring “a statement of . . . findings and conclusions, and the reasons or basis therefore, on all the material issues of fact, law, or discretion presented on the record”); *EmeraChem Holdings, LLC v. Volkswagen Grp. of Am., Inc.*, 859 F.3d 1341, 1348 (Fed. Cir. 2017).

108. *See EmeraChem Holdings*, 859 F.3d at 1345 (“We review the Board’s procedures for compliance with the [APA] *de novo*, under which we must ‘hold unlawful and set aside agency action . . . not in accordance with the law [or] . . . without observance of procedure required by law.’” (alterations in original) (quoting 5 U.S.C. § 706)).

enforcing these procedural requirements rather than withholding deference from substantive determinations.¹⁰⁹

It is possible, however, that the Federal Circuit is using remands for inadequate explanation rather than reversing for legal error when it disagrees with the PTAB's rulings. When the Federal Circuit remands for further explanation rather than using *de novo* review to clarify the legal errors of the PTAB, it implicitly recognizes that the PTAB is in a better position than the Federal Circuit panel to apply the law to the facts of the case.¹¹⁰ But remands delay quick resolution without the offsetting benefit of providing generalizable guidance from the appellate court as to the applicable law. Indeed, when the Federal Circuit remands for further explanation, it often uses nonprecedential opinions, a designation indicating that the opinion does not significantly add to the body of law and should not provide binding precedent for future courts.¹¹¹

Functional analysis favors deferential review of PTAB determinations on nonobviousness given the case-specificity of these rulings, the expertise of the PTAB, and the importance of prompt adjudication of patent challenges under the AIA. Recent Federal Circuit decisions suggest a possible trend towards remand of more nonobviousness challenges to the PTAB for insufficient explanation.¹¹² Although it is surely important for administrative tribunals to explain the basis for their decisions, remands should be used sparingly to preserve the value of these proceedings as an expeditious alternative to litigation.

B. CLAIM INTERPRETATION

The black letter standard of review for claim interpretation sounds remarkably similar to that for nonobviousness: It is a legal conclusion that the Federal Circuit reviews *de novo*, although it may rest on factual determinations

109. See, e.g., *Ariosa Diagnostics*, 805 F.3d at 1367 (remanding for clarification of whether Board's rejection of petitioner's reliance on a particular piece of evidence rested on a legally permissible ground or on an improper ground).

110. E.g., *PPC Broadband, Inc. v. Iancu*, 739 F. App'x 615, 628 (Fed. Cir. 2018) (issuing a second remand to the PTAB for failure to give adequate weight to objective evidence of nonobviousness after reaching same conclusion on first remand); *Arista Networks, Inc. v. Cisco Sys., Inc.*, 726 F. App'x 787, 791 (Fed. Cir. 2018) (remanding for failure to explain finding that reference fails to disclose claim limitation). On the other hand, some opinions have sought to discern a basis for affirming PTAB decisions, "even if that path is less than perfectly clear." *Cablz, Inc. v. Chums, Inc.*, 708 F. App'x 1006, 1012 (Fed. Cir. 2017) (nonprecedential opinion).

111. FED. CIR. R. 32.1(b), (d); see e.g., *Google Inc. v. Intellectual Ventures II LLC*, 701 F. App'x 946, 948-49 (Fed. Cir. 2017) (nonprecedential opinion).

112. See, e.g., *Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017); *In re Nuvasive, Inc.*, 842 F.3d 1376, 1382 (Fed. Cir. 2016); *Ariosa Diagnostics*, 805 F.3d at 1368; cf. *DSS Tech. Mgmt., Inc. v. Apple, Inc.*, 885 F.3d 1367, 1385 (Fed. Cir. 2018) (reversing obviousness determination without remand where record did not contain sufficient explanation for decision).

reviewed for clear error.¹¹³ Despite this formal similarity, Federal Circuit review has been notably less deferential for claim interpretation than for nonobviousness.

Challenges to PTAB rulings on claim interpretation have a higher likelihood of success at the Federal Circuit than any other grounds for appeal, accounting for close to a third of reversals and remands in one recent tally.¹¹⁴ This is unsurprising, because claim interpretation lurks behind most validity disputes, with errors in claim interpretation requiring reversal of validity rulings on appeal.

Current claim interpretation practices are of quite recent origin. In the past, patent infringement actions were generally tried before courts rather than juries, with courts interpreting claims as necessary to address validity and infringement.¹¹⁵ This pattern changed in the 1970s as patent owners increasingly sought jury trials in infringement actions.¹¹⁶ Trial courts would instruct juries on claim interpretation along with instructions on related disputes about validity and infringement.¹¹⁷

Claim interpretation by juries ended abruptly with the decision in *Markman v. Westview*.¹¹⁸ A majority of the Federal Circuit held en banc that claim interpretation is a matter of law for the court,¹¹⁹ with three judges writing separately to recognize that claim interpretation involves at least some factual aspects.¹²⁰ The Supreme Court agreed it was proper for the trial court to interpret the claim language without deference to the jury, but avoided a crisp bifurcation between law and fact, recognizing that construing claim language was a “mongrel practice.”¹²¹ The Court emphasized functional considerations to conclude that claim interpretation was better suited for judges than juries, noting that judges have legal training and skills in exegesis and that assigning the task to judges promotes uniformity in interpretation.¹²²

113. *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1297 (Fed. Cir. 2015) (citing *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841–42 (2015)), *overruled on other grounds by* *Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017).

114. Rachel L. Emsley et al., *Lessons Learned from Appeals of PTAB Decisions*, FINNEGAN (Mar./Apr. 2017), <https://www.finnegan.com/en/insights/lessons-learned-from-appeals-of-ptab-decisions.html>.

115. See J. Jonas Anderson & Peter S. Menell, *Informal Deference: A Historical, Empirical, and Normative Analysis of Patent Claim Construction*, 108 NW. U. L. REV. 1, 13–18 (2013).

116. *Id.* at 18–20.

117. *Id.* at 21 (citing Paul R. Michel, *The Challenge Ahead: Increasing Predictability in Federal Circuit Jurisprudence for the New Century*, 43 AM. U. L. REV. 1231, 1238 (1994)).

118. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388–89 (1996).

119. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 988 (Fed. Cir. 1995) (en banc).

120. *Id.* at 989 (Mayer, J., concurring); *id.* at 998 (Rader, J., concurring); *id.* at 999 (Newman, J., dissenting).

121. *Markman*, 517 U.S. at 378–84.

122. *Id.* at 388–90.

This decision led to a revolution of claim interpretation practices in litigation.¹²³

The Supreme Court opinion in *Markman* did not address the standard of appellate review for claim interpretation decisions. The Federal Circuit maintained its position in *Markman* that claim interpretations were legal conclusions subject to *de novo* review,¹²⁴ although a minority of Federal Circuit judges continued to argue for greater deference to trial court factual determinations that underlie claim interpretation.¹²⁵

The Supreme Court ultimately required greater deference to lower court factfinding in *Teva Pharmaceuticals v. Sandoz*,¹²⁶ holding that the Court of Appeals should review for “clear error” the trial court’s resolution of underlying factual disputes.¹²⁷ But the Court’s simultaneous approval of two other Federal Circuit positions—that the ultimate issue of claim interpretation is a legal conclusion subject to *de novo* review and that clear error review applies only to findings based on “extrinsic evidence” such as expert testimony¹²⁸—limited the impact of this ruling. The *Teva* decision thus represents a shift towards the Federal Circuit’s formalist sorting of the “mongrel practice” of claim interpretation into distinct categories of factual underpinnings and legal conclusions.¹²⁹

Coding claim interpretations based on “intrinsic evidence” (i.e., review of the patent and its prosecution history) as purely legal analysis without factual underpinnings is of recent and uncertain provenance. It contradicts the Federal Circuit’s own practice in its first decade, when it repeatedly

123. See PETER S. MENELL ET AL., PATENT CASE MANAGEMENT JUDICIAL GUIDE § 5 (3d ed. 2016).

124. See *Lighting Ballast Control LLC v. Philips Elecs. N. Am. Corp.*, 744 F.3d 1272, 1292 (Fed. Cir. 2014) (en banc), cert. granted, judgment vacated sub nom. *Lighting Ballast Control LLC v. Universal Lighting Techs., Inc.*, 135 S. Ct. 1173 (2015), remanded, 790 F.3d 1329 (Fed. Cir. 2015); *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc).

125. E.g., *Cybor Corp.*, 138 F.3d at 1462 (Plager, J., concurring) (“Though we review [the trial court] record ‘*de novo*,’ . . . common sense dictates that the trial judge’s view will carry weight.”); *id.* at 1463 (Bryson, J., concurring) (“[T]hat claim construction is an issue of law does not mean that . . . we will give no weight to a district court’s conclusion . . .”); *id.* at 1463–64 (Mayer, C.J., concurring) (“[T]he Court [in *Markman v. Westview*] chose not to accept our formulation of claim construction[] as a pure question of law to be decided *de novo* in all cases on appeal. . . .”); *id.* at 1473–74 (Rader, J., dissenting in part, concurring in part, and joining in part) (describing that *de novo* review postpones certainty about claim interpretation until the end of litigation and thus aggravates the uncertainty that the Supreme Court sought to avoid in *Markman*). When the Federal Circuit finally revisited its use of *de novo* review en banc, a majority voted to affirm. *Lighting Ballast Control*, 744 F.3d at 1283. But some members of the court dissented vigorously. *Id.* at 1296 (O’Malley, J., joined by Rader, C.J., Reyna, J., & Wallach, J., dissenting).

126. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 835 (2015).

127. *Id.* at 840–41 (resolving disputes about the meaning of a claim term to practitioners in the relevant art in light of extrinsic evidence may present an underlying factual issue).

128. *Teva Pharm.*, 135 S. Ct. at 841.

129. Scholars have questioned the coherence of efforts to sort rulings into distinct categories of law and fact. E.g., Cooper, *supra* note 48, at 659–60; Rai, *supra* note 7, at 1042–44; Schwartz, *supra* note 51, at 73–75.

recognized that interpretation of prosecution history in the course of claim interpretation may present disputed factual questions.¹³⁰ This prior approach is consistent with the longstanding practice of treating the content and meaning of patent specifications as presenting factual questions when they are considered as prior art.¹³¹ The Federal Circuit treats the question of whether a prior art patent discloses a claimed invention (and thus defeats its novelty) as factual.¹³²

The specification and prosecution history of a patent may be more reliable evidence of the meaning of claim language than the sources that count as extrinsic evidence (such as expert testimony), but that does not change its evidentiary character. Moreover, if reliability is the basis for the distinction, it seems perverse to give less deference to interpretations based on more reliable intrinsic evidence, and more deference to findings based on less reliable extrinsic evidence. That intrinsic evidence, consisting entirely of documents, is equally available to appellate and trial courts does not justify a departure from clear error review under the Federal Rules of Civil Procedure.¹³³

Post-*Teva*, the Federal Circuit uses a variety of moves to avoid formal deference to any aspect of claim interpretation.¹³⁴ When the record includes extrinsic evidence, the Federal Circuit sometimes concludes that the trial court made no findings of fact based on that evidence that require deferential review.¹³⁵ The Supreme Court arguably approved this approach in *Teva* by

130. See, e.g., *Arachnid, Inc. v. Medalist Mktg. Corp.*, 972 F.2d 1300, 1302 (Fed. Cir. 1992) (“[C]laim interpretation may require the factfinder to resolve certain factual issues such as what occurred during the prosecution history.”); *Lemelson v. Gen. Mills, Inc.*, 968 F.2d 1202, 1206 (Fed. Cir. 1992) (“[T]he determination of the scope of the claim—its interpretation and proper construction—while denominated a question of law is in many cases based on the facts regarding the patent’s history. . . . [U]nderlying factual issues in dispute become the jury’s province to resolve.”); *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 859 F.2d 878, 885 (Fed. Cir. 1988) (concluding that the lower court’s fact finding on disputed prosecution history was “clearly erroneous”).

131. See *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 810–11 (1986) (per curiam).

132. See *Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001); see also, e.g., *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1566 (Fed. Cir. 1987) (including among factual components of nonobviousness analysis “what a prior art patent as a whole discloses”).

133. FED. R. CIV. P. 52(a)(6) (“Findings of fact, whether based on oral or other evidence, must not be set aside unless clearly erroneous . . .”).

134. Cf. *Anderson & Menell*, *supra* note 115, at 76 (arguing based on review of decisions from 2000 through 2011 that after its 2005 decision in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2015) (en banc), although the Federal Circuit continued to adhere to *de novo* standard of review, actual reversal rates declined significantly). Because the study period ended in 2011, it did not permit observation of the effects of either the 2015 Supreme Court decision in *Teva Pharmaceuticals v. Sandoz* or the introduction of new AIA PTAB adjudications.

135. E.g., *CardSoft*, (assignment for the Benefit of Creditors), LLC v. *VeriFone, Inc.*, 807 F.3d 1346, 1350 (Fed. Cir. 2015) (“[I]t is not enough that the district court may have heard extrinsic evidence during a claim construction proceeding—rather, the district court must have actually made a factual finding in order to trigger *Teva*’s deferential review.”); *Shire Dev., LLC v. Watson Pharm., Inc.*, 787 F.3d 1359, 1364 (Fed. Cir. 2015) (finding that although the district

observing: “As all parties agree, when the district court reviews only evidence intrinsic to the patent (the patent claims and specifications, along with the patent’s prosecution history), the judge’s determination will amount solely to a determination of law, and the Court of Appeals will review that construction *de novo*.”¹³⁶

Even if the trial court considered the extrinsic evidence relevant and found facts on the basis of that evidence, if the Federal Circuit thinks that consideration of extrinsic evidence was unnecessary because the intrinsic evidence is sufficient on its own, it will ignore it on appeal and review the claim interpretation *de novo* based solely on the intrinsic evidence.¹³⁷

Another way that the Federal Circuit sidesteps trial court factfinding based on extrinsic evidence is to hold that the extrinsic evidence amounts to improper testimony as to a legal conclusion. Again, the Supreme Court arguably invited this approach in *Teva*: “[E]xperts may be examined to explain terms of art, and the state of the art, at any given time,’ but they cannot be used to prove ‘the proper or legal construction of any instrument of writing.’”¹³⁸ On remand in *Teva*, a split Federal Circuit panel again held the same claims invalid for indefiniteness without finding clear error in any of the trial court’s findings based on extrinsic expert testimony.¹³⁹ These findings played no apparent role in the majority’s *de novo* analysis of the meaning of the claim language because the majority coded as questions of law all the determinations that matter: “The meaning one of skill in the art would attribute to the term molecular weight . . . is a question of law Determining the meaning or significance to ascribe to the legal writings which constitute the intrinsic record is legal analysis.”¹⁴⁰ Yet in a revealing sign of ambiguity as to whether its analysis amounted to legal conclusion or appellate factfinding, the majority recited “that claim 1 is invalid for indefiniteness by

court received expert testimony in evidence, “there is no indication that the district court made any factual findings that underlie its [claim] constructions”).

136. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 840–41 (2015).

137. *E.g.*, *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1297 (Fed. Cir. 2015) (reviewing claim construction *de novo* and declining to consider “findings on [extrinsic] evidence because the intrinsic record [was] clear”), *overruled on other grounds by Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017).

138. *Teva Pharm.*, 135 S. Ct. at 841 (quoting *Winans v. N.Y. & Erie R.R. Co.*, 62 U.S. 88, 101–02 (1858)).

139. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1342–45 (Fed. Cir. 2015). The Supreme Court’s decision in *Teva* was one of two decisions that it handed down at the same time on the related issues of claim interpretation and the statutory requirement of claim definiteness. *See* 35 U.S.C. § 112(b) (2012). In *Nautilus, Inc. v. Biosig Instruments, Inc.*, the Court “h[e]ld that a patent is invalid . . . if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). The Federal Circuit considered the impact of both decisions on remand in *Teva*.

140. *Teva Pharm.*, 789 F.3d at 1342.

clear and convincing evidence.”¹⁴¹ If the evidence matters, it is troubling that the appellate court reached its decision while ignoring extrinsic evidence that the trial court considered as to the meaning of the claim language to a person having ordinary skill in the art. Nor is it necessary, as review for clear error would still allow the Federal Circuit to reverse based on its review of both extrinsic evidence and intrinsic evidence in a proper case.

One can sympathize with the impulse of the Federal Circuit to engage in active appellate review of claim interpretation by trial courts. Surely claim interpretation presents functional challenges for generalist trial courts adjudicating patent cases. One way to address this challenge is to use experts. Federal Circuit judges might also benefit from considering expert testimony in the record rather than ignoring it. Whatever their expertise in patent law, they cannot pretend to have expertise in the meaning of technical language to persons of skill in the art for all (or even most) of the patents that come before them. As Judge Newman observed in her dissenting opinion in *Markman*, “when the technologic issues are complex, appellate fact finding is probably the least effective path to accurate decisionmaking. . . . Appellate briefs and fifteen minutes per side of attorney argument are not designed for *de novo* findings of disputed technologic questions.”¹⁴²

So long as legal standards for claim interpretation require analysis from the perspective of a person of skill in the art, it behooves the courts to consult extrinsic evidence to access that perspective rather than to rely on their own inexpert reading of patent documents. If the credibility of hired experts is in doubt, that argues for deference to the tribunal that is in a better position to assess witness credibility rather than for ignoring that evidence on appeal. That, after all, is a traditional functional justification for reviewing trial court findings based on witness testimony for clear error rather than *de novo*.¹⁴³

Another functional consideration favoring *de novo* review is the interest in uniformity of claim interpretation. The Supreme Court cited this interest as a reason to assign claim interpretation to judges rather than juries in *Markman*, noting that uniformity would encourage innovation by providing certainty to both the patentee and potential infringers about the reach of the patent.¹⁴⁴ Although intuitively appealing, this interest may be overstated. Different lawsuits may raise different interpretive questions about the same patent. In addition to citing different prior art, different defendants may use different allegedly infringing technologies, raising distinct issues of validity and infringement that test claim boundaries in different ways and call for

141. *Id.* at 1345. A dissenting panel member thought the majority’s conclusion was inconsistent with the district court’s factual findings, which were not clearly erroneous. *Id.* at 1346 (Mayer, J., dissenting).

142. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 999 (Fed. Cir. 1995) (en banc) (Newman, J., dissenting).

143. FED. R. CIV. P. 52(a)(6); see also Cooper, *supra* note 48, at 650–51 (explaining Rule 52).

144. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390–91 (1996).

further claim interpretation. When the exact same issue arises again, issue preclusion may bind the parties to the prior action, including the patent owner.¹⁴⁵ If the initial determination is treated as a legal conclusion, *stare decisis* could also bind nonparties.¹⁴⁶ On the other hand, if later proceedings raise new interpretive questions, the prior claim interpretation may not be dispositive even with *stare decisis* effect.¹⁴⁷

A related concern is that parties who can get away with making inconsistent arguments about claim interpretation in different proceedings may offer distorted claim interpretations for strategic purposes, but if they will have to live with the same claim interpretation in the future, they may be more cautious.

Whatever the potential benefits of uniformity, *de novo* review comes at a significant cost.¹⁴⁸ Because claim interpretation lurks behind every other ruling on validity and infringement, the prospect of *de novo* review makes the outcome of patent litigation uncertain until appeals have been exhausted. Such delays are particularly costly in patent litigation because patents are wasting assets with expiration dates, and because further technological change could be stalled by uncertainty as to the validity and scope of patent rights.

The discussion so far has focused on Federal Circuit review of claim interpretation in the district courts. The Federal Circuit uses essentially the same approach in reviewing claim interpretation in PTAB adjudications, with the difference that it reviews factual findings that draw on extrinsic evidence for substantial evidence rather than for clear error. In both contexts, the Federal Circuit reviews the ultimate claim construction *de novo*.¹⁴⁹ And in both contexts, the Federal Circuit often avoids deferential review of evidentiary underpinnings by concluding that the intrinsic evidence is sufficient to interpret the claims without considering extrinsic evidence.¹⁵⁰ When the

145. *Blonder-Tongue Labs., Inc. v. Univ. of Ill. Found.*, 402 U.S. 313, 349 (1971); *Phil-Insul v. Airlite Plastics Co.*, 854 F.3d 1344, 1355 (Fed. Cir. 2017).

146. In *Markman*, the Supreme Court recognized this point. *Markman*, 116 S. Ct. at 1395. Subsequent Federal Circuit decisions have sometimes used the term “*stare decisis*” in giving binding effect to the Federal Circuit’s own prior interpretation of claim language. *E.g.*, *Ottah v. Fiat Chrysler*, 884 F.3d 1135, 1139–40 (Fed. Cir. 2018); *Miken Composites, L.L.C. v. Wilson Sporting Goods, Co.*, 515 F.3d 1331, 1338 n.* (Fed. Cir. 2008).

147. *See, e.g.*, *Phonometrics, Inc. v. N. Telecom, Inc.*, 133 F.3d 1459, 1464 (Fed. Cir. 1998) (finding that where prior decision construed only the phrase “digital display” in the claim, dictum concerning meaning of other claim language “has no issue preclusive effect”).

148. *See* Jeffrey A. Lefstin, *Claim Construction, Appeal, and the Predictability of Interpretive Regimes*, 61 U. MIAMI L. REV. 1033, 1035 (2007).

149. *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1297 (Fed. Cir. 2015), *overruled on other grounds by Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017).

150. *E.g.*, *In re Smith Int’l, Inc.*, 871 F.3d 1375, 1382 (Fed. Cir. 2017); *Microsoft Corp.*, 789 F.3d at 1297–99 (concluding on *de novo* review that the PTAB’s claim interpretation of disputed term was “unreasonably broad” without considering its “findings on [extrinsic] evidence because the intrinsic record is clear”).

Federal Circuit interprets the claims *de novo* without reaching the extrinsic evidence, the difference between substantial evidence and clear error does not matter.

Functional considerations argue for more deference to claim interpretations by the PTO than to claim interpretations by trial courts. After all, the PTO has considerable expertise in patent claims. Patent applicants draft claim language in accordance with conventions and requirements that the PTO has established and codified in its rules.¹⁵¹ The judges that make up PTAB panels are required by statute to “be persons of competent legal knowledge and scientific ability.”¹⁵² Moreover, the functional argument for deference is even stronger for PTAB rulings than for PTO decisions in the course of patent prosecution because PTAB panels have more time and resources available than PTO examiners, allowing them to do a more thorough job.¹⁵³

Until recently, one important difference between claim interpretation in proceedings within the PTO (including PTAB adjudications) and claim interpretation in patent infringement litigation stood in the way of uniformity. Consistent with longstanding practice in other PTO proceedings, the PTAB gave claim language “its broadest reasonable construction in light of the specification . . . in which it appears” (broadest reasonable interpretation or BRI),¹⁵⁴ while the Federal Circuit requires district courts to give claims their “ordinary meaning . . . as understood by a person of skill in the art.”¹⁵⁵ The courts granted *Chevron* deference to the PTO’s choice of the BRI standard as within the scope of its statutory authority to promulgate regulations governing IPR proceedings.¹⁵⁶ The Federal Circuit reviewed the PTAB’s claim interpretations under this standard for reasonableness in light of the intrinsic evidence.¹⁵⁷

Because BRI may lead to a broader interpretation than ordinary meaning, and because broader claims are more likely to impinge on prior art and therefore fall to a validity challenge, the BRI standard made it easier to invalidate patent claims in PTAB proceedings than in district court

151. 37 C.F.R. § 1.75 (2018).

152. 35 U.S.C. § 6(a) (2012).

153. Dreyfuss, *supra* note 9, at 260.

154. 37 C.F.R. § 42.100(b).

155. Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc).

156. See *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142–44 (2016).

157. *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (stating that the BRI does not permit giving claims an interpretation that is “unreasonable under general claim construction principles” (emphasis removed)), *overruled on other grounds by Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017).

litigation.¹⁵⁸ The difference in standards frustrated uniformity.¹⁵⁹ Prior judicial interpretations of claim language under an ordinary meaning standard were not binding in PTAB proceedings,¹⁶⁰ and prior PTAB interpretations under the BRI standard were not binding in the courts.¹⁶¹

The PTO recently changed its claim construction standard for AIA PTAB adjudications to conform to the standard used in district court litigation.¹⁶² In announcing the new rule, the PTO cited a study reporting that 86.8% of patents at issue in AIA adjudications are also in litigation in the courts, and asserted that use of the same claim interpretation standard would promote uniformity and predictability across these proceedings.¹⁶³ The PTO also noted concern that unfairness could result from using a broader standard of interpretation in AIA adjudications, leading to invalidations based on a broader claim scope than the patent holder could assert in an infringement action.¹⁶⁴ With the change in standard, the PTAB will now consider prior constructions of the claim from federal courts,¹⁶⁵ and the PTO noted that the change “increases the likelihood that courts may consider the PTAB’s construction for a given patent.”¹⁶⁶

This is a welcome development that recognizes that the PTAB plays a new and different role in AIA adjudications of validity challenges than the PTO played in the past.¹⁶⁷ At one time, it could be argued that the PTO’s role was to perform an initial sorting function for a large volume of patent applications, most of which would prove inconsequential, while leaving it to the courts to analyze more thoroughly down the road the validity of the subset

158. As Justice Breyer noted in *Cuozzo Speed Technologies*, the difference in claim interpretation standards (preponderance of the evidence versus clear and convincing evidence) creates a risk of inconsistent interpretations by the PTAB and district courts in proceedings between the same parties involving the same patents. *Cuozzo Speed Techs.*, 136 S. Ct. at 2144.

159. See Niky R. Bagley, Note, *Treatment of PTAB Claim Construction Decisions: Aspiring to Consistency and Predictability*, 32 BERKELEY TECH. L.J. 315, 355–57 (2017).

160. *Knowles Elecs., LLC v. Iancu*, 886 F.3d 1369, 1376 (Fed. Cir. 2018) (stating that although “previous judicial interpretations of disputed claim term may be relevant to the PTAB’s later construction of that same disputed term” under BRI, the “[PTAB] is not generally bound by a previous judicial interpretation” under a different standard (citing *Power Integrations, Inc. v. Lee*, 797 F.3d 1318, 1327 (Fed. Cir. 2015))).

161. *SkyHawke Techs., LLC v. Deca Int’l Corp.*, 828 F.3d 1373, 1376 (Fed. Cir. 2016) (finding that the PTAB is not bound by district court decisions using different claim construction standards).

162. See *Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 Fed. Reg. 51,340, 51,340 (Oct. 11, 2018) (to be codified at 37 C.F.R. pt. 42).

163. *Id.* at 51,342 (citing Saurabh Vishnubhakat et al., *Strategic Decision Making in Dual PTAB and District Court Proceedings*, 31 BERKELEY TECH. L.J. 45 (2016)).

164. *Id.*

165. 37 C.F.R. § 42.100(b) (2018).

166. *Changes to the Claim Construction Standard for Interpreting Claims*, 83 Fed. Reg. at 51,349.

167. *Cf.* Dreyfuss, *supra* note 9, at 260 (justifying the use of BRI and preponderance of the evidence standard in PTAB proceedings as allowing “[PTAB] decisions [to] do what the examiners would have done had they had the PTAB’s extra time, resources, and expertise”).

of patents that matter enough to generate litigation.¹⁶⁸ The BRI standard may have been good enough for this rough first cut. But the new AIA PTAB proceedings are instead an alternative forum for adjudicating validity of the patents that matter at the litigation stage. Rather than relying on the rough and ready shortcuts of examiners, these proceedings combine process features of litigation with the expertise and efficiency of an expert agency to do the job better, more quickly, and at lower cost.

This change could potentially give PTAB claim interpretations preclusive effect in infringement litigation between the same parties.¹⁶⁹ So far, however, the primary impact of PTAB claim interpretations has been on PTAB validity rulings. When the Federal Circuit reverses a PTAB claim interpretation, reversal of the validity ruling often follows, even when the validity ruling was based on factual findings entitled to deferential review (such as lack of novelty).¹⁷⁰ The scope of review of claim interpretation is thus a highly consequential issue.

It remains to be seen what impact the change in claim interpretation standards in PTAB adjudications will have on Federal Circuit deference to PTAB rulings on this issue. To the extent that the Federal Circuit sees claim interpretation as a legal conclusion regardless of the lower tribunal, it may continue to use the same standard of review for PTAB claim interpretations that it applies to claim interpretations by district courts, with marginally greater deference towards factfinding by the PTAB in the rare case in which such factfinding matters.¹⁷¹

On the other hand, perhaps some members of the Federal Circuit shared the perception noted by the PTO that the BRI standard was unfair and led to invalidation of patents that would have survived validity challenges if interpreted using the approach of the courts in infringement actions.¹⁷² Perhaps this impression led to closer appellate scrutiny of PTAB rulings applying the BRI standard, and perhaps the change to the claim interpretation approach that the Federal Circuit prefers will give the Federal

168. Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U.L. REV. 1495, 1495–96 (2001).

169. Cf. *B&B Hardware, Inc. v. Hargis Indus., Inc.*, 135 S. Ct. 1293, 1310 (2015) (applying issue preclusion in trademark infringement action to decision of the Trademark Trial and Appeal Board in an opposition proceeding that found confusing similarity between two marks).

170. E.g., *Homeland Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372, 1378–79 (Fed. Cir. 2017).

171. As discussed previously, the Supreme Court's requirement for greater deference to PTAB factfinding rarely matters because of the Federal Circuit preference for reliance on intrinsic evidence which it reviews *de novo*. See *supra* notes 130–41 and accompanying text.

172. See, e.g., *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1291 (Newman, J., dissenting). Former Chief Judge Randall Rader famously referred to the PTAB as “death squads killing property rights” in a speech before the AIPLA in 2013. Rob Sterne & Gene Quinn, *PTAB Death Squads: Are All Commercially Viable Patents Invalid?*, IP WATCHDOG (Mar. 24, 2014), <http://www.ipwatchdog.com/2014/03/24/ptab-death-squads-are-all-commercially-viable-patents-invalid>.

Circuit greater confidence in the fairness of PTAB proceedings, making it more willing to defer to PTAB rulings.

V. CONCLUSION

The Federal Circuit is scrupulous about articulating standards of review, but it is open to question how much these formal standards really matter. Consideration of recent decisions suggests that Federal Circuit review of district court rulings on nonobviousness has become more deferential, although its articulation of the standard of review has not changed.¹⁷³ While reciting the same standard, a reviewing court has considerable latitude to review with greater or lesser deference depending on its own assessment of what is appropriate. As law and institutions evolve, that judgment might change.

When Congress first created the Federal Circuit, it expressed a policy in favor of clarifying and standardizing patent law and making its application more uniform and predictable.¹⁷⁴ Active judicial review allowed the Federal Circuit to establish its dominance in patent law and to refine its general standards into bright-line rules,¹⁷⁵ while close judicial oversight of case-specific rulings allowed it to reinforce its policy preferences on the ground. The Federal Circuit maximized its opportunities for active review by coding rulings that apply general legal rules to the facts of particular cases as legal conclusions subject to *de novo* review on appeal.¹⁷⁶ And given the limitations of generalist trial courts and busy examiners, active appellate review may have seemed like a sensible approach to a specialized appellate court concerned with quality control.

Many things have changed in the 35 years since the Federal Circuit was first created. The Supreme Court overturned many of the Federal Circuit's bright-line rules for achieving uniformity in favor of greater tolerance for variation in the application of standards depending on case-specific considerations.¹⁷⁷ The larger the role of case-specific considerations, the stronger the functional argument for deference to lower tribunals that are immersed in the specifics of the case, and the weaker the argument for *de novo* review to elaborate on generalizable legal rules. And of particular relevance to judicial review of PTAB decisions, Congress sought to address concerns about patent quality not by enlarging the role of the Federal Circuit, but by

173. See *supra* notes 75–78 and accompanying text.

174. Dreyfuss, *supra* note 24, at 3–4.

175. Rai, *supra* note 7, at 1103–10; see also Rochelle C. Dreyfuss, *Percolation, Uniformity, and Coherent Adjudication: The Federal Circuit Experience*, 66 SMU L. REV. 505, 509–20 (2013) (stating that the Supreme Court has reversed many bright line rules created by the Federal Circuit in recent years in favor of more flexible standards).

176. Rai, *supra* note 7, at 1057–65.

177. Dreyfuss, *supra* note 175, at 512–13.

providing for administrative adjudications of validity challenges before the PTAB.

Congressional marching orders for separating the wheat from the chaff in the patent system have shifted under the AIA, with implications for the scope of judicial review. Yet formal standards of review from an earlier era remain locked in place.

In this new environment, *de novo* review of PTAB rulings on case-specific matters seems like a waste of judicial resources that conflicts with legislative priorities. It encourages costly and time-consuming appeals and threatens to undermine the effectiveness of the AIA in providing a quicker, cheaper, and more expert alternative to district court litigation. As its caseload rises, the Federal Circuit would do better to confine its use of *de novo* review to generalizable legal rulings that provide guidance to the PTAB and the courts in future matters, rather than attempting to replicate the work of the PTAB from the appellate bench on routine rulings on claim interpretation and obviousness.