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Markman Twenty Years Later: Twenty Years of Unintended Consequences

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MARKMAN TWENTY YEARS LATER: TWENTY YEARS OF
UNINTENDED CONSEQUENCES

Jerry A. Riedinger^{*}

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ABSTRACT

The Federal Circuit's Markman decision removed juries from the claim interpretation process, thereby revolutionizing patent law. Designed to provide greater certainty and predictability, Markman nevertheless produced unintended consequences, increasing ambiguity and complexity. By declaring claim interpretation an entirely legal issue, the Federal Circuit imposed intricate and even contradictory rules, many resulting from the Federal Circuit's long insistence that no issues of fact existed, so that claim construction was entirely subject to de novo review. The uncertainty was compounded by rules focused on semantic quibbles unrelated to what was invented. Increased burdens and continuing uncertainty followed.

TABLE OF CONTENTS

Introduction.....	250
I. The Road to <i>Markman</i>	251
A. The Rise of Patent Juries.....	252
B. Hostility to Patent Juries	256
1. Incompetence and Unpredictability	257

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250 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

2.	The Unreviewable “Black Box”	259
3.	The “Irrational” System	260
C.	Lockwood.....	261
II.	<i>Markman</i>	262
A.	The Federal Circuit <i>Markman</i> Decision.....	264
B.	The <i>Markman</i> Concurring and Dissenting Opinions	270
C.	The Supreme Court Affirmance	271
III.	The Early Fall-Out from <i>Markman</i>	272
A.	Hearings and When to Hold Them	272
B.	What Can the Court Review?.....	274
IV.	De Novo Review Revisited.....	276
A.	<i>Cybor</i>	277
B.	The Reversal Rate: Growing Criticism	280
V.	Never-Ending Problems.....	282
A.	Whack-a-Mole: The Unforeseen Problem of Iterative Processes.....	282
B.	Semantic Antics: The Issues Become Surreal.....	285
1.	Dictionaries	285
2.	Nonsensical Decisions.....	287
3.	“Plain and Ordinary” Meaning.....	289
4.	It Depends on the Meaning of “Or”	291
VI.	Other Issues.....	292
A.	<i>Phillips</i>	292
B.	Preferring Narrow Interpretations	294
C.	Knowledge of the Accused Device	295
VII.	District Court Reactions.....	296
A.	Local Patent Rules	296
B.	The Obligation to Construe, and Limits on the Number of Terms.....	298
VIII.	<i>Teva Pharmaceuticals</i>	299
A.	<i>Lighting Ballast</i>	299
B.	<i>Teva</i>	300
	Conclusion	301

INTRODUCTION

Three tectonic shifts have marked the last seventy years in patent litigation. The first resulted from the 1952 patent act, which untangled the law and codified a liberal view of how much

“invention” was needed for patentability. The second was the creation of the Federal Circuit, which removed patent appeals from the disinterested or even hostile regional circuit courts, especially the rabidly anti-patent Eighth Circuit. The third came from the Federal Circuit’s decision in *Markman v. Westview Instruments, Inc.*,¹ which separated claim construction from the jury’s infringement analysis. Of the three, *Markman* continues to have the greatest impact, with crucial questions still unresolved after twenty years.

Markman was ostensibly intended to produce greater clarity and predictability in patent cases by placing the interpretation of a patent’s scope solely in the hands of judges—who were asserted to be better suited to the intricacies of claim interpretation. Underlying the ostensible grounds was a deep enmity toward jurors in patent cases and a desire for unimpeded Federal Circuit review of patent scope, a desire that had been thwarted by the rise of patent juries. Yet *Markman* produced a host of unexpected results: less predictability, district judge irritation, and ever increasing litigation costs. But most important was the transformation of claim analysis from a focus on the invention to an elaborate manipulation of words unhinged from the purpose of the patent system. Despite twenty years of refinement, *Markman*’s legacy remains a difficult work-in-progress.

I. THE ROAD TO *MARKMAN*

Markman arose in response to increasing use of juries, especially following the creation of the Federal Circuit. Once jury trials began to predominate, dissatisfaction with the competence of juries mushroomed, especially among losing defendants and attorneys representing companies who had long ignored patents. The dissatisfaction grew further as the Federal Circuit transformed patent law from a mostly-ignored backwater into an economic force, while simultaneously endorsing a broad role for juries. Attorneys, corporate counsel, and academics, appalled at juror attitudes, jury nullification and juror damage awards, thus sought a

¹ 52 F.3d 967 (Fed. Cir. 1995), *aff’d*, 517 U.S. 370 (1996).

252 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

way to thwart the juror virus. Simultaneously, the limited review of jury decisions frustrated attorneys and some Federal Circuit judges. The United States Constitution's Seventh Amendment² imposed a serious obstacle to jury elimination,³ so jury opponents looked for a new route to limiting juries. The result was *Markman*, an inelegant tool that limited the role of juries but created a host of new problems.

A. *The Rise of Patent Juries*

Juries have long been present in patent cases, even before the adoption of the Constitution in 1789,⁴ and the passage of the first patent act in 1790.⁵ Yet until the late 1970s, juries in patent cases were the rare exception. Patent attorneys and their clients had little experience with juries and jury trials, and were reluctant to deviate from common practice. Then, as now, many patent specialists

² U.S. CONST. amend. VII (“In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved . . .”).

³ *E.g.*, *Jacob v. City of New York*, 315 U.S. 752, 752–53 (1942) (“The right of jury trial in civil cases at common law is a basic and fundamental feature of our system of federal jurisprudence which is protected by the Seventh Amendment. A right so fundamental and sacred to the citizen, whether guaranteed by the Constitution or provided by statute, should be jealously guarded by the courts.”); *Dimick v. Schiedt*, 293 U.S. 474, 486 (1935) (“Maintenance of the jury as a fact-finding body is of such importance and occupies so firm a place in our history and jurisprudence than any seeming curtailment of the right to a jury trial should be scrutinized with the utmost care.”); *Parsons v. Bedford*, 28 U.S. (3 Pet.) 433, 446 (1830) (“The trial by jury is justly dear to the American people. It has always been an object of deep interest and solicitude, and every encroachment upon it has been watched with great jealousy.”).

⁴ *E.g.*, *Winans v. New York & Erie R.R. Co.*, 62 U.S. (21 How.) 88, 100 (1859); *Parker v. Hulme*, 18 F. Cas. 1138 (C.C.E.D. Pa. 1849) (No. 10,740); *Turner v. Winter*, [1787] 99 Eng. Rep. 1274 (K.B.); *Arkwright v. Nightingale*, [1785] 1 Carp. P.C. 38 (C.P.); *Liardet v. Johnson*, [1778] 1 Carp. P.C. 35 (K.B.) (discussed in 1 JAMES OLDHAM, *THE MANSFIELD MANUSCRIPTS AND THE GROWTH OF ENGLISH LAW IN THE EIGHTEENTH CENTURY* 748 (1992)).

⁵ Patent Act of 1790, ch. 7, 1 Stat. 109–12 (1790). The Act provided, among other things, that the patent owner can be awarded “such damages as shall be assessed by a jury . . .”

viewed juries with alarm; they were considered incompetent to handle complex technology, and the specialists assumed federal judges, all of whom had higher than average intelligence, were more suited to dealing with the technical and legal esoterica arising in nearly every patent case. Moreover, a general movement challenging the suitability of juries in complex cases gained momentum in the 1970s,⁶ giving patent litigants further ammunition to try to avoid juries.⁷

Despite the common disdain for patent juries, a countermovement arose in the 1970s, based upon a simple belief: jurors decided patent cases differently from judges, and that difference benefited patent owners more than defendants.⁸ That

⁶ Much of the movement arose after the famous footnote 10 in *Ross v. Bernhard*, 396 U.S. 531 (1970), which seemed to suggest that the Seventh Amendment right to a jury hinged, in part, on “the practical abilities and limitations of juries.” *Id.* at 538 n.10. District courts then rejected juries in complex cases in a late 70s flurry, e.g., *ILC Peripherals Leasing Corp. v. IBM*, 458 F. Supp. 423, 448 (N.D. Cal. 1978); *Bernstein v. Universal Pictures, Inc.*, 79 F.R.D. 59, 71 (S.D.N.Y. 1978); *In re U.S. Financial Sec. Litig.*, 75 F.R.D. 702, 705 (S.D. Cal. 1977); *In re Boise Cascade Sec. Litig.*, 420 F. Supp. 99 (W.D. Wash. 1976). The movement culminated in the Third Circuit’s decision in *In re Japanese Electronic Products Antitrust Litigation*, 631 F.2d 1069 (3d Cir. 1980), holding that the Fifth Amendment due process clause created a “complexity” exception to the right to jury trials in civil cases. Many scholars called for the end of juries in complex cases. E.g., James S. Campbell, *Complex Cases and Jury Trials: A Reply to Professor Arnold*, 128 U. PA. L. REV. 965 (1980); Kathy E. Davidson, *The Right to Trial by Jury in Complex Litigation*, 20 WM. & MARY L. REV. 329 (1978). The issue was not formally resolved by the Supreme Court, and the “complexity” exception remains the subject of discussion even today. See, e.g., Mark A. Lemley, *Why Do Juries Decide if Patents are Valid?*, 99 VA. L. REV. 1673 (2013).

⁷ See, e.g., Gary M. Ropski, *Constitutional and Procedural Aspects of the Use of Juries in Patent Litigation (Part I)*, 58 J. PAT. & TRADEMARK OFF. SOC’Y 609, 616 (1976) (“Ross may provide support for the argument that the right to jury trial can be limited by the inability of jurors to understand the complex patents and technology at issue.”).

⁸ Early commenters suggested that juries should be considered when sympathy is desired for individual inventors or when the defendant is a large corporation. See, e.g., George B. Newitt & Jon O. Nelson, *The Patent Lawyer and Trial by Jury*, 1 JOHN MARSHALL J. PRAC. & PROC. 59 (1967). The evidence that jurors are pro-patent is now well-established. See, e.g., Mark A. Lemley, Jamie Kendall & Clint Martin, *Rush to Judgment? Trial Length and Outcomes*

difference in outcomes swept most opposition aside. Before the 1970s, juries rarely appeared in even 10% of the trials.⁹ By the end of the 1970s, patent cases were tried to juries in at least 10%,¹⁰ and that number steadily increased to 70% by 1994,¹¹ the year before *Markman*. Despite the ever-present disdain for juror competence, most patent litigators concluded by the mid-1980s that proper representation of patent owners required a jury demand. Patent jury trials then became the norm,¹² no doubt spurred by high profile plaintiff jury wins, such as the celebrated decision in *Roberts v. Sears, Roebuck & Co.*¹³ Patent litigators were forced to scramble to

in *Patent Cases*, 41 AIPLA Q.J. 169 (2013); John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 213 (1998) (“[J]uries are likely to favor patentees and unlikely to second-guess the decision of the PTO.”). Interestingly, articles discussing the phenomenon were non-existent in the 1970s, although the author remembers the topic as one of frequent discussion in patent circles by 1980. An example is Ropski, *supra* note 7, at 612, which merely noted that “the sight of the ribbon and seal on the official Letters Patent impresses the jury with the presumption of validity.” It may be that practitioners began recognizing the possibilities described in scholarly articles in the 1960s, e.g., Ralph W. Launius, *Some Aspects of the Right to Trial by Jury in Patent Cases*, 49 J. PAT. & TRADEMARK OFF. SOC’Y 112 (1967).

⁹ ADAM B. JAFFE & JOSH LERNER, *INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT* 123 (Princeton University Press 2004). The Supreme Court noted in *Blonder-Tongue Lab. v. Univ. of Ill. Found.*, 402 U.S. 313, 336 n.30 (1971), that only 13 of 382 patent trials between 1968 and 1970 were tried to a jury.

¹⁰ *Id.* See also HERBERT F. SCHWARTZ & ROBERT J GOLDMAN, *PATENT LAW AND PRACTICE* 130 (2d. ed. 1995) (tabulating data).

¹¹ *Id.*

¹² An excellent discussion of the transition from bench to jury trials in patent cases is contained in Lemley, *supra* note 6, at 1675.

¹³ 723 F.2d 1324 (7th Cir. 1983). Roberts, a non-practicing inventor, sued Sears in 1977 for infringement of his patent on a quick-release socket wrench. The jury found the then unusual sum of \$5 million in damages, which was increased by the district court to \$8,190,254. *Id.* at 1328–29. The case generated much then unheard of press publicity for a patent case, including an article in *Time* magazine. See *Wrenching Sears*, TIME, Oct. 23, 1978, available at <http://content.time.com/time/magazine/article/0,9171,946093,00.html>. Interestingly, the key holding by the Seventh Circuit was that patent validity was a legal issue, such that jurors could not decide validity in patent cases. *Roberts*, 723 F.2d at 1343. The Seventh Circuit also noted, without citation, that

gain jury skills in the 1980s, as trials conducted by non-patent specialists (who understood juries) produced repeated victories for patent owners—in cases where traditional thinking suggested that judges would have decided for the defendant.

The Federal Circuit's birth in 1982 cemented the role of juries in patent suits.¹⁴ Created to provide greater uniformity in patent law (among other things), the Federal Circuit immediately began resolving the patent law differences that had existed among the regional circuits.¹⁵ The Federal Circuit, however, did not see a need to limit the role of juries in patent cases. Despite the Seventh Circuit's 1983 holding that juries could not decide patent validity or interpret patent claims,¹⁶ the Federal Circuit declined all early opportunities to restrain juries. Instead, the Federal Circuit roundly approved of juries in patent cases at its first opportunity.¹⁷ The

“[c]onstruction of the patent claim . . . is a matter of law for the court,” thereby anticipating *Markman* by twelve years. *Id.* at 1338.

¹⁴ The Federal Circuit was created by the Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25, 37–39 (1982). It decided its first case on October 28, 1982. *South Corp. v. United States*, 690 F.2d 1368 (1982).

¹⁵ Those differences included substantial hostility to patents. Perhaps the best expression of that hostility can be found in a Congressional study, which concluded: “If we did not have a patent system, it would be irresponsible, on the basis of our present knowledge of its economic consequences, to recommend instituting one. But since we have had a patent system for a long time, it would be irresponsible, on the basis of our present knowledge, to recommend abolishing it.” STAFF OF S. SUBCOMM. ON PATENTS, TRADEMARKS, AND COPYRIGHTS OF THE COMM. ON THE JUDICIARY, 85TH CONG., AN ECON. REVIEW OF THE PATENT SYS. 80 (Comm. Print 1958) (prepared by Fritz Machlup, Department of Political Economy, Johns Hopkins University). The hostility is generally outlined in Martin J. Adelman, *The New World of Patents Created by the Court of Appeals for the Federal Circuit*, 20 U. MICH. J.L. REFORM 979, 980–81 (1987).

¹⁶ *Roberts*, 723 F.2d at 1332. Much of the initial work of the Federal Circuit focused on eliminating the conflicts created by the regional circuits, a task the Federal Circuit accomplished quickly. See Howard T. Markey, *The Federal Circuit and Congressional Intent*, 41 AM. U. L. REV. 577 (1992).

¹⁷ *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1547 (Fed. Cir. 1983). Among other things, the Federal Circuit (Markey, C.J.) stated “[n]o warrant appears for distinguishing the submission of legal questions to a jury in patent cases from such submissions routinely made in other types of cases. So long as the Seventh Amendment stands, the right to a jury trial should not be rationed, nor should particular issues in particular types of case be treated differently from

256 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

Federal Circuit thereafter repeatedly affirmed use of juries in patent cases, including jury construction of claim terms.¹⁸ Combined with a distinctly more “pro-patent” outlook than had been exhibited by the regional circuits,¹⁹ the Federal Circuit’s decisions quickly cemented a prominent juror role in patent cases. Juries, once an oddity, now dominated the patent world.

B. Hostility to Patent Juries

The ascension of patent juries was matched by a growing

similar issues in other types of cases.” *Id.* The Federal Circuit’s first Chief Judge also expressly opined in dicta against eliminating patent juries based upon the alleged “complexity” exception: “We discern no authority and no compelling need to apply in patent infringement suits for damages a ‘complexity’ exception denying litigants their constitutional right under the Seventh Amendment.” *SRI Int’l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1130 (Fed. Cir. 1985) (addendum opinion by Chief Judge Markey, joined by Judge Newman).

¹⁸ *E.g.*, *Delta X Corp. v. Baker Hughes Prod. Tools, Inc.*, 984 F.2d 410, 415 (Fed. Cir. 1993); *Lemulson v. Gen. Mills, Inc.*, 968 F.2d 1202, 1206–07 (Fed. Cir. 1992), *cert. denied*, 113 S.Ct. 976 (1993); *Tol-O-Matic, Inc. v. Promo Produkt Und Marketing Gesellschaft m.b.H.*, 945 F.2d 1546, 1549–50 (Fed. Cir. 1991); *Snellman v. Ricoh Co.*, 862 F.2d 283, 287–88 (Fed. Cir. 1988), *cert. denied*, 491 U.S. 910 (1989); *Perini Am., Inc. v. Paper Converting Mach. Co.*, 832 F.2d 581, 584 (Fed. Cir. 1987); *Tillotson, Ltd. v. Walbro Corp.*, 831 F.2d 1033 (Fed. Cir. 1987); *Tandon Corp. v. U.S. Int’l Trade Comm’n*, 831 F.2d 1017 (Fed. Cir. 1987); *Vieau v. Japax, Inc.*, 823 F.2d 1510 (Fed. Cir. 1987); *Data Line Corp. v. Micro Techs., Inc.*, 813 F.2d 1196 (Fed. Cir. 1987); *H.H. Robertson Co. v. United Steel Deck, Inc.*, 820 F.2d 384 (Fed. Cir. 1987); *Moeller v. Ionetics, Inc.*, 794 F.2d 653 (Fed. Cir. 1986); *Palumbo v. Don-Joy Co.*, 762 F.2d 969, 974 (Fed. Cir. 1985); *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707 (Fed. Cir. 1984); *Bio-Rad Labs., Inc. v. Nicolet Instrument Corp.*, 739 F.2d 604, 613 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 1037 (1984); *McGill, Inc. v. John Zink Co.*, 736 F.2d 666, 672 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 1037 (1984).

¹⁹ *See, e.g.*, William M. Landes & Richard A. Posner, *An Empirical Analysis of the Patent Court*, 71 U. CHI. L. REV. 111, 112 (2004). Several press articles in the 1980s noted the increasing importance of patents resulting from the Federal Circuit’s creation. Jill Andresky, *A Weapon at Last*, FORBES, Mar. 10, 1986, at 46; Anthony Baldo, *Juries Love the Patent Holder*, FORBES, June 17, 1985, at 147; Toni Mack, *A Change in the Legal Climate*, FORBES, Oct. 7, 1985, at 41; Nancy Perry & David Kirkpatrick, *The Surprising New Power of Patents*, FORTUNE, June 23, 1986, at 57; *Work, Inventors’ Just Rewards*, U.S. NEWS & WORLD REPORT, Mar. 3, 1986, at 43.

chorus of criticism. Then and now, jurors were assumed incompetent to handle patent complexities,²⁰ and every losing party in a jury trial blamed the result, at least in part, on jury incompetence. Even more damning (from the jury opponent's perspective), jury decisions were hard for the Federal Circuit to overturn, a phenomenon that was partially blamed on the absence of a written opinion, which prevented identification of any particular flaw in the jury's chain of reasoning. On a broader front, the entire concept of juries in patent cases was deemed irrational; a steady drumbeat of criticism thus arose, all demanding that jurors be restrained.²¹ All challenges to juries in patent cases were ignored when the first Chief Judge, Howard Markey, administered the Federal Circuit; Judge Markey's 1989 retirement opened the door to changes, leading first to *In re Lockwood*,²² then to the revolution in *Markman*.

1. Incompetence and Unpredictability

The leading criticism of patent juries was (and is) that they simply lack the competence to effectively resolve matters that combined convoluted law, complex technology, and intricate facts.²³ Often without any data, commentators ridiculed patent

²⁰ A district judge once stated when participating in a panel discussion: "Honest to God, I don't see how you could try a patent matter to a jury. . . . It's like somebody hit you between your eyes with a four-by-four. It's factually so complicated." Symposium, *Judicial Panel Discussions on Science and the Law*, 25 CONN. L. REV. 1127, 1144 (1993) (comments of Alfred V. Covello, J.). See also JAFFE, *supra* note 9, at 195 (describing "the uncontroversial observation that the evidence in a patent case can be highly technical, and the average juror has little competence to understand and evaluate it").

²¹ E.g., Adelman *supra* note 15, at 1004–07.

²² 50 F.3d 966 (Fed. Cir. 1995), *vacated sub nom.* Am. Airlines, Inc. v. Lockwood, 515 U.S. 1182 (1995). *Lockwood* ruled that a Seventh Amendment right to a jury trial existed in declaratory judgment actions seeking patent invalidity, based upon a conclusion that a right to a jury decision on validity existed when validity was a defense to an infringement charge. *Id.* at 976. The Supreme Court vacated the Federal Circuit decision after the patent owner withdrew his jury demand.

²³ As early as 1971, litigants argued that "patent cases are too complicated and difficult for a jury to deal with." Tights, Inc. v. Stanley, 441 F.2d 336, 340

juries as irrational,²⁴ and derided the growing trend to demand a jury in every patent complaint. Simultaneously, jurors were deemed unwilling to exert the effort needed to dig into the complex law, facts and technology. Instead, jurors were assumed to be consumed by boredom in patent cases, such that they paid no attention at trial and thus were incapable of rendering a just verdict even if they had been competent.²⁵

Patent jurors were also deemed unpredictable.²⁶ Critics reasoned that, if jurors did not understand the case and did not pay attention to the testimony, surely they used a random, unfathomable process to reach a conclusion.²⁷ The public was thereby deprived of any ability to assess the breadth or validity of any given patent, and was without “notice” of the patent’s scope. These criticisms were frequently expressed by losing litigants, who were dismayed that any jury could have found the accused product to be within the asserted patent. And underlying the criticism was indignation at those jurors and lawyers who, untutored in the mysteries of patent esoterica, would nevertheless trespass on the domain of those specialists who had earned their place in the patent hierarchy by enduring years of study and training in the

(4th Cir. 1971), *cert. denied*, 404 U.S. 852 (1971). *See also* Ropski, *supra* note 7, at 632 (referring to “juror befuddlement and confusion”).

²⁴ *E.g.*, Ropski, *supra* note 7, at 632 (“[T]he jury’s lack of technological competence forces their potential decision to be the result of chance, not reasoned analysis of the evidence presented at trial.”).

²⁵ *See*, for example, the statements of a prominent New York practitioner, Albert Fey, who commented that “This stuff is even complicated for someone with a Ph.D. in engineering A jury’s eyes glaze over.” Bloomberg Business News, *Jury Cases on Patent Infringement on Trial*, CHICAGO TRIBUNE, June 12, 1995, at 2.

²⁶ Perhaps the leading criticism came in 1993 from a sitting judge on the Federal Circuit. *See* Paul R. Michel, *The Challenge Ahead: Increasing Predictability in Federal Circuit Jurisprudence for the New Century*, 43 AM. U. L. REV. 1231 (1993). Judge Michel described claim interpretation by jurors as a major source of unpredictability and called for construction by judges. *Id.* at 1238–39. Interestingly, Judge Michel described predictability as more important than fairness where economic rights were at stake. *Id.* at 1234.

²⁷ *E.g.*, Ropski, *supra* note 7, at 610 (noting that attorneys “may have been uneasy about placing important cases in the hands of fact-finders who might only guess at the correct decision, or base it upon considerations collateral to the facts in evidence”).

glories of patent intricacies.²⁸ The specialists were particularly affronted by trial lawyers who lacked the specialists' particularized expertise but who nevertheless proved adept at mesmerizing gullible jurors.

While a few practitioners relished the opportunity to practice before juries, patent juries were so roundly criticized that few challenged the accepted belief that patent cases would be fairer, and more predictable, if all decisions were made by legally trained and experienced judges.

2. The Unreviewable "Black Box"

Equally damning in the eyes of the critics was the inability to review the logic of jury decisions. Considered a "black box," jury verdicts were the result of an unknown process, hidden in the confines of the jury deliberation room. Worse, jury verdicts were upheld on appeal unless they were unsupported by substantial evidence. Losing litigants (who were often losing defendants) felt helpless on appeal, since they were unable to identify logical flaws in juror reasoning, and they faced a heavy burden in their attempts to overcome verdicts that had at least moderate evidentiary support. This was an especially egregious problem when juries decided the legal aspects of mixed questions of law and fact.

In contrast, judicial trial decisions require detailed findings of fact and conclusions of law, allowing appellate litigants to knowledgeably focus the appellate court on the trial judge's alleged errors. No assumptions need be made regarding what facts the trial judge accepted or rejected, and the judge's legal conclusions provide an exact map of the analysis leading to the judgment. While findings of fact are reviewed under the "clear error" standard, judicial conclusions of law are reviewed *de novo*, allowing losing defendants a second bite of the apple. The increasing damages awards in the 1980s and early 1990s added incentives for defendants who lost at trial to take any actions possible to reign in the jury scourge. Together, these factors

²⁸ *E.g., id.* at 613 (noting "the general attitude of the bar, including the judiciary, that the patentee's request for a jury trial is an indication that the patent is weak").

260 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

provided a steady pool of bitter opponents of patent juries.

3. The “Irrational” System

Juries in patent cases were also derided as fundamentally irrational. A priori, no rationally created legal system would place the ultimate decision in high-technology issues with material economic and social impact on a near random selection of ignorant, untrained, and even occasionally uneducated citizens. In the critics’ view, it would be hard to design a less logical approach to resolution of high-stakes technology disputes. The “it’s irrational” argument was rarely accompanied by reference to methodical research demonstrating the unsuitability of juries.²⁹ It was, instead, stated as an indisputable fact. The argument nevertheless helped fuel the groundswell of opposition to patent juries.

And it all seemed so unnecessary to jury critics. Acknowledging that the Seventh Amendment guaranteed a right to civil jury trials, critics nevertheless pointed to exceptions that, at least in their view, demonstrated that the Constitution did not grant a jury right in patent cases. This was most notable in the writing of Professor Adelman, who not only excoriated the use of juries, but vigorously argued that the Seventh Amendment did not apply—despite the support for juries expressed by the Federal Circuit.³⁰

²⁹ If juries do not decide issues, then they are decided by judges, and scholarly research exists suggesting that judges’ decisions suffer from many drawbacks that make it hard to characterize them as better decision makers than juries. *E.g.*, Jennifer K. Robbennolt, *Evaluating Juries by Comparison to Judges: A Benchmark for Judging?*, 32 FLA. ST. U. L. REV. 469 (2005). The article notes the “striking similarities in the decision making of judges and jurors,” and concludes that “judges and jurors generally appear to be influenced by similar factors and suffer from many of the same difficulties in making their decisions.” *Id.* at 509.

³⁰ Professor Adelman first criticized juries in a 1987 article, suggesting that “there is little room for juries in patent cases,” noting that judges have “greater intelligence and better training, coupled with the ability to control the pace of the trial and to study transcript and relevant documents outside the courtroom . . .” Adelman, *supra* note 15, at 979. He further characterized jury use as “unfortunate for the system’s integrity,” because of the “inherent irrationality of juries.” *Id.* at 1006. He reiterated that criticism in 1989 in an article on the

The battle lines were drawn, and it only remained to be seen whether the pro- or anti-jury forces would prevail.

C. Lockwood

The first skirmish occurred in *In re Lockwood*,³¹ a decision on rehearing after a Federal Circuit panel granted a petition for mandamus requiring a jury trial on validity. The panel concluded that the Seventh Amendment preserves the right to a jury trial “on factual questions relating to validity,”³² and extended the jury trial right to declaratory judgment actions for invalidity, even where infringement was no longer at issue.³³ The decision was consistent with past Federal Circuit support for juries, and the refusal of the full Federal Circuit to reconsider the issue en banc seemed a strong indication that the Federal Circuit would preserve a prominent role for patent juries.³⁴ The strength of that trend, however, was weakened by a ringing dissent by Judge Nies, joined by Chief Judge Archer and Judge Plager,³⁵ who used *Lockwood* to promote their belief that some patent issues could be taken from juries, even if juries could not be entirely banished from patent matters.

Judge Nies’s dissent identified three grounds for preventing juries from ruling on patent validity, based upon the importance of public rights, the lack of a declaratory judgment route to invalidity in English common law before adoption of the Constitution, and policy grounds that Judge Nies said favored judges over patent

doctrine of equivalents, suggesting that problems with the doctrine are “exacerbated when juries, whose members usually lack both technological and legal training.” Adelman, *The Doctrine of Equivalents in Patent Law: Questions that Pennwalt Did Not Answer*, 137 U. PA. L. REV. 673, 682 n.34 (1989). He continued his criticism after *Markman*, saying, for example, that “[n]o sane country would create a jury system for complex patent trials” Adelman, *Patent Claiming in the United States: Central, Peripheral, or Mongrel?*, 1 INTELL. PROP. THEORY 71, 73 (2010).

³¹ 50 F.3d 966 (Fed. Cir. 1995), *vacated sub nom.* American Airlines, Inc. v. Lockwood, 515 U.S. 1182 (1995).

³² *Id.* at 976.

³³ *Id.*

³⁴ See cases cited *supra* note 18.

³⁵ 50 F.3d at 980.

262 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

juries.³⁶ Of the three, the “public rights” argument became a key aspect of *Markman* and represented part of the foundation for *Markman*’s fact–law distinction. According to Judge Nies, “the denomination of an issue as one of law represents a policy decision that a judge is more appropriate than a jury to make the decision.”³⁷ She also lamented the “black box” of jury room decisions,³⁸ and noted that “only a reasoned decision lays the foundation for meaningful review.”³⁹ She ended by mourning the Federal Circuit precedent that “has been read to *require* jury resolution,” such that “litigants no longer challenge the propriety of giving the issue of validity to the jury.”⁴⁰ These strong words, coupled with the rejection of rehearing en banc, anticipated the sharp division of the Federal Circuit’s coming decisions on claim construction.

With that background, the stage was set for *Markman*.

II. *MARKMAN*

Markman arose from severe hostility to juries—as Judge Mayer said in his concurring opinion: “this is not just about claim language, it is about ejecting juries from infringement cases.”⁴¹ Most jury opponents wanted complete elimination of patent juries, but juries were so abhorred that any limitation of their role seemed a worthwhile goal. This dynamic played out in Federal Circuit jurisprudence. In a prophetic 1983 analysis of the Federal Circuit, Judge Posner of the Seventh Circuit predicted “deep ‘theoretical cleavages’ in patent theory over whether patents should be construed liberally to stimulate innovation or narrowly to decrease the monopoly power of a patent.”⁴² Posner’s prediction proved true

³⁶ *Id.* at 981.

³⁷ *Id.* at 990.

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 989 (Fed. Cir. 1995) (Mayer, J., concurring).

⁴² Richard A. Posner, *Will the Federal Courts of Appeals Survive Until 1984? An Essay on Delegation and Specialization of the Judicial Function*, 56 S. CAL. L. REV. 761, 777 (1983).

for the claim construction battle. Before Judge Markey's retirement, the Federal Circuit adhered to the belief that a significant jury role strengthened the patent system, and any desire among the Federal Circuit for jury limits was suppressed. A different view dominated after his retirement: "notice" of the scope of a patent became paramount. And since keeping patents narrow (and even of zero scope) provides more certainty of a patent's scope, the opposition to the broad interpretations often adopted by juries became a strong expression of the desire for greater notice.

Juror opponents between 1982 and 1995 thus argued multiple grounds to limit juries, most of which were not adopted.⁴³ But when the Federal Circuit lost the restraint imposed by Chief Judge Markey, the efforts to limit juries focused on the "fact-law" distinction, which contended that claim interpretation (among other issues) was a legal question reserved for judges.⁴⁴ That view has reasonable Supreme Court support,⁴⁵ but it begged the question of whether the ultimate legal determination of claim scope had underlying factual issues. To many, claim interpretation seemed a mixed question of law and fact (much like contractual interpretation), especially when claims were construed (as the courts had repeatedly demanded) from the perspective of one skilled in the art.⁴⁶ Undaunted, jury opponents declared that claim construction was *entirely* an issue of law, which would leave no fact-finding role for the jury. The Federal Circuit accepted the argument in *Markman*. The Supreme Court side-stepped the fact-

⁴³ The most notable limitations were imposed in *Jamesbury Corp. v. Litton Indus. Prod., Inc.*, 756 F.2d 1556, 1564-65 (Fed. Cir. 1985) (instructing on remand that the "court should instruct the jury on what the claim means"); *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 721 (Fed. Cir. 1984) (declaring that "claim interpretation [is] matter for the court to decide and to make known to the jury by its instructions"); and *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 822 (Fed. Cir. 1992) ("Claim interpretation is a question of law for the court.").

⁴⁴ *E.g.*, *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 822 (Fed. Cir. 1992).

⁴⁵ *E.g.*, *Winans v. Denmead*, 56 U.S. (15 How.) 330, 338 (1854) ("The first [question], what is the thing patented . . . [is] a question of law, to be determined by the court, construing the letters patent . . .").

⁴⁶ *E.g.*, *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005), *cert. denied*, 546 U.S. 1170 (2006).

law argument and simply ruled that no constitutional right existed to have juries interpret patent claims. And unintended consequences resulted, which to this day make up a central part of the uncertainties in patent interpretation.

A. *The Federal Circuit Markman Decision*

When looked at broadly, the Federal Circuit's *Markman* decision had a simple holding: "the interpretation and construction of patent claims, which define the scope of the patentee's rights under the patent, is a matter of law exclusively for the court."⁴⁷ That decision, while criticized,⁴⁸ was supported by precedent⁴⁹ and logic; much drama could have been averted if the Federal Circuit had left matters at that simple statement. Instead, the Federal Circuit added bold declarations of law and claim construction procedure that have bedeviled the patent system for two decades. Although the Federal Circuit's additional statements were intended to produce greater consistency and predictability in claim interpretation, some statements were based upon an unrealistic view of patent practice, and some bordered on fantasy.

The problems arose from the Court's desire to preclude any claim interpretation role for juries, and maximize the Federal Circuit's appellate review. The Federal Circuit rejected its previous rulings that were inconsistent with the view that "claim construction is strictly a question of law for the court."⁵⁰ It then focused its bold statements on the fact-law distinction,⁵¹ and only

⁴⁷ *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 967 (Fed. Cir. 1995).

⁴⁸ Circuit Judges Mayer and Rader concurred in the decision, and Circuit Judge Newman dissented. *Id.* at 968. Judge Mayer agreed with the outcome but disagreed with the rejection of juries. *Id.* at 989. Judge Newman disagreed with the rejection of juries and said remand was the proper action. *Id.* at 1026. Judge Rader agreed with the outcome and said that the court should not have addressed the role of the jury. *Id.* at 998–99.

⁴⁹ See *Winans*, 56 U.S. (15 How.) 330; see also *Read Corp.*, 970 F.2d 816.

⁵⁰ *Markman*, 52 F.3d at 977, 979.

⁵¹ *Id.* at 976 ("In this case which involves claim construction and a grant of JMOL of noninfringement based on claim construction, in order to determine whether that grant was correct, we must distinguish law from fact."). The

briefly mentioned public policies that supported exclusive judicial claim interpretation.⁵² It avoided entirely any argument based upon the so-called “complexity” exception to the Seventh Amendment. That fact–law analysis led to the Federal Circuit’s most problematic conclusion: the holding that “the construction given the claims is reviewed de novo on appeal.”⁵³

The Federal Circuit statements explaining claim construction in the new, jury-free environment were numerous and varied. Having concluded that claim construction was a pure issue of law, the Federal Circuit then addressed the impact on the claim construction process. Least controversial was the Federal Circuit’s conclusion that a district court is “obligated” to construe the patent and instruct the jury on its constructions.⁵⁴ This the district court had not done, but the Federal Circuit characterized the omission as “harmless error.”⁵⁵ The Federal Circuit did not explain why other district courts could not follow the same procedure: give the entire infringement question to the jury and then compare the verdict to a proper construction of the claims. Likely driven by the Federal Circuit’s desire to limit juries, the unexplained rejection removed an option from patent jury practice and mandated that every jury case have a *Markman* proceeding.

The Federal Circuit reiterated that the “focus” in claim construction is still on “the objective test of what one of ordinary skill in the art at the time of the invention would have understood the term to mean.”⁵⁶ This, of course, has been a bedrock claim

biggest precedential obstacle to this conclusion was *Bischoff v Wetherand*, 76 U.S. (9 Wall.) 812 (1869), which allowed the jury to determine “the character of the thing invented” in an invalidity issue. 52 F.3d at 988. The Federal Circuit simply punted on the issue, saying, “It is difficult, if not impossible, to discern any legal principle from *Bischoff* that related to claim construction in the context of patent infringement.” *Id.*

⁵² *Id.* at 978–79. The Federal Circuit also analogized claim construction to statutory interpretation, which it characterized as an entirely legal analysis. *Id.* at 987.

⁵³ *Id.* at 979.

⁵⁴ *Id.* at 981–82.

⁵⁵ The error was rendered harmless by the district court’s ruling on the post-trial motion. *Id.* at 982.

⁵⁶ *Id.* at 986.

interpretation principle since the creation of patent claims. Yet the principle posed an immediate problem for the new “fact free” claim interpretation, because determining what one of ordinary skill “understood” has always seemed a fact-intensive, evidentiary issue. Similarly, the court recognized the need for expert testimony to explain the technology to the district court. That testimony again seemed to have a distinctly factual character. Explaining how these two fundamental aspects of claim construction were consistent with the “entirely legal” conclusion led to *Markman*’s most controversial, and problematic, statements.

Markman began by noting the established distinction between “intrinsic” and “extrinsic” evidence.⁵⁷ It then embarked on a lengthy explanation of how extrinsic evidence may be received to construe claims, even conflicting evidence. But the Federal Circuit declared no factual issue ever arises from the procedure, even when the court accepts some evidence and rejects others. The result was a breathtaking declaration:

Through this process of construing claims by, among other things, using certain extrinsic evidence that the court finds helpful and rejecting other evidence as unhelpful, and resolving disputes *en route* to pronouncing the meaning of claim language as a matter of law based on the patent documents themselves, the court is *not* crediting certain evidence over other evidence or making factual findings.⁵⁸

While stated in all seriousness, the Federal Circuit would have been hard pressed to make a less logical proclamation. Despite the emphatic use of the word “not,” the process described above most certainly does involve “crediting certain evidence over other evidence,” and no stridency can change that reality. But the bizarre conclusion was needed (at least in the view of the Federal Circuit)

⁵⁷ *Id.* at 980. The Federal Circuit adopted the position that the prosecution history is part of the intrinsic evidence, *id.*, a conclusion that presumes no disputes will arise over the events during prosecution—a strange presumption given the frequency of patent allowances resulting from examiner interviews.

⁵⁸ *Id.* at 981.

to preserve de novo review, so it became part of claim construction law for the next two decades.

The same logic led the Federal Circuit to proclaim that a battle of the experts does not create issues of fact or change the de novo review standard:

When legal “experts” offer their conflicting view of how the patent should be construed, or where the legal expert’s view of how the patent should be construed conflicts with the patent document itself, such conflict does not create a question of fact nor can the expert opinion bind the court or relieve the court of its obligation to construe the claims according to the tenor of the patent.⁵⁹

Although stated in the context of a “legal” expert, the above principle applies to technical experts as well (testifying on the understanding of a “technician in the field, reading the patent, would understand the claims”⁶⁰), because their testimony is “extrinsic evidence” that may be accepted or rejected, depending on whether the court finds the evidence “helpful,” without creating an evidentiary issue that prevents de novo review.⁶¹

Having concluded that disputed evidence can be resolved without any fact finding, the Federal Circuit proceeded to declare inventor testimony irrelevant, at least testimony on the nature of the invention. Such testimony “is entitled to no deference,” even if it describes the understanding of one skilled in the art.⁶² The Federal Circuit made this pronouncement after citing—and quoting—a Supreme Court case crediting “the testimony of one of the patentees” as the “clearest exposition of the significance which the terms employed in the claims had for those skilled in the art.”⁶³ The Federal Circuit rejected the testimony by Mr. Markman on the understanding of one of ordinary skill, and added that, even if the

⁵⁹ *Id.* at 983.

⁶⁰ *Id.* at 981.

⁶¹ *Id.*

⁶² *Id.* at 983.

⁶³ *Id.* at 980 (quoting *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 233 (1942)).

testimony were true, it would not “dissuade us from our legal construction of the claim based on the patent and prosecution history”⁶⁴ To ensure no inventor testimony could be credited, the Federal Circuit added that an inventor’s intent “is of little or no probative weight in determining the scope of the claim”⁶⁵

The Federal Circuit also proclaimed that “extrinsic evidence of record cannot be relied upon to change the meaning of the claims.”⁶⁶ In so doing, *Markman* presaged the decision in *Phillips*,⁶⁷ which established the specification as the primary source of claim interpretation, such that extrinsic evidence could not be used to modify a meaning that was apparent from reviewing just the patent and its prosecution history.⁶⁸ Inventor and expert testimony, previously a central facet of claim interpretation, immediately became secondary to semantic fencing over the use of words in the text and prosecution history.⁶⁹ How and when extrinsic evidence could be used when the word’s meaning was not apparent became a crucial focus of claim construction arguments, with parties arguing over whether the evidence helped understand the disputed terms, or instead, improperly sought to change a meaning apparent from the specification.

The Federal Circuit bolstered its *Markman* opinion by explaining various propositions that ranged from naive assertions to outright fantasy. Quoting a treatise from 1890, the Federal Circuit praised the goal of obtaining “a permanent and universal

⁶⁴ *Id.* at 983.

⁶⁵ *Id.* at 985. The Federal Circuit added an exception, saying that the inventor’s intent “as documented in the prosecution history” was entitled to weight. *Id.* The court did not explain why one expression of inventor’s intent was relevant and another not, but the distinction was presumably based upon the availability of the prosecution history to the public.

⁶⁶ *Id.* at 983. This contention is despite the later declaration that “[t]here is no parole evidence rule in patent law for obvious reasons.” *Id.* at 985.

⁶⁷ *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005), *cert. denied*, 546 U.S. 1170 (2006).

⁶⁸ *Id.* at 1311–24.

⁶⁹ Before *Markman*, “semantic antics” were roundly condemned by the Federal Circuit. *E.g.*, *Senmed, Inc. v. Richard–Allan Med. Indus., Inc.*, 888 F.2d 815, 819 (Fed. Cir. 1989) (citing *Burlington Indus., Inc. v. Dayco Corp.*, 849 F.2d 1418, 1421–22 (Fed. Cir. 1988)).

definition of [the inventor's] rights under the patent.”⁷⁰ While a laudable goal, no experienced practitioner would ever expect any claim interpretation in a lawsuit to have “universal” application, because each new infringer has different products that produce different claim construction issues, and a claim construction is only “permanent” if adopted by all subsequent courts. Nevertheless, the desire for “permanent and universal” constructions inspired the Federal Circuit’s relentless cleaving to de novo review. Similarly, the Federal Circuit reiterated the view that the prosecution history represented an “undisputed public record,”⁷¹ despite occasional disputes in patent cases regarding what happened during an examiner interview.

Perhaps most astonishing was the remarkable assertion that “there should be no ‘ambiguity’ in claim language to one of ordinary skill in the art that would require resort to evidence outside the specification and prosecution history.”⁷² According to the Federal Circuit, compliance with the “particularly pointing out and distinctly claiming” requirement of § 112 of the patent statute⁷³ precludes ambiguity: “[i]f the patent’s claims are sufficiently unambiguous for the PTO, there should exist no factual ambiguity when those same claims are later construed by a court of law in an infringement action.”⁷⁴ This extraordinary declaration thus means, according to the Federal Circuit, that extrinsic evidence cannot be used “for the purpose of clarifying ambiguity in claim terminology.” Twenty years later, precisely that kind of ambiguity caused the Supreme Court to overturn *Markman*’s de novo review standard.⁷⁵ Until then, courts and litigants struggled with how to explain obvious ambiguities in claim language that the

⁷⁰ *Id.* at 979 (quoting WILLIAM C. ROBINSON, *THE LAW OF PATENTS FOR USEFUL INVENTIONS* § 733, at 483–84 (1890)).

⁷¹ *Id.* at 980. That view did not originate with *Markman*, but has long been part of patent lore. *See, e.g., Senmed*, 888 F.2d at 819 n.8.

⁷² *Markman v. Westview Instruments*, 52 F.3d 967, 986 (Fed. Cir. 1995).

⁷³ 35 U.S.C. § 112 (West 2014).

⁷⁴ *Markman*, 52 F.3d at 986.

⁷⁵ *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 836 (2015). The phrase “molecular weight” has three meanings: “peak average molecular weight,” “number average molecular weight,” and “weight average molecular weight”.

270 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

Federal Circuit said should not exist.

B. The Markman Concurring and Dissenting Opinions

The concurring and dissenting opinions in *Markman* provided a striking counterpoint to the reasoning of the majority. Although Judge Mayer's concurrence agreed with the ultimate outcome⁷⁶ and Judge Newman's dissent did not,⁷⁷ they both excoriated the majority for its reliance on the fact–law distinction to remove juries from claim construction and for adopting the de novo review standard. In so doing, they identified the issues that would dominate *Markman* proceedings over the ensuing two decades. Judge Newman was particularly instructive. Although her opinions have been unjustly dismissed as misguided reveries, her dissent in *Markman*, along with Judge Mayer's concurrence, provided a concise roadmap of the Federal Circuit struggles to come.

The issues raised by Judges Mayer and Newman were legion: Factual issues exist regarding the prior art,⁷⁸ and the “meaning . . . of an event during prosecution.”⁷⁹ In resolving disputes over terms, “the trier of fact often makes findings that depend on the weight, credibility, and probative value of conflicting evidence”⁸⁰ And “the meaning and scope of disputed technologic and other terms or art in particular usage are classical questions of fact.”⁸¹ A court of appeals is not a trial court, because “[a]ppellate briefs and fifteen minutes per side of attorney argument are not designed for de novo findings of disputed technologic questions.”⁸² While claim interpretation is ultimately a question of law, underlying factual

⁷⁶ *Markman*, 52 F.3d at 998–99 (Mayer, J., concurring).

⁷⁷ *Id.* at 1026 (Newman, J., dissenting). Judge Newman would have remanded to the district court to apply the substantial evidence standard to review of the jury verdict. *Id.*

⁷⁸ *Id.* at 991 (Mayer, J., concurring).

⁷⁹ *Id.* at 991 (Mayer, J., concurring), 1004 (Newman, J., dissenting) (citing *Smithkline Diagnostics, Inc. v. Helena Lab. Corp.*, 859 F.2d 878, 882 (Fed. Cir. 1988)).

⁸⁰ *Id.* at 999 (Newman, J., dissenting).

⁸¹ *Id.*

⁸² *Id.*

issues still exist.⁸³ And most significantly, “[w]hen the extrinsic evidence is in conflict—as it invariably is—what then? Will the Federal Circuit itself weigh the evidence of expert witnesses?”⁸⁴ Each of these, and more, became the stuff of endless argument following *Markman*.

Judges Mayer and Newman also anticipated the *Markman* hearing, a procedure without any counterpart in the rest of jurisprudence: “The majority’s elimination of . . . the deference owed to the judge . . . distorts the trial/appellate relationship in a manner unique to patent litigation”⁸⁵ As Judge Mayer declared, *Markman* “represents a secession from the mainstream of law.”⁸⁶ Nowhere else would parties fight for months over the eventual jury instructions, sometimes with evidentiary hearings, sometimes with expert reports, sometimes with depositions and other discovery. *Markman* transformed patent litigators into hyper specialists, devoting astonishing efforts to quibbles over both common and uncommon words, following ever-changing procedures in pursuit of the ever-elusive predictability and certainty.

C. The Supreme Court Affirmance

After the *sturm und drang* at the Federal Circuit, the Supreme Court’s review was anticlimactic. In a short, unanimous opinion, the Supreme Court ruled that “the construction of a patent, including terms of art within its claims, is exclusively within the province of the court.”⁸⁷ The Court side-stepped the fact–law issue. It concluded that the evidence was insufficient to show a practice analogous to claim interpretation was accomplished by juries before the adoption of the Constitution.⁸⁸ It found no binding Supreme Court precedent requiring construction of patent claims

⁸³ *Id.* at 1000–02.

⁸⁴ *Id.* at 1006, 1008.

⁸⁵ *Id.* at 1008.

⁸⁶ *Id.* at 989 (Mayer, J., concurring).

⁸⁷ *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996).

⁸⁸ *Id.* at 377–83.

272 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

by juries, and then decided the case on policy grounds.⁸⁹ Judges were better suited to the task of claim interpretation and were more likely to benefit the public by providing “uniformity in the treatment of a given patent.”⁹⁰ The issue of de novo review was ignored, as were the Federal Circuit’s contortions of claim construction practice to preserve that review. Juries were out, judges would henceforth evaluate the meaning of claims, and the patent world embarked on a new, and uncertain, whirlwind of evolving semantic struggles.

III. THE EARLY FALL-OUT FROM *MARKMAN*

Like all dramatic changes in the law, *Markman* produced immediate questions about what to do and how to do it. Judges must construe the claims and instruct the jury on their meaning, that much was clear. But when? How? What evidence, if any, should be considered? What procedural rules should be followed? District courts and litigants struggled to answer these and many similar issues. And they learned, to their dismay, that despite their best efforts, the de novo review by the Federal Circuit rendered their decisions irrelevant and the ultimate outcome less predictable. Two immediate issues were faced: when should the district court construe the claims and what evidence should the court review?

A. Hearings and When to Hold Them

After *Markman*, district courts had to decide the procedures for construing claims. No precedent existed, so district courts had to create the rules from scratch, adopting new procedures as they gained experience.⁹¹ Even fundamental questions such as whether the claims should be construed after a hearing or simply on written briefs had never been answered. District courts thus tried every

⁸⁹ *Id.* at 384–90.

⁹⁰ *Id.* at 390.

⁹¹ District courts were quick to note that *Markman* “provided no procedural guidance for the nature of proceedings for a pretrial construction of claims.” *Chad Indus., Inc. v. Automation Tooling Sys., Inc.*, 938 F. Supp. 601, 603 (C.D. Cal. 1996).

approach, and early *Markman* proceedings ranged from long evidentiary hearings, to attorney arguments, to written submissions.

The most significant question soon became when to hold the hearings. Under *Markman*'s limited guidance, the claims could be construed any time before the jury began its deliberations: before discovery, during discovery but before expert reports, after expert reports, while deciding a summary judgment motion, at the pre-trial conference, or during or even after trial.⁹² Defendants, often convinced that the case would disappear as soon as the claims were construed, sought claim construction at the earliest opportunity. Defendants saw no reason to engage in discovery and motion practice when, in their view, a simple determination of claim meaning would demonstrate non-infringement. But early *Markman* proceedings carry risks for judges, who care more for judicial efficiency than the preferences of litigants. Judges soon realized that early decisions carried a “whack-a-mole” risk,⁹³ where resolution of the early claim construction issues led to other claim construction issues as the case became more refined.

Claim construction proceedings held early usually occurred before the expert opinions were formed, which sometimes deprived the court of expert assistance in claim construction. And judges found that they were more comfortable with the case and its technology at later stages of the case, when the overall infringement and validity issues were refined. Judges experimented with claim construction at a variety of different times, and even today, the timing of *Markman* hearings varies widely from district to district and from judge to judge within each district.⁹⁴ The

⁹² *E.g.*, *Elf Atochem N. Am., Inc. v. Libby–Owens–Ford Co.*, 894 F. Supp. 844, 850 (D. Del. 1995). Construction after trial has the advantage of providing the judge all possible evidence, but posed its own problems, due to the delay required to construe the claims. *See Lucas Aerospace, Ltd. v. Unison Indus. L.P.*, 890 F. Supp. 329, 332 n.3 (D. Del. 1995).

⁹³ “[O]nce you do claim construction, people start coming up with new theories and new approaches.” Delaware Bar Foundation, *Patent Litigation in the District of Delaware: The Judge’s Perspective*, 18 DEL. LAWYER 6, 7–8 (2000) (comments by McKelvie, J.).

⁹⁴ *E.g.*, *id.* (District of Delaware judges discussing their options for conduct of a *Markman* hearing).

274 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

adoption of local patent rules, starting with the Northern District of California, provided some uniformity within districts by putting normal claim construction after mandatory disclosure of infringement and validity contentions, but great variety still exists between districts, and judges are free, even in districts with local rules, to schedule the *Markman* hearing as late in the process as they desire. That variation encourages forum shopping as plaintiffs seek the most advantageous timing (usually later in the case), and the variety created great cost uncertainty, especially for defendants.

B. What Can the Court Review?

The problem of when to conduct *Markman* hearings pales in comparison to the issues surrounding what evidence the district court can consider. The Federal Circuit's guidance was less than Delphic, and the Supreme Court did nothing to resolve the uncertainty. Compounding the problem, the Federal Circuit's proposition that no credibility determinations result from reviewing competing expert testimony produced immediate consternation among the judiciary.⁹⁵ Expert testimony could be taken, and indeed, seemed necessary to understand some patents, but its proper weight was obscure. Use of non-patent documents to aid the process was equally uncertain. How was the prior art to be used, if at all? Were dictionaries, which were "extrinsic" to the patent and prosecution history, now to be disregarded, or merely given less weight? Should a technical treatise or a technical article be considered, and if so for what purpose? And if consulted, how much weight should be given? The inventor's testimony was of little or no weight, according to *Markman*, but did that also apply to admissions by the inventor? In the world created by *Markman*, where incomprehensible patents nevertheless had "no ambiguity" and the extrinsic evidence "cannot be relied upon to change the meaning of the claims," discerning the understanding of a person skilled in the art became a daunting prospect.

⁹⁵ *E.g.*, *Lucas Aerospace*, 890 F. Supp. at 333 n.7 (Schwartz, J.) ("But when the Federal Circuit Court of Appeals states that the trial court does not do something that the trial court does and must do to perform the judicial function, that court knowingly enters a land of sophistry and fiction.").

The Federal Circuit attempted to resolve these issues a year after *Markman* in *Vitronics Corp. v. Conceptronic, Inc.*⁹⁶ Rather than clarifying the process, *Vitronics* created a mythical world that compounded the uncertainty. Intended to clarify the step-by-step process courts should use to construe claims, *Vitronics* instead presented district courts with a nearly insurmountable task: they must understand and construe eccentric jargon describing esoteric technology, while using experts to help them understand that technology but not the patent's claims.

Vitronics began by establishing a hierarchy. Patents are construed by first looking only at the intrinsic evidence. The process begins by looking at the word of the claims,⁹⁷ which are to be given their "ordinary and customary meaning."⁹⁸ The specification is then reviewed, followed by the prosecution history.⁹⁹ Then the Federal Circuit indulged in a fantasy. "In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term."¹⁰⁰ Perhaps this approach makes sense for patents involving simple technology, but the idea is absurd for much of the modern technology described in patents. One can rarely say that "disputed" terms have no ambiguity to a judge when those terms are used in patents involving complex chemistry, semiconductors, software, or any of a host of subtly complex subjects. *Vitronics* nevertheless declared such clarity the norm and proceeded to narrowly proscribe use of experts to explain the disputed terms, except in rare circumstances.¹⁰¹

Assuredly, experts could be consulted.¹⁰² But such extrinsic evidence generally, and experts in particular, could normally be

⁹⁶ 90 F.3d 1576 (Fed. Cir. 1996).

⁹⁷ *Id.* at 1582.

⁹⁸ *Id.* *Vitronics* made no attempt to explain how the court was to divine the "ordinary and customary" meaning of technical terms that are outside the court's normal understanding.

⁹⁹ *Id.*

¹⁰⁰ *Id.* at 1583.

¹⁰¹ The goal was to provide public notice so that competitors could "review the public record, apply the established rules of claim construction, ascertain the scope of the patentees claimed invention and, thus, design around the claimed invention." *Id.*

¹⁰² *Id.* at 1584.

consulted to only “help the court come to the proper understanding of the claims”—it could not be used “to vary or contradict the claim language.”¹⁰³ How the judge was to know that the expert, describing medicinal chemistry, was contradicting the claim language was never described. Instead, the district courts were left to perform metaphysical gymnastics: they could let the expert explain the technology of the patent but not the words used in the patent to describe the technology.¹⁰⁴ Experts could not be used to “vary claim terms” even from how they were “implicitly” defined in the specification.¹⁰⁵

Vitronics did provide some clarity. It explained that prior art could be considered as well as dictionaries.¹⁰⁶ The importance of the specification was emphasized.¹⁰⁷ Inventor testimony on claim meaning was again condemned.¹⁰⁸ And the sequence of analysis was clearly identified. Yet the process was impossible for any technology unfamiliar to the judge, and the result was growing confusion.

IV. DE NOVO REVIEW REVISITED

Markman ruled that a district court’s claim construction decision would be reviewed de novo on appeal, based upon the contention that claim construction involved no fact issues. The Supreme Court avoided directly addressing the question, which appeared to leave the de novo review standard intact. Yet the Supreme Court’s decision hinted that claim interpretation was a mixed question of law and fact,¹⁰⁹ thereby producing decisions by

¹⁰³ *Id.*

¹⁰⁴ Judge Rader subsequently commented that “[a]s a matter of logic, this instruction is difficult to grasp.” *Cybor Corp. v. FAS Tech., Inc.*, 138 F.3d 1448, 1474 (Fed. Cir. 1998) (Rader, J., dissenting).

¹⁰⁵ *Vitronics*, 90 F.3d at 1583–84.

¹⁰⁶ *Id.* at 1584.

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ The Supreme Court in *Markman* hinted that claim construction was a “mongrel practice,” *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 378 (1996), and that it fell “somewhere between a pristine legal standard and simple historical fact,” *id.* at 388.

various Federal Circuit panels applying the “clearly erroneous” standard to factual aspects of claim interpretation.¹¹⁰ The issue then was addressed in *Cybor Corp. v. FAS Tech., Inc.*,¹¹¹ two years after *Vitronics*, and three years after *Markman*.

A. Cybor

Demonstrating the sharp division that would characterize Federal Circuit attempts to grapple with the *Markman–Vitronics* process, *Cybor* produced six opinions: an opinion by the majority joined by eight judges; separate concurring opinions by Judges Plager, Bryson, and Chief Judge Mayer; a dissent by Judge Rader; and additional views by Judge Newman.¹¹² The *Cybor* majority reaffirmed the de novo review standard, locking into place the foundation for much future angst. Rejecting the suggestion that the Supreme Court’s *Markman* decision supports claim construction as a legal issue with some underlying factual determinations,¹¹³ the *Cybor* majority resolutely declared that “nothing” from the Supreme Court’s decision supports the view “that claim construction may involve subsidiary or underlying questions of fact.”¹¹⁴ Compounding the difficulty, *Cybor* rejected the suggestion that “there should be deference to what are asserted to be factual underpinnings of claim construction,”¹¹⁵ a conclusion that was immediately undermined by Judge Plager’s view that “common sense dictates that the trial judge’s view will carry

¹¹⁰ *E.g.*, *Eastman Kodak Co. v. Goodyear Tire & Rubber Co.*, 114 F.3d 1547, 1555–56 (Fed. Cir. 1997); *Wiener v. NEC Elecs. Inc.*, 102 F.3d 534, 539 (Fed. Cir. 1996); *Metaulics Sys. Co. v. Cooper*, 100 F.3d 938, 939 (Fed. Cir. 1996).

¹¹¹ 138 F.3d 1448 (Fed. Cir. 1998).

¹¹² *Id.*

¹¹³ *Id.* at 1455.

¹¹⁴ *Id.* Ignoring entirely the concept of judicial restraint, the majority declared that the Supreme Court must have concluded that no factual issues arise in claim construction, else “surely the Supreme Court would have discussed whether subsidiary or underlying fact questions should be decided by the judge or the jury.” *Id.* at 1455 n.5.

¹¹⁵ *Id.* at 1455–56.

278 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

weight.”¹¹⁶ Judge Bryson compounded the uncertainties by declaring that, when “claim construction would turn on an issue such as a credibility judgment between two competing expert witnesses,”¹¹⁷ *de novo* review still allows the appellate court “to factor into our legal analysis the district court’s superior access to one of the pertinent tools.”¹¹⁸ The battle lines were now drawn for a long struggle that would continue for the next seventeen years.

Cybor also presaged the difficulties in finding “ordinary and customary” meaning in common terms, since *Cybor* raised a significant dispute over the meaning of the word “to,”¹¹⁹ and the phrase “or both.”¹²⁰ When simple, not technical terms such as “to” and “or both” are the focus of district court and appellate argument, the entire concept of “plain meaning” or “ordinary meaning” becomes suspect. Yet that concept remains a bedrock of claim construction law, adding great uncertainty to how disputes over such terms will eventually be resolved.

The *Cybor* majority was excoriated in Chief Judge Mayer’s concurrence, Judge Rader’s dissent, and Judge Newman’s additional views. Each focused on the difficulty of applying the *de novo* review standard under the *Markman* process. Chief Judge Mayer declared that the majority’s adherence to *de novo* review “profoundly misapprehends” the Supreme Court’s *Markman* decision.¹²¹ Judge Rader criticized the lack of deference to the trial “main event”¹²² and lamented the Federal Circuit’s inability to reconcile the denigration of expert testimony with the principle that claim meaning is viewed in the eyes of one of ordinary skill in the art with: “What then defeats the relevance of the testimony of one of skill in that art at the time of the invention?”¹²³ He noted the high reversal rate appearing in Federal Circuit cases and declared that the *Markman* process “provides no early certainty at all, but

¹¹⁶ *Id.* at 1462 (Plager, J., concurring).

¹¹⁷ *Id.* at 1463 (Bryson, J., concurring).

¹¹⁸ *Id.*

¹¹⁹ *Id.* at 1458–59. “To” was also discussed in Chief Judge Mayer’s concurring opinion. *Id.* at 1469, 1472.

¹²⁰ *Id.* at 1469, 1472 (Mayer, C.J., concurring).

¹²¹ *Id.* at 1463.

¹²² *Id.* at 1473.

¹²³ *Id.* at 1475.

only opens the bidding.”¹²⁴ Judge Newman agreed, noting the objective of “greater stability” thereby “enhancing consistency” “had not been well achieved.”¹²⁵ She described the resulting “unpredictability”¹²⁶ of *Markman*, and how the Federal Circuit process will “confound rather than ease the litigation process.”¹²⁷ All of these comments would be repeated over the decades, as the Federal Circuit continued to cling to de novo review in the face of ever increasing criticism.

The issues of de novo review and deference to the district court would continue to dog the Federal Circuit, and the issue is alive even now. Those issues were debated but not resolved in *Phillips*,¹²⁸ the 2005 decision that has dominated claim construction for the last decade. De novo review remained the law after *Phillips*, despite even more strident criticism.¹²⁹ They were again the focus in 2014, when the Federal Circuit decided *Lighting Ballast*,¹³⁰ and again reaffirmed de novo review.¹³¹ Only in 2015

¹²⁴ *Id.* at 1476.

¹²⁵ *Id.* at 1478 (Newman, J., additional views).

¹²⁶ *Id.* at 1479.

¹²⁷ *Id.* at 1480.

¹²⁸ *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). The Federal Circuit invited amicus briefs on a number of claim construction issues, including whether “[it is] appropriate for this court to accord any deference to any aspect of trial court claim construction rulings.” *Id.* at 1328. The Federal Circuit majority opinion did not debate the question but instead merely embraced *Vitronics. Id.*

¹²⁹ Chief Judge Mayer’s criticism of the majority was scathing. He referred to the “absurdity” of “adhering to the falsehood that claim construction is devoid of any factual component.” *Phillips*, 415 F.3d at 1330. He described the result of the Federal Circuit’s standard as “mayhem” that “seriously undermined the legitimacy of the process, if not the integrity of the institution.” *Id.* He described the Federal Circuit’s claim construction decisions as a “black hole,” *id.*, and said “the court flails about in an attempt to solve the claim construction ‘conundrum.’” *Id.* at 1334. His conclusion was disdainful: “The court’s opinion today is akin to rearranging the deck chairs on the Titanic—the orchestra is playing as if nothing is amiss, but the ship is still heading for Davey Jones’ locker.” *Id.* at 1334–35.

¹³⁰ *Lighting Ballast Control LLC v. Philips Elec. N. Am. Corp.*, 744 F.3d 1272, 1282–84 (Fed. Cir. 2014) (reaffirming the de novo review standard, this time on the basis of stare decisis so that “settled expectations” should not be disrupted).

280 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

did the Supreme Court finally correct the Federal Circuit and direct what should have been plain all along: claim construction has factual components that must be reviewed under Rule 52's "clear error" standard.¹³² In the meantime, much damage was done, and the Federal Circuit suffered continuing disdain for its stubborn assertion of the impossible.

B. The Reversal Rate: Growing Criticism

Markman was decided in the hope that claim construction conducted solely by judges would make patent law more certain and predictable. Alas, that was not to be, as the reversal rates by the Federal Circuit began to demonstrate.¹³³ Criticism of the Federal Circuit's rate of reversal became a continuing feature of the Federal Circuit's *Markman* jurisprudence.¹³⁴ The criticism, from judges, practitioners, and scholars, attacked Federal Circuit jurisprudence as confusing and often attributed that confusion to the de novo review standard. Thus, for example, the National Law Journal describes the reversal rate of claim construction as having "so enraged the bench that one federal judge—Samuel Kent of Galveston, Texas—has dismissed the appeals court as 'little green men wearing propeller hats who don't know Tuesday from Philadelphia.'"¹³⁵

A careful study of the reversal rate on claim construction¹³⁶ revealed that reversal was indeed a problem, despite occasional

¹³¹ *Id.*

¹³² Teva Pharm. USA, Inc. v. Sandoz, Inc., 135 S. Ct. 831, 833 (2015).

¹³³ As early as 1998, Judge Rader noted in *Cybor* that fifty-three percent of patent cases were reversed by the Federal Circuit, in whole or in part. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1476 (Rader, J., dissenting).

¹³⁴ See, e.g., Kimberly A. Moore, *Markman Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 245–46 (2005). The author, who would eventually be appointed to the Federal Circuit, concluded that *Markman* created confusion and the reversal rate was getting worse.

¹³⁵ Victoria Slind-Flor, *Formerly Obscure Court is in Spotlight: Importance of New Technology Makes Its Decisions Big News*, NAT'L L.J., Apr. 30, 2001 at B9, B12.

¹³⁶ Moore, *supra* note 134.

denials by Federal Circuit judges. Conducted by Professor Moore (later Federal Circuit Judge Moore), the study concluded that the claim construction reversal rate in appeals from 1996 through 2003 was 34.5%.¹³⁷ Professor Moore further concluded that, after declining from 1996 through 1998 to 20%, the reversal rate increased to nearly 40% by 2003.¹³⁸ From this, Professor Moore blamed de novo review for at least part of the increase, and concluded that “district court judges are not able to resolve claim construction issues as the Federal Circuit judges would like.”¹³⁹ Others reached similar conclusions.¹⁴⁰

Professor Moore also concluded that the Federal Circuit “is not providing sufficient guidance on claim construction,”¹⁴¹ a view that echoed the more vigorous criticism from the bar and other scholars. Thus, for example, the Chair of the ABA Section of Intellectual Property Law criticized the Federal Circuit’s “morass of confused and contradictory claim construction canons.”¹⁴² A practitioner stated “what is certain is that uncertainty reigns supreme in trying to prognosticate how the CAFC will resolve” issues.¹⁴³ Another commented that “[i]t comes as little surprise that some trial judges have grown apathetic to the process, and that nearly all litigants unhappy with the outcome of their cases will

¹³⁷ *Id.* at 233.

¹³⁸ *Id.* at 246.

¹³⁹ *Id.*

¹⁴⁰ *E.g.*, Michael A. O’Shea, *A Changing Role for the Markman Hearing: In Light of Festo IX, Markman Hearings Could Become M-F-G Hearings Which are Longer, More Complex and Ripe for Appeal*, 37 CREIGHTON L. REV. 843 (2004); Victoria Slind-Flor, *Markman Precedent Holds Up Patents: Ruling Intended to Add Predictability and Speed Fails to Do So*, NAT’L L.J., Jan. 15, 2001 at A1, A12.

¹⁴¹ Moore, *supra* note 139, at 247.

¹⁴² Mark T. Banner, *Keeping Current with the Chair*, 21 ABA SEC. OF INTELLECTUAL PROP. LAW NEWSLETTER, no. 4, Summer 2003, at 14, *available at*

http://www.americanbar.org/content/dam/aba/publishing/ipl_newsletter/intelprop_bulletin_summer_03.authcheckdam.pdf.

¹⁴³ George J. Awad & George A. Frank, *Federal Circuit Construction Project: Hard Hats Required*, LEGAL INTELLIGENCER, Aug. 25, 2004, at 5, *available at* <http://www.thelegalintelligencer.com/id=900005413766/Federal-Circuit-Construction-Project-Hard-Hats-Required?slreturn=20150329080006>.

282 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

appeal and include a claim construction issue.”¹⁴⁴ Still another criticized Federal Circuit “hyperactivity,” and argued that the Federal Circuit was engaged in “appellate fact finding.”¹⁴⁵ Something had definitively gone amiss in the Federal Circuit’s plan to produce greater predictability and clarity.

V. NEVER-ENDING PROBLEMS

The problem of de novo review dominated issues after *Markman*, but it was by no means the only issue to arise. When claim construction was removed from the jury’s black box and subjected to scrutiny in the harsh light of written judicial opinions, the carefully constructed procedure of *Markman*, *Vitronics*, *Cybor*, and *Phillips* displayed numerous intractable flaws. Some flaws were a necessary result from *Markman*, while others followed from the inability of the Federal Circuit to articulate coherent or practical claim construction rules. Some were eventually resolved by the Federal Circuit, and some remain even today.

A. Whack-a-Mole: The Unforeseen Problem of Iterative Processes

A little understood aspect of *Markman* produced a crucial but rarely recognized problem. Claim construction is inherently an iterative process, involving not just the intrinsic and extrinsic evidence but complex interactions between the plaintiff’s theory of infringement and the defendant’s theory of invalidity. Defendants select their prior art based in part on their objective view of the patent’s proper scope, but also based upon the scope of the patent implied by the plaintiff’s infringement contentions; broader contentions capture more prior art, and the canons of claim construction declare that the prior art helps inform the meaning of

¹⁴⁴ Anthony R. Zeuli & Rachel Clark Hugley, *Avoiding Patent Claim Construction Errors: Determining the Ordinary and Customary Meaning Before Reading the Written Description*, FED. LAWYER, June 2004, at 29–30, available at <http://www.merchantgould.com/portalsresource/1262.pdf>.

¹⁴⁵ William C. Rooklidge & Mathew F. Weil, *Judicial Hyperactivity: The Federal Circuit’s Discomfort with Its Appellate Role*, 15 BERKELEY TECH. L.J. 725, 729–30 (2000).

the claim terms.¹⁴⁶ The natural result is that a change in the plaintiff's infringement theory (and accordingly the plaintiff's claim construction theory) produces a change in the defendant's claim construction arguments. Similarly, when the defendant identifies prior art, the plaintiff inevitably seeks to modify its claim construction to avoid the prior art but still cover the accused product. Plaintiffs and defendants both frequently fail to fully understand how their opponent is truly characterizing claim terms until the process has progressed, and often not until after extensive briefing. The result is a series of iterations, with the parties repeatedly jostling as their opponent's assertions are clarified and modified. This iterative process is integrally part of claim interpretation.

The problem becomes more acute when, as is usually the case, the district court construes the terms by accepting part of each side's argument. The parties then scramble to adjust their contentions. The defendant searches for new art covered by the unforeseen interpretation of the court, setting off a counter argument by the plaintiff, who looks to change other aspects of the claim interpretation to make the new construction consistent with the plaintiff's infringement theory. When extrinsic evidence is involved (as is frequently the case), the parties need to revisit their extrinsic discovery. This is the "whack-a-mole" problem, first described by Judge McKelvie of the District of Delaware,¹⁴⁷ and later detailed by Judge Rader in his *Cybor* dissent.¹⁴⁸ Worse, district judges sometimes do not recognize the implications of their construction until they hear trial arguments and testimony, at which point they might need to change the construction mid-trial,

¹⁴⁶ *Vitronics Corp. v. Conception, Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996).

¹⁴⁷ Delaware Bar Foundation, *supra* note 93.

¹⁴⁸ "As soon as the trial court issues a claim interpretation, both sides often seek to shift their original claim interpretations to accommodate the judge's views. Thus, the parties seek to revise expert reports or reopen discovery to account for the Judge's interpretation. . . . As a result of the new and perhaps somewhat unexpected interpretation, the parties scramble to create and acquire new evidence for their infringement arguments." *Cybor Corp. v. FAS Technologies, Inc.*, 138 F.3d 1448, 1474 n.2.

with potentially unfortunate consequences.¹⁴⁹

The problem did not exist before *Markman*. When juries construed the claims as part of their infringement analysis, they did so in a single proceeding (the trial). Each side presented a coherent theory. The plaintiff described how their theory of infringement, including their theory of how the claim terms were interpreted, both demonstrated infringement and preserved the patent's validity. Defendants likewise presented an internally consistent theory explaining how the correct interpretation of the patent showed either non-infringement or invalidity (or perhaps both). Some iterations occurred during the give-and-take at trial, but all interwoven issues were hashed out in the all-encompassing discussions in the jury room, which led to a decision that one side was right and the other wrong.

Temporally distancing the first step of the infringement analysis (claim interpretation) from both the second step (comparison of the claims to the accused product) and the validity analysis necessarily produced an overwhelming demand for further iterations. *Markman* led to endless battles that consisted of attempts by the plaintiff to maintain infringement theory flexibility throughout the process and matching attempts by the defendant to lock the plaintiff into an early and unchanging construction. Plaintiffs similarly sought to prevent any shifts of the defendant's invalidity theories, especially after the trial court construed the claims. Some local rules accommodated this jostling, but some did not, and in districts without local rules, the judge allowed, or disallowed, modifications as she saw fit.

No refinement of the *Markman* process can eliminate this problem. As long as claim construction occurs before the jury is presented with the trial evidence, parties will seek to modify the construction wherever they see an advantage. The result will continue to be a disagreeable sausage-making process, with at least occasional unfairness for one side or the other.

¹⁴⁹ *Id.*

B. Semantic Antics: The Issues Become Surreal

Although well-intentioned, the Federal Circuit's efforts to delineate rational and consistent claim construction rules led to perplexing contortions and, occasionally, bewildering results. Underlying the difficulty was the Federal Circuit's desire for an almost algorithmic process, where the same input (a patent claim) would produce the same result (a correct claim construction) regardless of who applied the algorithm.¹⁵⁰ Since a consistently applied algorithm is impossible, the Federal Circuit decisions repeatedly disappointed. This a natural result of the Federal Circuit's concentration on the meaning of words, which contrasts sharply with the pre-Federal Circuit approach to claim construction. That approach focused not on word interpretation, but on a determination of what the inventor actually invented.¹⁵¹ The latter approach tacitly recognized that the same invention could be described by different words, but justice would be served by confining the patent to the actual invention, however described. This approach was rejected by the Federal Circuit, which was enthralled in its quest for the Holy Grail of predictability. The Federal Circuit was forced to grapple with endless semantic quibbles that as often as not obscured rather than clarified.

1. Dictionaries

If claim construction involves determining the meaning of the words used in the patent claim, then a natural resource to aid that process is a dictionary, technical or otherwise. Though this position is manifestly logical, the Federal Circuit still struggled to determine when—or even if—dictionaries could be used to help

¹⁵⁰ The Federal Circuit disavowed the existence of any algorithm in *Phillips*, saying that “there is no magic formula or catechism” and that it “did not attempt to provide a rigid algorithm for claim construction” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1324 (Fed. Cir. 2005). Yet the Federal Circuit's goal of predictability and certainty has no other implication.

¹⁵¹ *E.g.*, *Smith v. Snow*, 294 U.S. 1, 14 (1935) (“If the claim were fairly susceptible of two constructions, that should be adopted which will secure to the patentee *his actual invention.*” (emphasis added)).

construe the claims. Part of the struggle stemmed from the Federal Circuit's reasonable desire to ensure that the patent's specification was the primary claim construction tool, but part also flowed from the Federal Circuit's unceasing hunger to protect the rationale of *Markman*, so that extrinsic evidence (which most specifically included dictionaries) could not crack the edifice built from the "no issue of fact" gospel.

Before *Markman*, dictionaries were a consistent source used in claim construction issues, including in the regional circuits, in the C.C.P.A., and in the Federal Circuit.¹⁵² The practice continued after *Markman*, with the Federal Circuit repeatedly using, and approving, use of dictionaries.¹⁵³ Dictionaries, after all, provided a route to determine the "ordinary and customary" meaning of terms. Yet dictionaries often provided multiple meanings for words, and general dictionaries rarely defined words as they were used in esoteric technologies. Since claim construction had become a semantic jungle, focused upon ever more subtle distinctions in the "plain and ordinary" meaning¹⁵⁴ of words, several Federal Court decisions warned of the dangers posed by dictionaries.¹⁵⁵ When the

¹⁵² Cases from the regional circuits include: *Saunders v. Air-Flo Co.*, 646 F.2d 1201, 1206 (7th Cir. 1981); *Dickstein v. Seventy Corp.*, 522 F.2d 1294, 1297 (6th Cir. 1975); *Gen. Tire & Rubber Co. v. Firestone Tire & Rubber Co.*, 489 F.2d 1105, 1110 (6th Cir. 1973). C.C.P.A. cases include: *In re Gaubert*, 524 F.2d 1222, 1226 (C.C.P.A. 1975); *In re Skoll*, 523 F.2d 1392, 1395–96 (C.C.P.A. 1975); *In re Altenpohl*, 500 F.2d 1151, 1157 n.7 (C.C.P.A. 1974). Federal Circuit cases include: *Nike, Inc. v. Wolverine World Wide, Inc.*, 43 F.3d 644, 647 (Fed. Cir. 1994); *Conopco, Inc. v. May Dep't Stores Co.*, 46 F.3d 1556, 1561 n.2 (Fed. Cir. 1994); *Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 951 (Fed. Cir. 1993).

¹⁵³ *E.g.*, *Teleflex, Inc. v. Ficoso N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002); *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002); *Optical Disc Corp. v. Del Mar Avionics*, 208 F.3d 1324, 1334–35 (Fed. Cir. 2000); *Quantum Corp. v. Rodime, PLC*, 65 F.3d 1577, 1581 (Fed. Cir. 1995).

¹⁵⁴ *E.g.*, *GE Lighting Solutions, LLC. v. Agilight, Inc.*, 750 F.3d 1304, 1308–10 (Fed. Cir. 2014).

¹⁵⁵ *Kinik Co. v. Int'l Trade Comm'n*, 362 F.3d 1359, 1365 (Fed. Cir. 2004) (holding that dictionaries are inappropriate for common words that might be used differently in the patent); *AFG Indus., Inc. v. Cardinal IG Co.* 239 F.3d 1239, 1248 (Fed. Cir. 2001) (holding that dictionaries should only be used when the patent fails to define a term); *Toro Co. v. White Consol. Indus., Inc.*, 199

*Texas Digital*¹⁵⁶ case expressed resounding support for dictionary use,¹⁵⁷ the resulting controversy prompted the Federal Circuit to consider, en banc, just how dictionaries could be used to help determine the meaning of terms.¹⁵⁸ The result was an elaborate discussion in *Phillips*, approving particular technical dictionary uses, approving fewer uses of general dictionaries, slotting dictionaries into the elaborate claim construction hierarchy of *Vitronics*, and limiting the broad language of *Texas Digital*.¹⁵⁹ Yet the dictionary guidance of *Phillips* was generalized, giving district courts ample opportunity to inadvertently misuse dictionaries and thereby justify yet another ground for reversal in a Federal Circuit de novo review.

2. Nonsensical Decisions

Achieving a fair and just resolution of legal disputes would seem a fundamental goal of the courts, even in patent cases. A priori, admittedly “nonsensical” decisions should be abhorred by all courts and avoided whenever possible. Yet the Federal Circuit, driven by a need to follow its *Markman* and *Vitronics* dictates, has ruled that “nonsensical” conclusions must be accepted when the Court’s claim construction process leads to that end. Thus, the process is all-important, and deviations cannot be accepted merely to avoid a nonsensical result.

The leading case adopting this proposition is *Chef America, Inc. v. Lamb–Weston, Inc.*,¹⁶⁰ which involved making bread. The claim specified heating the bread dough “to” a temperature of

F.3d 1295, 1299–300 (Fed. Cir. 1999) (holding that general dictionaries are unsuited to scientific meaning of words); *Anderson v. Int’l Eng’g & Mfg., Inc.*, 160 F.3d 1345, 1348–49 (Fed. Cir. 1998) (holding that, where dictionaries provide more than one meaning, the technical meaning must be taken from the context of the patent).

¹⁵⁶ *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193 (Fed. Cir. 2002).

¹⁵⁷ *Id.* at 1202–05.

¹⁵⁸ *Phillips v. AWH Corp.*, 415 F.3d 1303, 1319–22 (Fed. Cir. 2005).

¹⁵⁹ *Id.*

¹⁶⁰ *Chef America, Inc., v. Lamb–Weston, Inc.*, 358 F.3d 1371 (Fed. Cir. 2004).

400°F to 850°F.¹⁶¹ Yet if heated to that range, as every bread chef instinctively knew, the dough “would be burned to a crisp.”¹⁶² The patent owner argued that the claim obviously meant heating the dough “at” the specified temperature, which was the only logical interpretation of the claim.¹⁶³ The district court refused to so construe the patent, concluding instead that a nonsensical result was required.¹⁶⁴ The Federal Circuit agreed,¹⁶⁵ conclusively demonstrating that the process was more important than reaching a result that made sense.¹⁶⁶

Chef America was not the first decision adopting a “nonsensical” result. The “nonsensical” doctrine originated five years earlier, in *Process Control Corp. v. Hydreclaim Corp.*¹⁶⁷ Like *Chef America*, the *Process Control* decision approved a “nonsensical” result, this time reversing a district court that had refused to do so.¹⁶⁸ *Process Control*, however, involved a miswritten claim that used the same language for different processes in the specification.¹⁶⁹ The Federal Circuit invalidated the claim rather than interpreting it to cover the process in the specification,¹⁷⁰ thereby creating the principle applied in *Chef America*. While the principle’s application in *Process Control* was less unreasonable, the Federal Circuit nevertheless repeatedly applied it, not only in *Chef America* but in a series of subsequent cases.¹⁷¹ Yet those cases stand in sharp contrast to other decisions,

¹⁶¹ *Id.* at 1371.

¹⁶² *Id.* at 1373.

¹⁶³ *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ *Id.* at 1374–76.

¹⁶⁶ The Federal Circuit also refused to accept the conclusion of an expert’s declaration that the patent’s text should be read “as meaning that the product is placed in an oven whose temperature has been set in the range of about 400°F to 850°F.” *Id.* at 1375. The expert explained that “[i]t was well known in 1987, and still is well known, that raising the temperature of a dough product itself to such high temperatures would result in an unusable product.” *Id.* The Federal Circuit was unmoved.

¹⁶⁷ 190 F.3d 1350 (Fed. Cir. 1999).

¹⁶⁸ *Id.* at 1355.

¹⁶⁹ *Id.*

¹⁷⁰ *Id.* at 1359.

¹⁷¹ *E.g.*, *Source Vagabond Sys. Ltd. v Hydrapak, Inc.*, 753 F.3d 1291, 1301

such as *AIA Engineering Ltd.*, where the Federal Circuit declared that “[w]e strive, where possible, to avoid nonsensical results in construing claim language.”¹⁷² In *AIA*, the Federal Circuit refused to give a claim term its ordinary meaning because it would be nonsensical.¹⁷³ The rule, then, is that the Federal Circuit will avoid nonsensical claim constructions, except when nonsensical constructions will be applied.¹⁷⁴

3. “Plain and Ordinary” Meaning

Vitronics held that “words in a claim are generally given their ordinary and customary meaning,”¹⁷⁵ and *Phillips* explained that the “ordinary and customary” meaning was “the meaning that the term would have to a person of ordinary skill in the art in question”¹⁷⁶ Determining what is “ordinary” or “customary” has not, however, been a simple task. *Phillips* described how the “ordinary” meaning “may be readily apparent even to lay judges,”¹⁷⁷ and in those circumstances “general purpose dictionaries may be helpful.”¹⁷⁸ Yet in many cases, “determining the ordinary and customary meaning of a claim requires examination of terms that have a

(Fed. Cir. 2014); *Braintree Labs., Inc. v. Novel Labs., Inc.*, 749 F.3d 1349, 1367 (Fed. Cir. 2014); *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1362–63 (Fed. Cir. 2008).

¹⁷² *AIA Eng’g Ltd. v. Magotteaux Int’l S/A*, 657 F.3d 1264, 1276 (Fed. Cir. 2011). *Accord* *Becton, Dickinson & Co. v. Tyco Healthcare Group, LP*, 616 F.3d 1249, 1255 (Fed. Cir. 2010); *Bd. of Regents of the Univ. of Tex. Sys. v. BENQ Am. Corp.*, 533 F.3d 1362, 1370 (Fed. Cir. 2008).

¹⁷³ *AIA Eng’g Ltd.*, 657 F.3d at 1276.

¹⁷⁴ The “nonsensical” cases are akin to the decision in *Elekta Instr. S.A. v. O.U.R. Scientific Int’l*, 214 F.3d 1302 (Fed. Cir. 2000). *Vitronics* had ruled that claim interpretations that exclude the preferred embodiment are “rarely, if ever correct and would require highly persuasive evidentiary support.” 90 F.3d at 1583. Yet in *Elekta*, the Federal Circuit chose the “ordinary meaning” of the claims terms to construe the patent to not cover the only embodiment disclosed in the specification. 214 F.3d at 1307–08.

¹⁷⁵ *Vitronics Corp. v. Conception, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

¹⁷⁶ *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005).

¹⁷⁷ *Id.* at 1314.

¹⁷⁸ *Id.*

290 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

particular meaning in a field of art.”¹⁷⁹ And therein lies the rub. Despite the exhaustive efforts of the Federal Circuit to provide user-friendly rules for claim construction, litigants repeatedly, and sometimes sharply, dispute just what is the “ordinary and customary” meaning of claim terms.

Part of the difficulty arose from the evolution of the doctrine of “ordinary and customary” meaning into a doctrine of “plain and ordinary” meaning. “Ordinary” and “customary” are related terms, with “ordinary” implying that the meaning is common and not unusual, and “customary” implying that a meaning has some frequency of use. But “plain” is an entirely different concept, implying that the word’s meaning can be readily determined from the mere inspection of the term. Many “ordinary” terms are not at all “plain.” Yet the Federal Circuit has used both approaches, with little guidance on when a claim term’s meaning is “plain” rather than just “ordinary” or “customary.”¹⁸⁰ Thus, while the concept of an “ordinary” meaning predates *Markman*,¹⁸¹ loose use of terminology caused the eventual adoption of a “plain and ordinary” meaning standard, which is in common use today.¹⁸² Although the concepts have different meanings, the Federal Circuit has not explained when the “plain” meaning is apparent and should be used, rather than a term’s “ordinary” meaning, leaving district courts and litigants to follow the loose “dictionary” guidance of *Phillips*. Not surprisingly, plaintiffs have cleaved to the “plain” meaning approach—it allows them to argue any quasi-reasonable meaning for disputed terms, thereby providing them the flexibility they so dearly value. The Federal Circuit has criticized mere

¹⁷⁹ *Id.*

¹⁸⁰ The sloppiness may have resulted from a belief that an “ordinary and customary” meaning does not differ from a “plain and ordinary” meaning. For example, *Northern Telecom Ltd. v. Samsung Elec. Co.*, 215 F.3d 1281 (Fed. Cir. 2000), applied the “plain and ordinary” meaning standard, but cited a case that actually described the “ordinary and customary” standard. *Id.* at 1291 (citing *Johnson Worldwide Assoc. v. Zebco Corp.*, 175 F.3d 985, 990 (Fed. Cir. 1999)).

¹⁸¹ *E.g.*, *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1387 (Fed. Cir. 1992).

¹⁸² *E.g.*, *Stryker Corp. v. Zimmer, Inc.*, 774 F.3d 1349, 1353 (2014). The shift in terminology appears in *National Recovery Techs., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1195 (Fed. Cir. 1999).

adoption of “plain meaning”¹⁸³ without explaining that meaning, so litigators, especially plaintiffs, continue to propose deciding that a term has a “plain meaning” that needs no further construction.

4. It Depends on the Meaning of “Or”

No demonstration of the impossibility of a predictable claim construction process, especially for terms that should have a “plain meaning,” is more vivid than in the two cases where the Federal Circuit was unable to agree on the meaning of the word “or.”¹⁸⁴ In both cases, infringement turned on whether “or” should be interpreted exclusively (*i.e.*, “A or B” but not “A and B”) or non-exclusively (“A or B” or “A and B”). In both cases, the majority ruled in favor of the exclusive “or,” saying it was the “plain reading” of the claim¹⁸⁵ or “quite clear” from the patent documents.¹⁸⁶ The dissent contended that “or” should be construed non-exclusively, saying that was the “practical common-sense way” of writing the claim,¹⁸⁷ and that the “plain meaning” of “or” could be either construction.¹⁸⁸ The *Markman–Vitronics* process cannot produce predictable results when the patent experts at the Federal Circuit, in attempting to follow that process, cannot agree on the meaning of even the most commonly used and simplest of English terms. The “or” cases show the fallacy of attempts to rely on either “plain” or “ordinary” meaning as interpreted by judicial experts.

A similar conclusion can be drawn from the somewhat less striking Federal Circuit decisions contesting the meaning of “on,”

¹⁸³ *O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008) (“A determination that a claim term ‘needs no construction’ or has the ‘plain and ordinary meaning’ may be inadequate when a term has more than one ‘ordinary’ meaning or when reliance on a term’s ‘ordinary’ meaning does not resolve the parties’ dispute.”).

¹⁸⁴ *Brown v. 3M*, 265 F.3d 1349 (Fed. Cir. 2001); *Kustom Signals, Inc. v. Applied Concepts, Inc.*, 264 F.3d 1326 (Fed. Cir. 2001).

¹⁸⁵ *Brown*, 265 F.3d at 1352.

¹⁸⁶ *Kustom*, 264 F.3d at 1331.

¹⁸⁷ *Brown*, 265 F.3d at 1354.

¹⁸⁸ *Kustom*, 264 F.3d at 1333.

292 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

*Senmed, Inc. v. Richard–Allan Medical Indus., Inc.*¹⁸⁹ and *Inverness Medical Switzerland GmbH v. Warner Lambert Co.*¹⁹⁰ The Federal Circuit struggled with that simple term both before and after *Markman*. In *Senmed*, the issue was whether “on” required physical touching.¹⁹¹ The majority ruled that it did,¹⁹² and the dissent argued that it need not.¹⁹³ In *Inverness*, the issue was whether “on” meant “on top of” a “test strip,” or whether “on” could include being interior to the strip, such that it was “on” just a portion of the strip.¹⁹⁴ The district court ruled that “on” meant on top of,¹⁹⁵ but the Federal Circuit reversed, ruling that the “plain meaning” of “on” included “within.”¹⁹⁶ Again, these cases demonstrate that a term’s “plain meaning” can be anything but plain, and is usually dependent on the eye of the beholder.

VI. OTHER ISSUES

Much of consequence resulted from *Markman* that cannot be attributed to the Federal Circuit’s quixotic devotion to de novo review. And while the most significant cases produced consternation, confusion, and even conflict, other significant changes occurred, some for the good and others less so.

A. Phillips

The 2005 decision in *Phillips* addressed a host of topics in an attempt to resolve disputes within the Federal Circuit and address the growing criticism of the *Markman–Vitronics* regimen.¹⁹⁷ While

¹⁸⁹ 888 F.2d 815 (Fed. Cir. 1989).

¹⁹⁰ 309 F.3d 1373 (Fed. Cir. 2002).

¹⁹¹ *Senmed*, 888 F.2d at 821.

¹⁹² *Id.*

¹⁹³ *Id.* at 824.

¹⁹⁴ *Inverness Med. Switz.*, 309 F.3d at 1377–78.

¹⁹⁵ *Id.* at 1378.

¹⁹⁶ *Id.* at 1382.

¹⁹⁷ The Federal Circuit reheard the case en banc “to resolve issues concerning the construction of patent claims” that the original panel had raised. *Phillips v. AWH Corp.*, 376 F.3d 1382, 1382 (Fed. Cir. 2005). Seven claim construction topics were selected for resolution. *Id.* at 1383.

Phillips was criticized for failing to resolve the question of deference to the trial court rulings, it did clarify some unresolved issues. Its extensive discussion of dictionaries firmly established that dictionaries could be consulted,¹⁹⁸ and it expressed a preference for technical over general dictionaries.¹⁹⁹ If the remainder of *Phillips*'s discussion of dictionaries was less than fully edifying, the decision nevertheless eliminated one uncertainty for district courts and litigants. *Phillips* also reaffirmed that "claims should be so construed, if possible, to sustain their validity,"²⁰⁰ but did not endorse "a regime in which validity analysis is a regular component of claim construction."²⁰¹ Instead, preserving validity should be considered when the claim is still ambiguous "after applying all the available tools of claim construction."²⁰²

Phillips also confirmed that some of the basic principles of *Vitronics* would not be disturbed, thereby ending some of the clamor for revision. The primacy of the specification was cemented into claim construction law, with *Phillips* declaring that courts can "rely heavily on the written description for guidance as to the meaning of the claims."²⁰³ Expert testimony was again endorsed, but again for a difficult-to-follow role: "to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field."²⁰⁴ The door was therefore open for extensive use of experts, but not for "conclusory, unsupported assertions."²⁰⁵ Instead, *Phillips* concluded that "a court should discount any expert testimony 'that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history'"²⁰⁶ This process

¹⁹⁸ *Id.* at 1317–21.

¹⁹⁹ *Id.* at 1321.

²⁰⁰ *Id.* at 1327.

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ *Id.* at 1317.

²⁰⁴ *Id.* at 1318.

²⁰⁵ *Id.*

²⁰⁶ *Id.* (quoting *Key Pharm. v. Hercon Labs. Corp.*, 161 F.3d 709, 716 (Fed.

essentially gave district courts license to listen to any and all expert testimony, as long as their claim construction opinion properly focused on the specification and prosecution history and did not improperly credit experts.

Recognizing reality, *Phillips* conceded that “there is no magic formula or catechism for conducting claim construction.”²⁰⁷ That recognition relieved district courts of the concern that a reversal would result merely from following the wrong sequence of steps or holding the wrong kind of hearing. Moreover, *Phillips* underscored the “cardinal sin” of patent law, “reading a limitation from the written description into the claims,”²⁰⁸ again emphasizing the primacy of the “ordinary and customary meanings attributed to the words themselves.”²⁰⁹ The natural tension between reading a limitation from the specification into the claims and paying primary attention to the context of terms in the specification was, sadly, not resolved. Despite the remaining uncertainties, *Phillips* provided sufficient guidance that it became the bedrock of all subsequent claim interpretation cases; it provided enough clarity for judges and litigants to become comfortable with the resulting process, even while the ultimate outcome of claim construction remained unpredictable.

B. Preferring Narrow Interpretations

An important claim construction doctrine developed separate from the *Vitronics–Phillips* line of cases, one that evidenced a distinctly pro-defendant bias. In *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*,²¹⁰ the Federal Circuit announced a preference for narrow, rather than broad claim constructions.²¹¹ *Athletic Alternatives* addressed a circumstance where an “equal choice”

Cir. 1998)).

²⁰⁷ *Id.* at 1324.

²⁰⁸ *Id.* at 1320 (quoting *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1340 (Fed. Cir. 2001)).

²⁰⁹ *Id.* (quoting *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1204 (Fed. Cir. 2002)).

²¹⁰ 73 F.3d 1573 (Fed. Cir. 1996).

²¹¹ *Id.* at 1581.

existed between a narrower and broader meaning of a claim. To resolve the question, the Federal Circuit announced a preference for the narrower interpretation.²¹² Its reasoning was peculiar: patents must provide “fair notice” of their scope, and the Federal Circuit declared “the notice function of the claim to be best served by adopting the narrower meaning.”²¹³ Yet as a matter of logic, the notice function is served merely by having a rule that resolves the ambiguity flowing from equally valid constructions. That ambiguity would have been similarly resolved by choosing the broader interpretation. Nothing in *Athletic Alternatives* explained just why narrower interpretations provide inherently greater notice than broad interpretations. Nor did the Federal Circuit explain how its policy decision to favor narrow patents was consistent with encouraging innovation, which, after all, is the fundamental purpose of the patent system. One can easily argue that a policy favoring narrow patents reduces the rewards to inventors and thereby discourages innovation. The Federal Circuit nevertheless selected narrow interpretations.²¹⁴

C. Knowledge of the Accused Device

Pre-*Markman* cases sometimes took the logical but impractical position that claims were to be construed “without reference to the accused device.”²¹⁵ That approach was a relic of the view that an objective interpretation of a patent would best be made without knowing the kind of structure sought to be covered by the patent. Other pre-*Markman* cases accepted reality, holding that claims are “construed independent of the accused product,” but that “the

²¹² *Id.*

²¹³ *Id.*

²¹⁴ A related philosophy regarding the doctrine of equivalents was expressed in *Sage Products, Inc. v. Devon Indus., Inc.*, 126 F.3d 1420 (Fed. Cir. 1977), where the Federal Circuit considered an attempt to use the doctrine of equivalents to cover a “foreseeable” problem in the claim language. The Federal Circuit declared that “it is the patentee who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed structure.” *Id.* at 1425.

²¹⁵ *E.g.*, *SRI Int’l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1118 (Fed. Cir. 1985).

296 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

particular accused product (or process) is kept in mind, for it is efficient to focus on the construction of only disputed elements or limitations in the claims.”²¹⁶ After *Markman*, the Federal Circuit recognized that constructions that were devoid of knowledge of the infringement issues might not address the actual dispute. This, of course, would produce the inefficient “whack-a-mole” process that required a subsequent revisit of claim construction issues that trial courts believed were resolved. The Federal Circuit eliminated all uncertainty by expressly accepting that the trial court could consider the accused product, and indeed, can be helped by that evaluation.²¹⁷ The result improved claim constructions by sharpening the trial court’s focus and reducing the need for constructions to be revisited.

VII. DISTRICT COURT REACTIONS

Claim construction at the district court level was impacted at least as much by district court reactions to *Markman* and its progeny as the Federal Circuit decisions. As soon as district courts recognized that patent cases imposed the additional burden of a separate hearing to evaluate patent claims, individual judges and districts began to react and modify their practices accordingly.

A. Local Patent Rules

The first and most significant district court reaction to *Markman* was the adoption of local rules that would regularize the steps leading to *Markman*. Beginning with Northern California²¹⁸ (a district with a penchant for lengthy and complicated rules for every aspect of litigation), local patent rules began to dominate. Such rules normally mandate initial disclosures identifying the

²¹⁶ *Scripps Clinic & Res. Found. v. Genentech, Inc.*, 927 F.2d 1565, 1580 (Fed. Cir. 1991).

²¹⁷ *E.g.*, *Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1326–27 (Fed. Cir. 2006); *Pall Corp. v. Hemasure, Inc.*, 181 F.3d 1305, 1309 (Fed. Cir. 1999).

²¹⁸ *Patent Local Rules*, U.S. DIST. COURT, N. DIST. CAL., <http://www.cand.uscourts.gov/localrules/patent> (last updated Nov. 1, 2014).

accused product or process and describing the plaintiff's theory of infringement, followed by an identification of the defendant's invalidity contentions. The process next includes identification of disputed claim terms and exchange of the parties' proposed constructions, followed by briefing to the district court. The practice is cumbersome and, at least in some cases, more involved than is necessary, adding to the complexity and cost of even the simplest patent case.

District court judges nevertheless welcomed such rules because they freed individual judges from having to decide which procedure was most appropriate for each case.²¹⁹ Defendants liked local rules because they mandated early disclosure of infringement theories that previously might have been obtained only after lengthy discovery battles. Plaintiffs with weak cases liked the rules because the burden on defendants, merely to get a claim interpretation, often encouraged early nuisance settlements. Defense lawyers loved the rules because the need for early invalidity contentions guaranteed extensive work before any substantive ruling in the case. Eventually, twenty-eight districts adopted local patent rules, including all major commercial jurisdictions (with the notable exception of the District of Delaware).²²⁰ Squabbles over the sufficiency of infringement contentions then became the norm, along with massive invalidity contentions. Motions to strike infringement and invalidity contentions became the norm, and legions of patent litigators became specialists in just the claim construction procedures of popular patent districts, such as the Eastern District of Texas and the Northern District of California.

²¹⁹ The most common justification was “[l]ocal patent rules seek to advance the orderly progression of patent litigation by requiring the parties ‘to crystallize their theories of the case early in the litigation and to adhere to those theories once they have been disclosed.’” *Copper Innovations Group, LLC v. Nintendo Co.*, No. 2:07CV1752, 2012 WL 628465, at *2 (W.D. Pa. Feb. 27, 2012) (quoting *Atmel Corp. v. Info. Storage Devices, Inc.*, No. C 95-1987 FMS, 1998 WL 775115, at *2 (N.D. Cal. Nov. 5, 1998)).

²²⁰ The local patent rules across the country are gathered at <http://www.localpatentrules.com>.

B. The Obligation to Construe, and Limits on the Number of Terms

Despite the local rules, district court judges quickly came to realize that claim construction was a difficult and time-consuming process, as even the simplest technology produced wrangling over competing definitions of both common and uncommon words. Most patent cases do not settle before claim construction, so most cases require a hearing and a difficult opinion. Trial judges naturally sought ways to limit the portion of their valuable resources that were devoted to patent cases, and accordingly began setting limits on the number of terms they were willing to construe, either by saying that claim terms have their “plain meaning” or by setting a limit on the number of terms to be construed and leaving the parties to choose the most important terms. The result was *O2 Micro*, which ruled that “[w]hen the parties present a fundamental dispute regarding the scope of a claim term, it is the court’s duty to resolve it.”²²¹ Realism also prevailed, because the Federal Circuit also recognized that “district courts are not (and should not be) required to construe every limitation present in a patent’s asserted claims.”²²² Trial courts now regularly limit the parties to ten or fifteen claim terms in any *Markman* proceeding. Since many cases involve disputes over many more terms, the result has been a partial return to the pre-*Markman* days, with the jury presented with trial arguments, and even trial expert testimony, on the meaning of contested claim terms.²²³

²²¹ *O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008).

²²² *Id.*

²²³ In *O2 Micro*, the district court ruled that the term “only if” needed no construction, *id.* at 1361, so “the district court left the jury free to consider” the parties’ arguments. *Id.* at 1362. The plaintiff then “presented expert testimony to support its argument” on the meaning of “only if.” *Id.* While the Federal Circuit reversed in *O2 Micro*, *id.* at 1366, claim interpretation arguments before juries are the natural result of limits on the quantity of terms for construction. Of course, even under *Markman* some form of claim interpretation has always been presented to juries, when the litigants argue their differing interpretations of the claim constructions, especially in closing argument.

VIII. *TEVA PHARMACEUTICALS*

Once the Supreme Court affirmed *Markman*'s removal of claim construction from juries, the crucial remaining problem was the lack of deference to trial court claim constructions. When the Federal Circuit refused to modify its de novo review process in *Cybor*, the issue continued to fester and produce repeated criticisms. The issue was again revised sixteen years after *Cybor* in *Lighting Ballast Control v. Philips Electronics North America Corp.*,²²⁴ but the 1995 rule of *Markman* was not modified until the Supreme Court finally spoke in *Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc.*²²⁵

A. Lighting Ballast

Lighting Ballast was the Federal Circuit's en banc revisit of de novo review. The Federal Circuit again solicited amicus briefs, this time directed to whether *Cybor* should be overruled, whether deference should be given to the district court's claim construction, and if so, how that deference should be afforded.²²⁶ The court received thirty-eight amicus briefs, arguing approaches that spanned the spectrum of potential results.²²⁷ The Federal Circuit, in a decision authored by Judge Newman, one of the previous staunch opponents of de novo review, concluded that the standard of *Cybor* should be maintained, based upon stare decisis.²²⁸ Rejecting the criticism of de novo review, the Federal Circuit decided that "[t]here has been extensive experience of *Cybor* in action,"²²⁹ that "no proponent of change has shown that de novo review of claim construction is unworkable,"²³⁰ so there is "neither 'grave necessity' nor 'special justification' for departing from *Cybor*."²³¹

²²⁴ 744 F.3d 1272 (Fed. Cir. 2014).

²²⁵ 135 S. Ct. 831 (2015).

²²⁶ *Lighting Ballast Control LLC v. Philips Elec. N. Am. Corp.*, 744 F.3d 1272, 1277.

²²⁷ *Id.*

²²⁸ *Id.* at 1281, 1292.

²²⁹ *Id.* at 1281.

²³⁰ *Id.* at 1283.

²³¹ *Id.* at 1286.

300 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

Four judges, including the Chief Judge,²³² dissented,²³³ but it was all for naught. *Cybor* and the de novo review standard remained unchanged. The stage was now set for *Teva*.

B. Teva

The issues in *Teva* centered on a dispute that should not exist in the world of *Vitronics*: how to resolve the meaning of a common technical term that had three accepted definitions. The claims defined the invention in terms of “molecular weight,” which can be “peak average molecular weight,” “number average molecular weight,” or “weight average molecular weight.”²³⁴ The district court took testimony from experts and concluded that the term “molecular weight” was definite and meant “peak average molecular weight.”²³⁵ The Federal Circuit reviewed the decision de novo, disagreed, and ruled the claim indefinite.²³⁶ The Supreme Court thus reviewed whether the district court’s ruling should have been decided on the “clear error” standard applicable to findings of fact under Rule 52.

The Supreme Court vacated the Federal Circuit in a sweeping rebuff of *Cybor* and *Lighting Ballast*.²³⁷ Rejecting long-cherished interpretations of *Markman*, the Supreme Court described its *Markman* holding as recognition “that in patent construction, subsidiary fact finding is sometimes necessary.”²³⁸ In that circumstance, Rule 52 “requires appellate courts to review all such subsidiary factual findings under the ‘clearly erroneous’ standard.”²³⁹ In doing so, the Supreme Court noted the obvious and vindicated Judge Mayer’s dissents in *Cybor* and *Phillips*: “A

²³² *Id.* at 1296.

²³³ The dissent contended that the *Cybor* approach “misapprehends the Supreme Court’s guidance, contravenes the Federal Rules of Civil Procedure, and adds considerable uncertainty and expense to patent litigation.” *Id.* at 1297 (addressing *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448).

²³⁴ *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 836 (2015).

²³⁵ *Id.*

²³⁶ *Id.*

²³⁷ *Id.* at 842.

²³⁸ *Id.* at 838.

²³⁹ *Id.*

district court judge who has presided over, and listened to, the entirety of a proceeding has a comparatively greater opportunity to gain that familiarity than an appeals court judge who must read a written transcript or perhaps just those portions to which the parties have referred.”²⁴⁰

De novo review is therefore gone when the District Court conducts a subsidiary fact finding, and a new claim construction era has begun based upon a more realistic interpretation of claim construction. The established and now comfortable proceedings based on *Vitronics* and *Philips* no longer apply, and new procedures and new strategies will have to be developed. Yet the Supreme Court left the door open for the Federal Circuit to cling to its old practices, when it limited its ruling to circumstances where a district court examines extrinsic evidence, especially expert testimony. “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*.”²⁴¹ Just how the interplay between extrinsic and intrinsic evidence will occur after *Teva* remains to be seen. For now, two decades of unrealistic treatment of extrinsic evidence have been relegated to the compost heap.

CONCLUSION

As Yogi Berra aptly stated, “It’s tough to make predictions, especially about the future.” *Teva* has upset the applecart, and long-established claim construction precedent now has questionable value. Recognizing that the uncertainty is great, the following results appear likely in the future of claim construction:

First, the Federal Circuit will do all it can to preserve its de novo precedent. Where the district court makes no express fact findings, the Federal Circuit will decide that the trial court decision was entirely based on legal conclusion, so no deference and no

²⁴⁰ *Id.* (citing similar statements by Judge O’Malley in her *Lighting Ballast* dissent, 744 F.3d 1272, 1311 (Fed. Cir. 2014) (O’Malley, J., dissenting)).

²⁴¹ *Id.* at 841.

302 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4

“clear error” evaluation is needed. Indeed, most initial decisions rendered after *Teva* fit that mold—where the district court did not describe use of any extrinsic evidence in the district court’s decision, the Federal Circuit treated the matter as “business as usual” and evaluated the case de novo.²⁴² Litigants, however, will take an entirely different view. Experts will experience a new popularity in claim construction, both through submission of declarations and through live testimony. The Federal Circuit may well contend that de novo review is still proper when expert testimony is provided by declaration (since it can review such testimony from the same perspective as the district court), so we can expect litigants to more frequently request live testimony at hearings. Some litigants will test the limits of testimonial evidence, even by proffering inventor testimony. And wily trial judges will reduce their chance of reversal by accepting live testimony and then preparing express “findings of fact” that rely on the testimony. Regardless, experts will now have a role extending far beyond merely explaining the technology. How the rules of evidence will be applied and evaluated on appellate review is likely to vary greatly across the courts.

Second, the *Teva* rule will slowly erode the “public notice” aspect of claim construction. When the public generally and competitors specifically are unable to predict the testimony at *Markman* hearings, the fiction that claim interpretations are

²⁴² See *Cadence Pharm., Inc. v. Exela Pharmasci, Inc.*, 780 F.3d 1364, 1371 (Fed. Cir. 2015); *Mobile Ideas LLC v. Apple, Inc.*, 780 F.3d 1159, 1172–73 (Fed. Cir. 2015); *Pacing Techs., LLC v. Garmin Int’l, Inc.*, 778 F.3d 1021, 1023 (Fed. Cir. 2015); *In re Papst Licensing Digital Camera Patent Litig.*, 778 F.3d 1255, 1261 (Fed. Cir. 2015). Three early Federal Circuit cases cited the *Teva* standard but did not commit to using the “clear error” standard. See *Enzo Biochem, Ind. v. Applera Corp.*, 780 F.3d 1149, 1155–56 (Fed. Cir. 2015); *Warsaw Orthopedic, Inc. v. NuVasive, Inc.*, 778 F.2d 1365, 1369 (Fed. Cir. 2015); *Fenner Inv., Ltd. v. Cellco P’ship*, 778 F.3d 1320, 1322 (Fed. Cir. 2015). Two early Federal Circuit cases found a justification to follow de novo review despite the presence of some extrinsic facts. See *Vasudevan Software, Inc. v. Microstrategy, Inc.*, 782 F.3d 671, 680–81 (Fed. Cir. 2015) (district court’s use of stipulation from another litigation did not prevent de novo review); *Eidos Display, LLC v. AU Optronics Corp.*, 779 F.3d 1360, 1365 (stating that extrinsic evidence considered by district court was immaterial because the intrinsic record is clear).

2015]

MARKMAN *TWENTY YEARS LATER:*
TWENTY YEARS OF UNINTENDED CONSEQUENCES

303

predictable from the intrinsic evidence will fade. We can, however, expect the Federal Circuit to use the need for public notice to justify limits on testimony—limits that are not now apparent.”

Teva does not address other claim construction issues. Claim construction will still occur separate from the jury’s evaluation of infringement, so the whack-a-mole problem will continue. District courts will still want to minimize their efforts, so they will retain or even expand limits on the number of claims that can be interpreted, leading to more claim interpretation arguments before juries. District courts will still construe claims as a collage, mixing the proposals of the parties with the court’s own views, preserving one of the key elements of unpredictability. And the litigants and courts will continue to argue the meaning of simple English language terms such as “or,” “on,” or perhaps even “is.” Patent claims are written in English, a language with a rich variety of meaning for most every term. Uncertainty will continue to prevail.

304 WASHINGTON JOURNAL OF LAW, TECHNOLOGY & ARTS [VOL. 10:4