

UNIFYING *MARKMAN* AND *WARNER-JENKINSON*:  
A REVISED APPROACH TO THE  
DOCTRINE OF EQUIVALENTS

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TABLE OF CONTENTS

I. INTRODUCTION .....	186
II. <i>MARKMAN V. WESTVIEW INSTRUMENTS, INC.</i> .....	187
A. <i>The Markman Decision and the Supporting Precedent</i> ..	187
1. The District Court .....	187
2. The Federal Circuit .....	188
3. The Supreme Court .....	195
B. <i>Application of the Markman Framework</i> .....	196
1. The District Courts' Application of <i>Markman</i> .....	196
2. The Federal Circuit's Application of <i>Markman</i> .....	204
C. <i>Analysis of the Markman Decision and Subsequent Cases</i> .....	211
III. <i>WARNER-JENKINSON CO., INC. V. HILTON DAVIS CO.</i> .....	218
A. <i>The Warner-Jenkinson Decision and the Supporting Precedent</i> .....	218
1. The District Court .....	218
2. The Federal Circuit .....	219
3. The Supreme Court .....	228
B. <i>Application of the Warner-Jenkinson Framework</i> .....	234
1. The District Courts' Application of <i>Warner-Jenkinson</i> .....	234
2. The Federal Circuit's Application of <i>Warner-Jenkinson</i> .....	238
C. <i>Analysis of the Warner-Jenkinson Decision and Subsequent Cases</i> .....	243

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IV. INCONSISTENCIES BETWEEN THE <i>MARKMAN</i> AND <i>WARNER-JENKINSON</i> FRAMEWORKS: THE ROLES OF JUDGE AND JURY .	253
V. A REVISED APPROACH TO THE DOCTRINE OF EQUIVALENTS .	259
VI. CONCLUSION .....	267

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## I. INTRODUCTION

Two recent patent decisions by the United States Supreme Court, addressing claim construction and the doctrine of equivalents, respectively, have the potential to reshape several facets of patent practice, especially patent prosecution and litigation.<sup>1</sup> In *Markman v. Westview Instruments, Inc.*,<sup>2</sup> the Court held that construing the claims of a patent is a matter of law exclusively within the province of the court.<sup>3</sup> In *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*,<sup>4</sup> the Court reaffirmed the vitality of the doctrine of equivalents and reformulated the method of decision for such cases.<sup>5</sup> The Court's decisions in these cases create divergent and inconsistent analyses for literal infringement and infringement under the doctrine of equivalents. By analyzing the decisions in these cases and the precedents on which they relied, the inconsistencies between inquiries of literal infringement and infringement through the doctrine of equivalents become evident. A possible resolution of these problems involves a two-step reform. First, the courts must revise the *Markman* framework to allow a more uniform application at the district and appellate court levels. Second, the courts must also revise the doctrine of equivalents to create defined roles for the judge and jury similar to those in the literal infringement inquiry. This two-step process has the potential to remove the inconsistencies created by the *Markman* and *Warner-Jenkinson* decisions.

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1. See Thomas L. Creel, *Proving Patent Infringement*, 453 PLI/PAT 311, 315-16 (1996) (asserting that *Markman* and *Warner-Jenkinson* fundamentally changed patent litigation by changing the standards for infringement and the method by which practitioners prove infringement); see also Lawrence M. Sung, *Patent Law Decisions of the United States Court of Appeals for the Federal Circuit*, 45 AM. U. L. REV. 1529, 1534 (1996) (showing the pronounced effect of *Markman* and *Hilton Davis* on patent practice).

2. 116 S. Ct. 1384 (1996).

3. See *id.* at 1389.

4. 117 S. Ct. 1040 (1997).

5. See *id.* at 1045.

Part II reviews the *Markman* decision and the precedents used to support the decision; surveys the application of the *Markman* framework by both district courts and the United States Court of Appeals for the Federal Circuit, noting the various dilemmas facing these courts and litigants; and asserts the soundness of the *Markman* decision, while suggesting methods for alleviating the problems created by the current application of the *Markman* framework. Part III reviews the *Warner-Jenkinson* decision and the precedents used to support the decision; presents the application of the *Warner-Jenkinson* framework by both district courts and the United States Court of Appeals for the Federal Circuit; and assesses the Federal Circuit and Supreme Court decisions and the issues presented. Part IV presents the inconsistencies between the *Markman* and *Warner-Jenkinson* frameworks, and addresses the various policy considerations and the possible effects on patent practice crucial to any resolution of the divergence between these two decisions. Finally, Part V proposes a revised approach to the doctrine of equivalents designed to harmonize the inquiries used for literal infringement and infringement under the doctrine of equivalents. By making the doctrine of equivalents a matter of law for the judge, courts can reduce the confusion created by the current system with less impact on patent practice than has resulted under the current *Warner-Jenkinson* framework.

## II. *MARKMAN V. WESTVIEW INSTRUMENTS, INC.*

### A. *The Markman Decision and the Supporting Precedent*

#### 1. The District Court

Herbert Markman and Positek, Inc. sued Westview Instruments, Inc. and Althon Enterprises, Inc. alleging literal infringement and infringement under the doctrine of equivalents of United States Reissue Patent No. 33,054 for an inventory control device used by laundries and dry cleaners.<sup>6</sup> The court charged the jury with interpreting the meaning of the claims at issue, and the jury returned general interrogatories finding

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6. The claims at issue are contained in the district court opinion. See *Markman v. Westview Instruments, Inc.*, 772 F. Supp. 1535, 1536 (E.D. Pa. 1991), *aff'd in banc*, 52 F.3d 967 (Fed. Cir. 1995), *aff'd*, 116 S. Ct. 1384 (1996). The patent in suit was a reissue of U.S. Patent No. 4,550,246. See *Markman*, 52 F.3d at 971. The jury's claim construction was not explicit in the general interrogatories they returned.

infringement under their claim construction.<sup>7</sup> On September 30, 1991, Judge Katz granted the defendants' motion for judgment as a matter of law ("JMOL"), finding that the accused device did not infringe Markman's patent either literally or equivalently.<sup>8</sup> The court also noted that "claim construction is a matter of law for the court."<sup>9</sup> The court stated that a "mere dispute concerning the meaning of a term does not itself create a genuine issue of material fact."<sup>10</sup> The court concluded that plaintiffs' experts<sup>11</sup> attempted to give unusual or novel meanings to several terms in the patent.<sup>12</sup> These meanings were contrary to the customary meanings of these terms and the "obvious meaning intended by the patentee, determined from the specifications, the drawings and the file histories of the original patent and the patent-in-suit."<sup>13</sup>

## 2. The Federal Circuit

Markman and Positek, Inc. appealed to the Federal Circuit.<sup>14</sup> On November 15, 1993, the Federal Circuit ordered sua sponte that the appeal be reheard in banc, after a panel of that court had already heard oral argument.<sup>15</sup> In an opinion by Chief Judge Archer,<sup>16</sup> the court affirmed the judgment of the district court concluding that the interpretation of patent claims, an objective inquiry, is a matter of law exclusively for the court.<sup>17</sup>

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7. See *Markman*, 52 F.3d. at 973.

8. See *Markman*, 772 F. Supp. at 1538.

9. *Id.* at 1536 (citation omitted).

10. *Id.* (quoting *Becton Dickinson & Co. v. C.R. Bard, Inc.*, 922 F.2d 792, 797 (Fed. Cir. 1990)).

11. Markman presented testimony from an expert in the technology, the inventor, and a patent expert. Both the inventor and the patent expert testified as to the meaning of the claim language. See *Markman*, 52 F.3d at 973.

12. See *Markman*, 772 F. Supp. at 1536 (debating the terms "inventory," "report," and "attached to").

13. *Id.* at 1537.

14. The Federal Circuit was created on October 1, 1982, and has exclusive appellate jurisdiction in patent cases. See ROBERT L. HARMON, *PATENTS AND THE FEDERAL CIRCUIT* ix (3d ed. 1994). The court was to create uniformity in patent decisions and foster innovation. See *Markman*, 116 S. Ct. 1384, 1396 (1996) (citation omitted).

15. See *Markman*, 52 F.3d at 970 n.1.

16. See *id.* at 970 (Judges Rich, Nies, Michel, Plager, Lourie, Clevenger, and Schall joined the opinion, while Judge Bryson did not participate in the disposition).

17. See *id.* at 986. The court did not address whether the construction of means-plus-function claims under 35 U.S.C. § 112(6) (1994) is a question of law or fact. See *id.* at 977 n.8.

The Federal Circuit reasoned that reviewing "a grant of JMOL requires careful distinction between fact and law,"<sup>18</sup> because the assessment of factual findings occurs under the substantial evidence standard, while matters of law are reviewed de novo.<sup>19</sup> The court then attempted to dissect the infringement inquiry to separate law from fact. The court began with the settled doctrine that an infringement analysis is a two-step inquiry: (1) the meaning and scope of the claims at issue are determined; (2) the properly construed claims are compared to the accused device.<sup>20</sup> Markman asserted that the first step was factual, relying on a line of Federal Circuit precedent holding that disputes over the meaning of claim terms create factual issues for resolution by the fact-finder, in this case the jury.<sup>21</sup> The court reviewed the competing lines of precedent and held, relying on Federal Circuit precedent, Supreme Court precedent, and policy considerations, that claim construction is a matter of law subject to de novo review.<sup>22</sup> The court noted that the line of precedent relied on by Markman held that claim construction is ultimately a matter of law, despite the statements

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18. *Id.* at 976.

19. *See id.* at 975 (citing *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 821 (Fed. Cir. 1992) and numerous other cases).

20. *See id.* at 976 (citing *Read*, 970 F.2d at 821). The Federal Circuit has traditionally used this two-part inquiry to test literal infringement.

21. *See id.* at 973-74. In *McGill v. John Zink Co.*, 736 F.2d 666, 672 (Fed. Cir. 1984), the Federal Circuit stated that if extrinsic evidence is necessary to construe a disputed claim term, claim construction could be left to the jury. *McGill* was based on a prior decision in which claim construction was left to the jury as part of the infringement inquiry, *see Envirotech Corp. v. Al George, Inc.*, 730 F.2d 753, 757 (Fed. Cir. 1984). The practice of submitting claim construction to the jury continued based on *McGill* and *Envirotech*. *See Moeller v. Ionetics, Inc.*, 794 F.2d 653, 657 (Fed. Cir. 1986) (underlying fact disputes on extrinsic evidence needed to construe disputed claims may preclude summary judgment); *Bio-Rad Labs. Inc. v. Nicolet Instrument Corp.*, 739 F.2d 604, 613, 615 (Fed. Cir. 1984) (allowing the jury to construe claims if adequately instructed); *see also Perini Am. v. Paper Converting Mach. Co.*, 832 F.2d 581, 584 (Fed. Cir. 1987) (resolving disputed claim terms is a question of fact); *Palumbo v. Don-Joy Co.*, 762 F.2d 969, 974 (Fed. Cir. 1985) (finding that when extrinsic evidence is needed to construe a disputed claim term, a fact issue arises that should be left to the jury). This line of precedent culminated in *Tol-O-Matic, Inc. v. Proma Produkt-Und Mktg. Gesellschaft*, 945 F.2d 1546 (Fed. Cir. 1991), which held that when a "claim is unclear, subject to varying interpretations, or ambiguous, the jury may interpret the term en route to deciding the issue of infringement." *Id.* at 1550 (citing numerous Federal Circuit decisions to support this proposition).

22. *See Markman*, 52 F.3d at 976-79.

suggesting factual elements.<sup>23</sup> The court then explored the competing line of precedent holding that claim construction is strictly a matter of law for the judge.<sup>24</sup> The court noted that Supreme Court precedent supported the holding that claim construction is purely a legal matter,<sup>25</sup> stating that "[i]t has long been and continues to be a fundamental principle of American law that 'the construction of a written evidence is exclusively with the court.'"<sup>26</sup> Based on the statutory requirements, the court then ruled that patents are fully integrated written instruments.<sup>27</sup> Furthermore, the court believed the holding would allow competitors to determine the scope of the patentee's rights *ex ante* from the patent and

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23. See *Moeller*, 794 F.2d at 656 (stating claim construction is a matter of law); *Bio-Rad Labs.*, 739 F.2d at 615 (explaining that claim construction, a matter of law, may be submitted to the jury with adequate instructions); *McGill*, 736 F.2d at 672 (stating that "determination of the scope of the claims is a matter of law"); *Envirotech*, 730 F.2d at 758 (explaining that a patented invention is defined by claims as a matter of law); see also *Tol-O-Matic*, 945 F.2d at 1550 (stating claim construction is a matter of law with underlying factual issues); *Perini Am.*, 832 F.2d at 584 (stating "[t]hat a claim must be interpreted in a certain way is a conclusion of law"); *Palumbo*, 762 F.2d at 974 (stating that claim construction is a matter of law).

24. See *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 986 (Fed. Cir. 1988) (finding that claim interpretation is a matter of law and the reviewing court need not defer to the district court); see also *Read*, 970 F.2d at 822 (determining that claim construction is a matter of law for the court); *Intellicall, Inc. v. Phonometric, Inc.*, 952 F.2d 1384, 1387 (Fed. Cir. 1992) (finding that claim construction is a matter of law and disagreement over the meaning of a claim term does not necessarily create a factual dispute precluding summary judgment); *Senmed, Inc. v. Richard-Allen Med. Indus., Inc.*, 888 F.2d 815, 818 (Fed. Cir. 1989) (stating that claim construction is a matter of law that may be submitted to the jury if the judge insures that the law is correctly applied); *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1118 (Fed. Cir. 1985) (holding that claim construction is a matter of law with *de novo* review); *Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565, 1569 (Fed. Cir. 1983) (holding that the determination of what is patented is a matter of law); *SSIH Equip. v. United States Int'l Trade Comm'n*, 718 F.2d 365, 376 (Fed. Cir. 1983) (stating that the scope of what is patented is a question of law).

25. See *Silsby v. Foote*, 55 U.S. 218, 225 (1852) (stating that "construction of the claim was undoubtedly for the court"); see also *Winans v. Denmead*, 56 U.S. 330, 338 (1853) (holding that the determination of the thing patented is a question of law for the court; cf. *Heald v. Rice*, 104 U.S. 737, 749 (1881) (suggesting that when extrinsic evidence is necessary to construe patent claims, factual issues arise).

26. *Markman*, 52 F.3d at 978 (quoting *Levy v. Gadsby*, 7 U.S. (3 Cranch) 180, 186 (1805) (Marshall, C.J.) (additional citations omitted)).

27. See *id.* Section 112 requires that a patent contain a written description enabling any person in the relevant art to make and use the invention. See 35 U.S.C. § 112 (1994). The patent must contain claims "particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." *Id.*

prosecution history, while providing patentees the opportunity to gain a permanent definition of rights.<sup>28</sup>

The court next considered the evidence relevant to determining the meaning of claim language, and found the claims, specification, and prosecution history to represent the three main sources that elucidate claim meaning.<sup>29</sup> The court also has the discretion to allow extrinsic evidence<sup>30</sup> to explain the technology or clarify the meaning of scientific terms, but the court need not permit such evidence and cannot use it to contradict or vary the terms of the claims.<sup>31</sup> The court explicitly stated that this inquiry did not require the judge to credit some evidence over other evidence or to make factual findings; the court simply uses extrinsic evidence to assist in the construction of a fully integrated written document.<sup>32</sup> Claim construction "ordinarily can be accomplished by the court in framing its charge to the jury, but may also be done in the context of dispositive motions such as those seeking judgment as a matter of law."<sup>33</sup> While the court provided this general statement, no guidance was given on the proper time for the judge to determine the

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28. See *Markman*, 52 F.3d at 978-79. This asserted policy rationale is at odds with the Federal Circuit's disposition of several appeals. See *infra* notes 130-34 and accompanying text.

29. See *Markman*, 52 F.3d at 979 (citing *Unique Concepts, Inc. v. Brown*, 939 F.2d 1558, 1561 (Fed. Cir. 1991) (additional citations omitted)). The court of appeals restated several settled rules of construction clarifying these sources of claim meaning. For example, the district court must read the claims of a patent in view of the specification. The written description may act as a "dictionary" to define and explain the claim language. The patentee is free to be his own lexicographer, but absent a clearly delineated special meaning, claim language will receive its ordinary meaning. See *Markman*, 52 F.3d at 979-80 (citations omitted). The court of appeals further stated that the prosecution history is the "'undisputed public record' of proceedings in the Patent and Trademark Office" and the court may use it if in evidence. *Id.* at 980. However, the district court cannot use the prosecution history to alter the limitations of the claims. See *id.*

30. See *id.* at 980 (describing extrinsic evidence as including dictionaries, treatises, and expert and inventor testimony).

31. See *id.* at 980-81 (citing several precedents for the role of extrinsic evidence). "It is not ambiguity in the document that creates the need for extrinsic evidence but rather unfamiliarity of the court with the terminology of the art to which the patent is addressed." *Id.* at 986.

32. See *id.* at 981.

33. *Id.*

claim meaning.<sup>34</sup> The court upheld the district court's claim construction after de novo review.<sup>35</sup>

The court next addressed Seventh Amendment concerns.<sup>36</sup> The court believed that making one part of the infringement inquiry a matter of law did not encroach the right to a jury trial on the issue of infringement.<sup>37</sup> This assertion was consistent with the two-step inquiry for literal infringement. Utilizing an analogy to statutory interpretation, the court found that construction of patent claims can have only one correct interpretation that applies to all persons.<sup>38</sup> The court believed its approach preserved the right to a jury trial on infringement as the right existed at the time of the adoption of the Seventh Amendment.<sup>39</sup>

In a spirited concurrence, Judge Mayer chided the majority for attempting to remove juries from patent litigation:

Today the court jettisons more than two hundred years of jurisprudence and eviscerates the role of the jury preserved by the Seventh Amendment of the Constitution of the United States; it marks a sea change in the course of patent law that is nothing short of bizarre. Sadly, this decision represents a secession from the mainstream of the law. It portends turbulence and cynicism in patent litigation. For this is not just about claim language, it is about ejecting juries from infringement cases. All these pages and all these words cannot camouflage what the court well knows: to decide what the claims mean is nearly always to decide the case.

But today's action is of a piece with a broader bid afoot to essentially banish juries from patent cases altogether. If it succeeds juries will be relegated, in

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34. This is a principal source of confusion in the application of *Markman* by the district courts. See *infra* notes 81-94 and accompanying text. In *Markman*, the trial judge did not construe the claims until the JMOL motion, but the court found this to be harmless error. See *Markman*, 52 F.3d at 981-82.

35. See *id.* at 982.

36. See *id.* at 984. The Seventh Amendment provides that "[i]n Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved." U.S. CONST. amend. VII. See *infra* note 59.

37. See *Markman*, 52 F.3d at 984. No case was provided in dissent to show that claim construction was a factual issue in or prior to 1791. It is important to note that significant differences in the patent law may have rendered this search fruitless. See *id.*

38. See *id.* at 987.

39. See *id.* at 989.



those few cases where they have any presence at all, to rubber stamps, their verdicts preordained by "legal" and "equitable" determinations that brook only one "reasonable" result.<sup>40</sup>

Mayer agreed that claim interpretation is ultimately a question of law, but asserted that like other patent doctrines, claim interpretation contains underlying issues of fact.<sup>41</sup> Mayer asserted that where cases require extrinsic evidence to determine the meaning of the claims, the fact-finder must assess this evidence.<sup>42</sup> The Federal Circuit would then review these underlying factual determinations for clear error if tried to the bench and for substantial evidence to support the finding if tried to a jury.<sup>43</sup> Mayer believed the opinion of the court "obliterat[ed] the traditional, defined differences between the roles of judge and jury, and trial and appellate courts."<sup>44</sup> Pointing out that the Seventh Amendment protects the "substance of the common-law right of trial by jury,"<sup>45</sup> Mayer argued that construction of patent claims often decides the case and making claim construction a matter of law effectively denies litigants a jury trial.<sup>46</sup> Mayer asserted that no reason exists to believe judges are more competent than juries in this area, and he predicted that the decision gave the Federal Circuit the power to "do pretty much what it wants under its *de novo* trial."<sup>47</sup>

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40. *Markman*, 52 F.3d at 989 (Mayer, J., concurring).

41. *See id.* at 989-90 & n.1 (asserting that claim construction is a mixed question of law and fact similar to obviousness, anticipation, prior public use or sale, and the sufficiency of a specification's disclosure). Mayer relied on the line of precedent suggested by the plaintiff, *Markman*, and sought to distinguish the contrary line as not involving any factual issues. *See id.* at 989-90, 993-94. He further relied on Supreme Court decisions requiring the jury to resolve factual issues involved in claim construction. *See id.* at 994-95 (asserting that some Supreme Court cases cited by the majority required the jury to decide factual issues related to extrinsic evidence used as part of claim construction). He further adopted the analogy between patents and contracts, expressly rejected by the majority, to support the notion that extrinsic evidence may create factual disputes for the jury. *See id.* at 997-98.

42. *See id.* at 991.

43. *See id.*

44. *Id.* at 992.

45. *Id.* (quoting *Colgrove v. Battin*, 413 U.S. 149, 152 (1973)).

46. *See id.* at 993. Mayer noted that the question of infringement was taken from the jury whether the claim construction was done as part of granting summary judgment, JMOL, or through a charge to the jury that effectively requires a particular decision on the infringement issue. *See id.*

47. *Id.* at 993. This foreshadowing was quite accurate. *See, e.g., infra* notes 135-42 and accompanying text.

Judge Rader concurred in the judgment, noting a lack of substantial evidence supporting the asserted claim interpretation. Rader, however, believed neither side presented the issue of whether claim construction can involve subsidiary factual issues, thereby making a majority of the court's opinion unnecessary dicta.<sup>48</sup>

Judge Newman vigorously dissented, asserting that the decision "eliminated the jury right from most trials of patent infringement."<sup>49</sup> Newman agreed that claim construction is ultimately a matter of law,<sup>50</sup> but relied on Federal Circuit precedent to show that the courts had previously treated the disputed meaning of claim terms as an "underlying fact" issue.<sup>51</sup> Newman asserted that, "[a]ppellate briefs and fifteen minutes per side of attorney argument are not designed for de novo findings of disputed technologic questions."<sup>52</sup> Newman claimed that the assessment of the specification, prior art, prosecution history, scientific facts, and testimony of experts were all traditionally factual inquiries.<sup>53</sup> Most egregious, in Newman's view however, was the majority's willingness to discard the right to a jury in patent infringement cases.<sup>54</sup> Newman reached the conclusion that the majority offended the right to a jury trial in infringement actions after applying the Seventh Amendment's "historical test."<sup>55</sup> Finally, Newman attempted to distinguish the precedents relied on by the majority,<sup>56</sup> and show that trial judges possess alternative means for resolving conflicting evidence, making the framework adopted by the majority unnecessary.<sup>57</sup>

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48. See *Markman*, 52 F.3d at 998 (Rader, J., concurring).

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

50. See *id.* at 1000.

51. *Id.* at 999, 1002, 1017-21 (citing the line of cases suggesting claim construction has factual underpinnings). Judge Newman drew a distinction between claim interpretation and claim construction. See *id.* at 1000. The majority found this distinction unconvincing. See *id.* at 976 n.6.

52. *Id.* at 999. Newman further noted that the majority's holding served "to replace the trier of fact with the Federal Circuit," but doubted that this would improve the quality of decisions. *Id.* at 1003.

53. See *id.* at 1002-07 (noting also that these inquiries often involve assessing the weight and credibility of witness testimony, a traditional jury function).

54. See *id.* at 1010.

55. See *id.* at 1011 (explaining the historical test used to assess Seventh Amendment issues and the precedent on which the test is based). Newman rejected the statutory interpretation analogy adopted by the majority to support its decision. See *id.* at 1017.

56. See *id.* at 1021-25.

57. See *id.* at 1025 & n.12 (pointing out the utility of special verdicts and interrogatories to resolve technological issues).

### 3. The Supreme Court

A unanimous Supreme Court affirmed "that the construction of a patent, including terms of art within its claim, is exclusively within the province of the court."<sup>58</sup> In an opinion by Justice Souter, the Court used the "historical test"<sup>59</sup> to determine if construing claims as a matter of law violated the Seventh Amendment.<sup>60</sup> Based on this inquiry, "there is no dispute that infringement cases today must be tried to a jury, as their predecessors were more than two centuries ago."<sup>61</sup> However, in determining whether the substance of the right depended on the particular issue of claim construction, the Court found no clear answer in historical practice.<sup>62</sup> With historical evidence providing little guidance, the Court considered "both the relative interpretive skills of judges and juries and the statutory policies that ought to be furthered by allocation."<sup>63</sup> Noting that the distinction between law and fact sometimes turns on which actor is better positioned to decide the issue, the Court found judges better able to construe written instruments.<sup>64</sup> The requirement that a judge's claim construction be consistent with the document as a whole, the Court further explained, would also subsume any necessary credibility assessments.<sup>65</sup> Finally, the Court turned to

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58. *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1387 (1996). The opinion is cursory, spanning only 13 pages of the Supreme Court Reporter.

59. This two-part test first asks if the action was tried at law at the Founding or was analogous to an action that was tried at law. If the action falls into the law category, then the Court asks if the decision must go to the jury to preserve the substance of the common law right as it existed in 1791. *See id.* at 1389 (citing *Tull v. United States*, 481 U.S. 412, 417 (1987), for the first proposition).

60. *See id.*

61. *Id.* (citation omitted).

62. *See id.* at 1389-91 (finding no direct antecedent to modern claim construction in the historical sources and no decisive precedent in the closest analogy, construction of patent specifications). The Court searched the historical precedents unavailingly before turning to *Winans v. Denmead*, 56 U.S. 330, 338 (1853), to support the practice of judges in construing patents. *See Markman*, 116 S. Ct. at 1391-92. *Winans* used the two-part test to determine infringement. In that case, Justice Curtis held that step one, construing the patent, was for the court, while step two, determining infringement, was a question of fact for the jury. *See id.* at 1393 (citing *Winans*, 56 U.S. at 338).

63. *Markman*, 116 S. Ct. at 1393.

64. *See id.* at 1395. The Court noted that patents have become highly technical and that the form of these documents is guided by specialized doctrines. Judges, with training and experience, are better able to construe these documents. *See id.*

65. *See id.* (stating that the jury's ability to make credibility determinations is much less significant than the judge's ability to evaluate the testimony in light of the overall structure of the patent).

uniformity as a basis for its ruling and asserted that the need for a uniform construction of patents favors construction by courts.<sup>66</sup> The Court believed this uniformity would foster invention by apprising the public of the scope of the patentee's right to exclude.<sup>67</sup>

### B. Application of the Markman Framework

The analysis of the *Markman* decision and its possible implications is enhanced by noting how both the district courts and the Federal Circuit have applied and adapted their claim construction inquiries post-*Markman*.

#### 1. The District Courts' Application of *Markman*

District courts have adhered to the ruling that claim construction is a matter of law for the judge.<sup>68</sup> These courts have had difficulty in determining when and by what inquiry courts should construe claims.<sup>69</sup> These same courts have also struggled with the evidence available to construe claims and the methods for assessing this evidence.<sup>70</sup>

The greatest problem facing district courts post-*Markman* is when the court should construe the claims. In *Elf Atochem North America, Inc. v. Libbey-Owens-Ford Company, Inc.*,<sup>71</sup> a case decided after the

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66. *See id.* at 1396 (explaining that this same focus on uniformity led to the creation of the Federal Circuit to foster technological growth and innovation).

67. *See id.* (asserting that jury decisions would foster no uniformity, while decisions made by the trial judge would foster intrajurisdictional uniformity by stare decisis, although not assuring interjurisdictional uniformity). The Court implied that interjurisdictional uniformity would result from appeal to a single appeals court, the Federal Circuit. *See id.*

68. *See, e.g.,* GMI Holdings, Inc. v. Stanley Door Sys., Inc., 943 F. Supp. 1420, 1426 (N.D. Ohio 1996); Weatherchem Corp. v. J.L. Clark, Inc., 937 F. Supp. 1262, 1278 (N.D. Ohio 1996); Penederm, Inc. v. Alzo, Inc., No. C 95-1222-FMS, 1996 WL 724766, at \*1-2 (N.D. Cal. Dec. 6, 1996); Elf Atochem N. Am., Inc. v. Libbey-Owens-Ford Co., 894 F. Supp. 844, 850 (D. Del. 1995); Lucas Aerospace, Ltd. v. Unison Indus., L.P., 890 F. Supp. 329, 333, 341-42 (D. Del. 1995).

69. *See Lucas Aerospace*, 890 F. Supp. at 332 n.3 (noting the difficulty of construing claims after the close of evidence, but prior to instructing the jury); *see also Elf Atochem*, 894 F. Supp. at 850 (providing three options for the timing and method of claim construction). *See infra* notes 90-108 and accompanying text.

70. *See, e.g., Lucas Aerospace*, 890 F. Supp. at 333 n.7 (holding that trial judges weigh evidence and assess the credibility of experts in construing claims); *Elf Atochem*, 894 F. Supp. at 860 (use of prior art to construe claims may infringe right to a jury trial on infringement). *See infra* notes 101-08 and accompanying text.

71. 894 F. Supp. 844 (D. Del. 1995).

Federal Circuit's *Markman* decision but prior to affirmance by the Supreme Court, the court held an evidentiary hearing to resolve the disputed meaning of various claim terms.<sup>72</sup> Both sides moved for summary judgment based on their asserted claim constructions.<sup>73</sup> Judge McKelvie noted that prior to *Markman* the court would interpret patent claims without the jury where the meaning was unambiguous, but would leave disputed meanings to the jury for judgment based on "the evidence including the credibility and bias of the expert witnesses."<sup>74</sup> The judge noted that the Federal Circuit left district courts unsure of how to apply the *Markman* framework:

The "obligation" created by the Federal Circuit . . . basically leaves a district court with three options. The court can attempt to resolve these [claim construction] disputes on the paper record. Second, the court can hold a trial to resolve the disputes. Finally, the court can wait until trial and attempt to resolve claim disputes the evening before the jury must be instructed.<sup>75</sup>

The court then discussed several implications of the *Markman* decision. Litigants, as in this case, would likely seek an early resolution of the claim construction issues either under Rule 56 or Rule 12(b)(6) of the Federal Rules of Civil Procedure.<sup>76</sup> In a bench trial, the judge could stay claim construction until the presentation of all the evidence. However, in a jury trial, delay might raise serious problems. It might be more practical and efficient to put the claim construction in a position for appellate review prior to a jury trial, in order to avoid a trial under an erroneous claim construction. However, placing claim construction in a position for appellate review prior to a jury trial, could add excessive delay and expense to infringement proceedings.<sup>77</sup> The court also

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72. See *id.* at 846, 850 (noting that the two-day evidentiary hearing tried to the bench was held prior to a scheduled ten-day jury trial on the issue of infringement).

73. See *id.* at 848 (noting both parties relied on "the patent, technical dictionaries, chemistry textbooks, statements by witnesses in depositions, and affidavits by technical expert witnesses").

74. *Id.* at 849.

75. *Id.* at 850.

76. Rule 56 addresses summary judgment and Rule 12(b)(6) addresses motions to dismiss for failure to state a claim on which relief can be granted. See FED. R. CIV. P. 12(b)(6), 56.

77. See *Elf Atochem*, 894 F. Supp. at 857 (noting that litigants would probably seek immediate interlocutory appeal to the Federal Circuit once the district court ruled on claim construction issues).

reiterated the dissenting view in *Markman* that the determination of claim construction often resolves the issue of infringement.<sup>78</sup> The court then determined the meaning of the disputed claims.<sup>79</sup>

Other district courts have confronted this problem in varying ways depending on the procedural motions raised by the parties (i.e., preliminary injunction or summary judgment) and the nature of the trial (i.e., bench trial or jury trial). Courts addressing motions for preliminary injunctions have ruled that the claim constructions are only binding for those proceedings and are subject to change in later proceedings.<sup>80</sup> In the wake of *Markman*, litigants use summary judgment to gain a binding claim construction early in the proceedings and establish a decision for possible appellate review.<sup>81</sup> Courts have found that in many instances literal infringement collapses into a legal inquiry amenable to summary judgment when the only dispute is the construction of the patent claims.<sup>82</sup> Thus, *Markman* has made literal infringement more amenable

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78. See *id.* at 859.

79. See *id.* at 862. The court looked to the patent claims, the specification, the prosecution history, expert testimony, and other extrinsic evidence to determine the meaning of the claims. However, the court excluded prior art as a source of claim meaning. See *id.* at 859. In *Markman*, the Federal Circuit did not address the use of prior art as a source of claim meaning.

80. See, e.g., *Circle R, Inc. v. Smithco Mfg., Inc.*, 919 F. Supp. 1272, 1295 (N.D. Iowa 1996) (stating that the court need not construe claims "conclusively and finally" during a preliminary injunction hearing). Some courts have conducted a thorough inquiry into claim construction at preliminary injunction hearings and relied on those constructions during later proceedings. See, e.g., *American Permahedge, Inc. v. Barcana, Inc.*, 901 F. Supp. 155, 159-60 (S.D.N.Y. 1995).

81. See, e.g., *Moll v. Northern Telecom, Inc.*, No. CIV.A.94-5421, 1996 WL 11355, at \*1 (E.D. Pa. Jan. 3, 1996) (resolving remaining claim construction issues and granting summary judgment of noninfringement); *Hydraflow v. Enidine, Inc.*, 907 F. Supp. 639, 643, 648 (W.D.N.Y. 1995) (construing claims and granting summary judgment for defendant); *Edward Lowe Indus., Inc. v. Oil-Dri Corp. of Am.*, No. 94 C 7568, 1995 WL 632043, at \*8 (N.D. Ill. Oct. 25, 1995) (construing claims and granting partial summary judgment); see also Don W. Martens & Stephen S. Korniczky, *Proving Infringement in View of Markman v. Westview Instruments, Inc. and Hilton Davis Chemical Co. v. Warner-Jenkinson Co.: Who Does What and When?*, at 9 (1995) (unpublished manuscript, Knobbe, Martens, Olson & Bear, Newport Beach, CA) (suggesting summary judgment as a way of obtaining early claim construction). Avenues of appellate review of claim constructions are restricted because the Federal Circuit will not review a claim construction absent a binding decision. See *infra* notes 113-18.

82. See, e.g., *MHB Indus. Corp. v. Dennis Garberg & Assocs.*, No. CIV. A. 95-10199-GAO, 1996 WL 461592, at \*2 (D. Mass. July 25, 1996); *Dow Corning Wright Corp. v. Osteonics Corp.*, 939 F. Supp. 65, 68 (D. Mass. 1996) (stating that credibility of witnesses regarding claim construction is a matter for the court, and when this is the only issue, literal infringement collapses into a legal issue).

to summary judgment by removing a source of factual dispute that had precluded summary resolution in the past. This has also reduced the role of the jury in patent infringement trials as the court resolves more cases on summary judgment.

Following *Markman*, several cases that had submitted claim construction to the jury were decided on summary judgment after remand from the Federal Circuit.<sup>83</sup> Courts have also used JMOL to reassess their earlier claim constructions and jury claim constructions done pre-*Markman*.<sup>84</sup> In light of this possible reassessment of claim constructions, courts have noted that parties cannot complain of prejudice because they failed to present evidence of infringement under other possible claim constructions.<sup>85</sup> However, inequity does arise from the Federal Circuit's inconsistent policy of remand when it modifies a district court's claim construction.<sup>86</sup>

The most interesting construction created by district courts to address the timing of claim construction is the advent of the "Markman hearing," as in the typical case, *Elf Atochem*. These are usually evidentiary hearings conducted at an early stage of the proceedings, prior to both summary judgment decisions and jury trial, for the sole purpose of construing the claims.<sup>87</sup> However, some courts have delayed these

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83. See, e.g., *Dow Corning Wright*, 939 F. Supp. at 71 (granting summary judgment on remand without a new trial).

84. See, e.g., *Johns Hopkins Univ. v. Cellpro*, 931 F. Supp. 303, 317, 328 (D. Del. 1996) (following a jury trial, the court revised its prior claim construction granting partial JMOL and a retrial on the infringement issues); *CVI/Beta Ventures, Inc. v. Tura, L.P.*, 905 F. Supp. 1171, 1175 (E.D.N.Y. 1995) (upholding a jury verdict for plaintiffs based on de novo claim construction, despite not having previously construed the claims as a matter of law in this pre-*Markman* case).

85. See, e.g., *Lucas Aerospace, Ltd. v. Unison Indus.*, 899 F. Supp. 1268, 1278 (D. Del. 1995) (leaving claim construction to the jury pre-*Markman*); *Texas Instruments, Inc. v. Cypress Semiconductor Corp.*, No. CIV. 3:90-CV-1590-H, 1995 WL 811944, at \*2, \*12 (N.D. Tex. Aug. 28, 1995) (granting partial JMOL to defendant after jury verdict for plaintiff, noting that the plaintiff was on notice of defendant's proffered claim construction and chose not to present evidence of infringement under this possible construction). In *Lucas Aerospace*, the court construed the claims as a matter of law after *Markman* and entered judgment for defendant. On motions for JMOL by both parties, the court ruled for defendant noting that plaintiff chose not to present evidence of infringement under defendant's proffered claim construction, knowing that the court might adopt this construction. The plaintiff cannot now complain for its own choice of evidence. See *Lucas Aerospace*, 899 F. Supp. at 1278. These arguments are similar to the Federal Circuit arguments in notes 134-41 and accompanying text.

86. See *infra* notes 127-34 and accompanying text.

87. See, e.g., *Thorn EMI N. Am., Inc. v. Intel Corp.*, 936 F. Supp. 1186, 1189 (D. Del. 1996) (holding two evidentiary hearings to allow claim construction prior to trial or motions for summary judgment).

hearings until the close of evidence in both jury and bench trials. These Markman hearings raise additional problems including the scope, evidence, and timing of these proceedings.

For example, in *Huang v. Auto-Shade, Inc.*,<sup>88</sup> the court held a Markman hearing, but issued a separate order on the scope of the hearing. Noting the "unsettled character" of the Markman hearing, the court chose to accept evidence on the meaning and scope of the claims and how the reissue patent compared to the original patent. The court refused to hear evidence on the issue of prosecution history estoppel, considering the issue distinct from claim construction.<sup>89</sup> Courts have used the Markman hearing to lock in claim construction and theory of liability, preventing unfair surprise to the parties.<sup>90</sup>

District courts have held the Markman hearings at various stages of cases, yet seem to agree that an early claim construction reduces the burdens on the court and the parties.<sup>91</sup> In jury trials, the Markman hearing is generally held prior to the trial,<sup>92</sup> while in a bench trial, the Markman hearing may occur prior to or as part of the infringement trial.<sup>93</sup> Some courts have chosen to rule on *Markman* issues and summary judgment simultaneously.<sup>94</sup>

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88. 945 F. Supp. 1307 (C.D. Cal. 1996).

89. *See id.* at 1308-09.

90. *See, e.g., Loral Fairchild Corp. v. Victor Co. of Japan*, 911 F. Supp. 76, 79-80 (E.D.N.Y. 1996) (Rader, J., sitting by designation). The court noted the need to police new theories of liability after the claim construction and close of discovery. The court prevented a party from changing its liability theory because of an adverse claim construction reasoning that allowing such a change would present unfair surprise to the opposing party and create a need to begin discovery anew. *See id.*

91. *See Viskase Corp. v. American Nat'l Can Co.*, No. 93 C 7651, 1996 WL 377054, at \*3 (N.D. Ill. July 1, 1996) (noting that "[t]he length of the jury trial may well be shortened significantly by having an earlier Markman hearing"); *see also Loral Fairchild*, 911 F. Supp. at 79 (stating that the court should hold a Markman hearing prior to trial, but after the close of discovery).

92. *See Huang v. Autoshade, Inc.*, 950 F. Supp. 1016, 1017 (C.D. Cal. 1997); *see also Chad Indus., Inc. v. Automation Tooling Sys., Inc.*, 938 F. Supp. 601, 603 (C.D. Cal. 1996); *HBB L.P. v. Ford Motor Co.*, No. 92 C 3287, 1996 WL 164283, at \*1-2 (N.D. Ill. Apr. 2, 1996); *Graco Children's Prods., Inc. v. Century Prods. Co., Inc.*, No. CIV. A. 93-6710, 1996 WL 39476, at \*1 (E.D. Pa. Feb. 1, 1996).

93. *See, e.g., WMS Gaming Inc. v. International Game Tech.*, No. 94 C 3062, 1996 WL 539112, at \*10 (N.D. Ill. Sept. 20, 1996) (ruling on claim construction at the close of a bench trial as part of overall decision).

94. *See P.A.T., Co. v. Ultrak, Inc.*, 948 F. Supp. 1506 (D. Kan. 1996); *see also Viskase Corp. v. American Nat'l Can Co.*, 947 F. Supp. 1200 (N.D. Ill. 1996); *Moll v. Northern Telecom, Inc.*, No. CIV. A. 94-5451, 1996 WL 11355, at \*1 (E.D. Pa. Jan. 3, 1996).



The second problem facing district courts post-*Markman* is what evidence the court should consider when constructing claims. In *Lucas Aerospace, Ltd. v. Unison Industries, L.P.*,<sup>95</sup> a case prior to the Federal Circuit's decision in *Markman*, the jury decided claim construction by special interrogatories.<sup>96</sup> After the Federal Circuit's *Markman* decision, at the request of both parties, the court revisited its decision and construed the claims as a matter of law, reaching the same conclusions as the jury on five of the eight claims at issue.<sup>97</sup> Judge Schwartz noted the practical problems of timing created by the Federal Circuit's *Markman* decision:

How does the Court construe claims as a matter of law at the close of evidence without disrupting the jury? . . . . Much of the trial testimony consisted of competing expert explanations of claim constructions. To construe the claims before giving the case to the jury requires immediate access to trial transcript, . . . rapid briefing by the parties, and hopefully an opinion by the court. . . . If the jury were sent home during this period, there is a very real chance that many of the facts important to resolving infringement issues will have been forgotten.<sup>98</sup>

The court construed the claims as a matter of law, but upheld the jury findings on infringement.<sup>99</sup> The *Lucas Aerospace* court also took issue with the Federal Circuit's characterization of the role of extrinsic evidence, finding the conclusion that the trial judge does not make credibility assessments about extrinsic evidence startling:

When two experts testify differently as to the meaning of a technical term, and the court embraces the view of one, the other, or neither while construing a patent

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95. 890 F. Supp. 329 (D. Del. 1995).

96. See *id.* at 331 n.2.

97. See *id.* at 332.

98. *Id.* at 332 n.3. The court noted that there were over 2900 pages of trial transcript and the expense of the daily trial transcript. The judge stated that experience shows that the court should avoid any jury hiatus, and that while quicker claim construction decisions may ease the problem, fairness required a longer, more deliberated decision on this important issue. See *id.*

99. See *id.* at 332-33, 341-42 (relying on the claims, specification, prosecution history, and extrinsic evidence to construe claims).

claim as a matter of law, the court has engaged in weighing evidence and making credibility determinations. . . . [W]hen the Federal Circuit Court of Appeals states that the trial court does not do something that the trial court does and must do . . . that court knowingly enters a land of sophistry and fiction. . . . [T]his opinion has been crafted in a manner that leaves the reader, and the reviewing court, uninformed as to the credibility assessments which, as always, are necessary precursors to the acceptance or rejection of testimonial evidence from competing experts.<sup>100</sup>

District courts have taken varying approaches to what evidence judges should use to construe claims, grounding their decisions in Federal Circuit precedent and canons of patent construction. Courts have used the claims, specification, and prosecution history to determine the meaning of claims, as instructed by the Federal Circuit.<sup>101</sup> However, relying on the canon of construction that the patentee may be his or her own lexicographer,<sup>102</sup> courts have had to determine if the patentee intended to give a claim term an unusual claim meaning. In so doing, courts have relied on extrinsic evidence and expert testimony when the specification and prosecution history are unclear.<sup>103</sup> These courts have noted that extrinsic evidence, (including expert and inventor testimony, dictionaries, and learned treatises), may not contradict or vary the claim terms and must be consistent with the written record evidenced by the specification and prosecution history.<sup>104</sup> Other courts have relied on the

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100. *Id.* at 333 n.7 (citation omitted). The court explicitly stated that these credibility assessments were made in evaluating all testimony and exhibits. *See id.*

101. *See, e.g., Black & Decker (U.S.) Inc. v. Universal Sec. Instruments, Inc.*, 931 F. Supp. 427, 429 (E.D. Va. 1996) (stating that claim construction begins with the claims, but court may look to the prosecution history, specification, and other claims to determine meaning); *Calmac Mfg. Corp. v. Dunham-Busli, Inc.*, 929 F. Supp. 951, 960 (E.D. Va. 1996) (court should consider claim language, specification, and prosecution history in claim construction).

102. *See* 5 DONALD S. CHISUM, CHISUM ON PATENTS § 18.03[2], at 18-43 (1997) (citing *Shelcore, Inc. v. Durham Indus., Inc.*, 745 F.2d 621 (Fed. Cir. 1984)).

103. *See, e.g., Penederm Inc. v. Alzo, Inc.*, No. C 95-1222-FMS, 1996 WL 724766, at \*1-2 (N.D. Cal. Dec. 6, 1996); *Bradshaw v. Igloo Prods. Corp.*, 912 F. Supp. 1088, 1096 (N.D. Ill.) (allowing the testimony of a nonexpert because it was helpful to the court), *rev'd in part on other grounds*, 101 F.3d 716 (Fed. Cir. 1996), *enforced*, No. 94 C 6497, 1997 WL 543109 (N.D. Ill. Sept. 2, 1997).

104. *See, e.g., GMI Holdings, Inc. v. Stanley Door Sys., Inc.*, 943 F. Supp. 1420, 1426 (N.D. Ohio 1996).

canon that the terms of a patent will receive their ordinary meaning absent evidence to the contrary to prevent resorting to extrinsic evidence and expert testimony.<sup>105</sup> Still other courts have used expert testimony to determine claim meaning, expressly stating that the court was crediting one expert over another.<sup>106</sup> Noting that claim terms receive the meaning attributed to them by one of ordinary skill in the art at the time of invention, some courts allow expert testimony for the sole purpose of determining the state of the art.<sup>107</sup> District courts have also struggled with whether to credit either parties' proffered claim construction or to adopt their own claim construction.<sup>108</sup>

Courts have also taken various stances on what evidence parties may present at a Markman hearing. While courts universally allow briefing and oral argument, expert witness testimony has received varied acceptance. Some courts have allowed expert testimony to the extent expressly permitted by the *Markman* decision.<sup>109</sup> Other courts have

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105. See, e.g., *Johns Hopkins Univ. v. Cellpro*, 931 F. Supp. 303, 310 (D. Del. 1996) (finding that claim terms could be given their ordinary meaning preventing the need for further evidence); *Baxter Diagnostics Inc. v. AVL Scientific Corp.*, 924 F. Supp. 994, 1012-14 (C.D. Cal. 1996) (allowing expert testimony that was consistent with the dictionary definition of disputed term, but rejecting testimony from patentee's attorney as entitled to no deference); *General Mills v. Hunt-Wesson, Inc.*, 917 F. Supp. 663, 669 (D. Minn. 1996) (rejecting expert testimony because the claims were clear from the specification and prosecution history); *Lovelett v. Peavey Elecs. Corp.*, No. 95 CIV. 9657 (MBM), 1996 WL 592725, at \*4 (S.D.N.Y. Oct. 16, 1996) (allowing use of a dictionary to determine the ordinary meaning of a word).

106. See, e.g., *Weatherchem Corp. v. J.L. Clark, Inc.*, 937 F. Supp. 1262, 1273 n.3 (N.D. Ohio 1996) (allowing testimony from patentee's expert and patent lawyer); see also *Lucas Aerospace, Ltd. v. Unison Indus., L.P.*, 890 F. Supp. 329, 333 n.7 (D. Del. 1995) (weighing expressly expert testimony); cf. *California Med. Prods., Inc. v. Tecnol Med. Prods., Inc.*, 921 F. Supp. 1219, 1243 (D. Del. 1995) (allowing expert testimony, but explicitly stating the credibility of this testimony was not used in the court's claim construction).

107. See, e.g., *Calmac Mfg. Corp. v. Dunham-Bush, Inc.*, 929 F. Supp. 951, 961 (E.D. Va. 1996) (noting that claim construction is an objective inquiry and that expert opinion on the state of the art may aid the claim construction inquiry).

108. Compare *Thorn EMI N. Am., Inc. v. Intel Corp.*, 936 F. Supp. 1186, 1199 (D. Del. 1996) (rejecting both parties' litigation-driven claim constructions in favor of the court's own construction), and *HBB L.P. v. Ford Motor Co.*, No. 92 C 3287, 1996 WL 164283, at \*5 (N.D. Ill. Apr. 2, 1996) (rejecting parties' proffered claim constructions in favor of judge's independent claim construction), with *Tsakanikas Global Techs., Inc. v. Uniden Am. Corp.*, No. CIV. AW-95-1012, CIV. AW-95-1881, 1996 WL 544369, at \*2 (D. Md. May 10, 1996) (adopting defendant's proffered claim construction based on the ordinary meaning of the terms at issue).

109. See *Moll v. Northern Telecom, Inc.*, No. CIV. A. 94-5451, 1996 WL 11355, at \*1 (E.D. Pa. Jan. 3, 1996) (construing some claims based on paper record and allowing expert testimony on two disputed claims); see also *Viskase Corp. v. American Nat'l Can*

stretched the role of expert testimony beyond the role expressed in *Markman*, to the point of expressly making credibility determinations.<sup>110</sup>

## 2. The Federal Circuit's Application of *Markman*

While the Federal Circuit has applied the *Markman* framework in many cases, the court has provided relatively little qualification on how to apply the doctrine. The Federal Circuit has addressed three major claim construction issues post-*Markman*: when a district court's claim construction is subject to appellate review, the role of extrinsic evidence in the claim construction inquiry, and how to dispose of cases in which the district court's claim construction is erroneous.

The Federal Circuit has refused to review district court claim constructions unless they are part of a binding resolution of the case. The Federal Circuit has implicitly agreed with district court decisions not to certify claim constructions for immediate review under 28 U.S.C. § 1292(b)<sup>111</sup> and has found that an erroneous claim construction is not grounds for mandamus.<sup>112</sup> In *Flores v. Union Pacific Railroad Co.*,<sup>113</sup> the Federal Circuit denied permission to appeal a claim construction under 28 U.S.C. § 1292(b), (c)(1), after certification by the district court,

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Co., No. 93 C 7651, 1996 WL 377054, at \*1 (N.D. Ill. July 1, 1996) (allowing expert testimony, but limiting ANC to three expert witnesses in the court's discretion); *Viskase Corp. v. American Nat'l Can Co.*, No. 93 C 7651, 1996 WL 377054, at \*1 (N.D. Ill. July 1, 1996) (allowing expert testimony, but limiting ANC to three expert witnesses in the court's discretion); *Varian Assocs. v. Lam Research Corp.*, No. C-93 20736 RPA, 1995 WL 767818, at \*3 (N.D. Cal. Dec. 22, 1995) (relying heavily on expert testimony of those skilled in the art); cf. *Huang v. Autosshade, Inc.*, 950 F. Supp. 1016, 1020 (C.D. Cal. 1997) (allowing expert testimony of a linguist to determine the ordinary meaning of a word).

110. See, e.g., *Chad Indus., Inc. v. Automation Tooling Sys., Inc.*, 938 F. Supp. 601, 604 (C.D. Cal. 1996) (allowing expert testimony and extrinsic evidence, while expressly determining the relative credibility of this evidence). This case provides a detailed framework of the procedure used for the *Markman* hearing in this case. The court also stated that the rules of evidence were not strictly applied, but evidence was excluded if an objection so merited. See *id.*

111. This section allows appellate courts to grant review of otherwise unreviewable orders in a civil case if the trial judge believes the issue presents a controlling legal question on which opinions differ, the resolution of which will advance the ultimate outcome of the case. See 28 U.S.C. § 1292(b) (1994).

112. See *In re Ceilpro, Inc.*, No. MISC. 481, 1996 WL 597805, at \*1 (Fed. Cir. Oct. 7, 1996) (unpublished decision) (denying mandamus noting that appellate review is the proper course after completion of a trial).

113. No. MISC. 474, 1996 WL 673316 (Fed. Cir. Nov. 14, 1996) (unpublished decision).

finding the appeal "not in the interest of judicial efficiency."<sup>114</sup> However, the Federal Circuit has consistently reviewed claim constructions as a part of reviewing final rejections by the United States Patent and Trademark Office ("PTO") Board of Patent Appeals and Interferences,<sup>115</sup> decisions on motions for preliminary injunctions by district courts,<sup>116</sup> rulings on motions for summary judgment by district courts,<sup>117</sup> and trial and JMOL decisions.<sup>118</sup> The Federal Circuit has found that reviewing claim constructions absent a binding resolution of the controversy does not serve judicial economy. This position prevents parties from simply appealing the district court's claim construction prior to some substantive ruling on the merits of the case.

In determining which extrinsic evidence to allow and how to assess this evidence, the Federal Circuit has presented divergent opinions since *Markman*. The Federal Circuit has often restated the *Markman* position that extrinsic evidence, including expert testimony, is valuable in aiding the court in understanding the technology at issue, but cannot be used to

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114. *Id.* at \*1.

115. See, e.g., *In re Pentel of Am., Ltd.*, No. 95-1206, 1996 WL 347730, at \*1 (Fed. Cir. June 24, 1996) (unpublished decision) (reversing PTO Board after complete and independent review).

116. See, e.g., *Yamaha Corp. v. ESS Tech., Inc.*, No. 95-1362, 1996 WL 146499, at \*2-3 (Fed. Cir. Mar. 29, 1996) (unpublished decision) (upholding denial of preliminary injunction after de novo review of claim construction); *Novo Nordisk of N. Am., Inc. v. Genentech, Inc.*, 77 F.3d 1364, 1365 (Fed. Cir. 1996) (vacating preliminary injunction after finding district court's claim construction erroneous on de novo review); *Read Corp. v. Viper Int'l, Ltd.*, No. 95-1318, 1996 WL 78317, at \*3 (Fed. Cir. Feb. 23, 1996) (unpublished decision) (upholding preliminary injunction); *Sofamor Danek Group, Inc. v. DePuy-Motech, Inc.*, 74 F.3d 1216, 1218, 1221 (Fed. Cir. 1996) (upholding denial of preliminary injunction, but stating that a district court need not conclusively construe claims on a motion for preliminary injunction). In *Sofamor*, the court also stated that *Markman* does not require a conclusive claim construction early in the case and noted the district court's prerogative to delay claim construction until a full picture of the claimed invention and prior art are submitted at trial. See *Sofamor*, 74 F.3d at 1221.

117. See, e.g., *Ambil Enters. Ltd. v. Wawa, Inc.*, 81 F.3d 1554, 1558-59 (Fed. Cir. 1996); *Ohio Cellular Prods. Corp. v. Adams USA, Inc.*, No. 96-1173, 1996 WL 732296, at \*3 (Fed. Cir. Dec. 23, 1996) (unpublished decision); *Ecolochem, Inc. v. Southern Cal. Edison Co.*, No. 95-1320, 1996 WL 297601, at \*2 (Fed. Cir. June 5, 1996) (unpublished decision).

118. See, e.g., *Kaspar Wire Works, Inc. v. K-Jack Eng'g Co., Inc.*, No. 95-1095, 95-1115, 1995 WL 662674, at \*1-2 (Fed. Cir. Nov. 9, 1995) (unpublished decision) (reviewing claim construction de novo on appeal of JMOL decision); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1578 (Fed. Cir. 1996) (reversing JMOL after de novo claim construction); *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1108 (Fed. Cir. 1996) (reversing denial of JMOL based on de novo claim construction).

contradict the written public record.<sup>119</sup> In these cases, the court first sought intrinsic evidence from the claims, specification, and prosecution history before resorting to extrinsic evidence.<sup>120</sup> The court based this position on a notice argument — allowing extrinsic evidence to alter the public record would present unfair surprise to others in the relevant field and reduce the reliability of the file wrapper. While downplaying the role of expert and inventor testimony,<sup>121</sup> the Federal Circuit has embraced the use of technical treatises, dictionaries, and prior art to determine the meaning of claim language.<sup>122</sup> In other cases, the Federal Circuit has allowed expert testimony and openly assessed the relative credibility of this evidence as part of claim construction. In *Hoechst Celanese Corp. v. BP Chemicals Ltd.*,<sup>123</sup> the court “found it necessary to rely on the evidence presented at the trial and credit certain evidence over other evidence” because the court was unqualified to determine the meaning of terms in the relevant art.<sup>124</sup> In *National Presto Industries*,

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119. See *Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc.*, 98 F.3d 1563, 1572 (Fed. Cir. 1996); *Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1405 (Fed. Cir. 1996) (giving inventor's subjective intent little to no weight in determining scope of claims except as documented in the prosecution history); *Moline Mfg. Co. v. United States Int'l Trade Comm'n*, 75 F.3d 1545, 1550 (Fed. Cir. 1996); *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1578 (Fed. Cir. 1995) (stating that extrinsic evidence cannot contradict public record based on policy of notice to competitors).

120. See, e.g., *Insituform Techs., Inc. v. Cat Contracting, Inc.*, 99 F.3d 1098, 1106 n.7 (Fed. Cir. 1996) (giving no weight to expert testimony because intrinsic evidence was sufficient to resolve any ambiguity in the claims); *Vitronics*, 90 F.3d at 1582 (noting that the court should look first to intrinsic evidence during claim construction; extrinsic evidence can be used to understand claims, but not vary or contradict claim language).

121. See, e.g., *Roton Barrier, Inc. v. Stanley Works*, 79 F.3d 1112, 1126 (Fed. Cir. 1996) (giving little weight to inventor's “after the fact” testimony relative to patent disclosure).

122. See, e.g., *Vitronics*, 90 F.3d at 1584 n.6. This case notes the special role of technical treatises and dictionaries. Judges may consult these extrinsic evidentiary sources at any time to understand the technology and claim language, absent contrary meaning in the written record. The court can admit prior art to elucidate claim meaning, even if not part of the written record. This evidence is more indicative of a generally held conception of the state of the art. See *id.*; *Ambil Enters.*, 81 F.3d at 1562 (using prior art of record during claim construction analysis).

123. 78 F.3d 1575 (Fed. Cir. 1996).

124. *Id.* at 1579. The court found general and technical dictionaries unhelpful in this case, expressly relying on photographs, experimental data, testimony of the scientists who produced and interpreted the data, and technical experts in the relevant field. The court found the inventor's expert testimony cumulative of other evidence. See *id.* at 1579-80. The court provided no justification for its express credibility determinations or reasons why the area at issue was more difficult for the court to assess than other technical fields.

*Inc. v. West Bend Co.*,<sup>125</sup> the Federal Circuit relied on expert testimony to construe the claims. The district court had found the specification and prosecution history insufficient to construe the claims and had credited the testimony of some experts over others. The Federal Circuit relied heavily on these findings in construing the claims, despite the *de novo* standard of review.<sup>126</sup>

The greatest problem facing the Federal Circuit is the disposition of cases after *de novo* review of claim construction. The Federal Circuit has attempted several possible solutions, but has failed to adopt a consistent approach. Cases in which the district court's claim construction is upheld present no problem, essentially utilizing the pre-*Markman* inquiry for review of infringement related decisions. Often the Federal Circuit affirms the district court or decides the infringement issue without remand based on the record from the district court proceedings.<sup>127</sup> The Federal Circuit often remands upon finding a lack

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125. 76 F.3d 1185 (Fed. Cir. 1996).

126. See *id.* at 1190.

127. See, e.g., *General Mills, Inc. v. Hunt-Wesson, Inc.*, 103 F.3d 978, 985 (Fed. Cir. 1997) (affirming claim construction and finding of noninfringement); *Wang Lab., Inc. v. Mitsubishi Elecs. Am., Inc.*, 103 F.3d 1571, 1583 (Fed. Cir. 1997) (affirming claim construction and finding of literal infringement); *Cole v. Kimberly-Clark Corp.*, 102 F.3d 524, 532 (Fed. Cir. 1996) (affirming claim construction and holding of noninfringement); *Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc.*, 98 F.3d 1563, 1566, 1572-73 (Fed. Cir. 1996) (affirming claim construction and holding of no literal infringement, but reversing finding of equivalence based on the record); *Minco, Inc. v. Combustion Eng'g, Inc.*, 95 F.3d 1109, 1114 (Fed. Cir. 1996) (affirming claim construction and finding of literal infringement); *Texas Instruments Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558, 1564, 1566, 1568 (Fed. Cir. 1996) (affirming claim construction and noninfringement on JMOL); *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1101 (Fed. Cir. 1996) (affirming claim construction and affirming in part and reversing in part the infringement decision); *Amhil Enters. Ltd. v. Waiwai*, 81 F.3d 1554, 1562 (Fed. Cir. 1996) (affirming claim construction and finding of no literal infringement); *National Presto Indus., Inc. v. West Bend Co.*, 76 F.3d 1185, 1190, 1192 (Fed. Cir. 1996) (affirming claim construction and jury verdict of infringement by equivalence); *Bellehumeur v. J.B. Mktg., Inc.*, No. 96-1236, 1996 WL 735597, at \*1 (Fed. Cir. Dec. 26, 1996) (unpublished decision) (affirming claim construction and judgment in part); *Bradshaw v. Igloo Prod. Corp.*, No. 96-1199, 1996 WL 663310, at \*2-4 (Fed. Cir. Nov. 15, 1996) (unpublished decision) (affirming claim construction and summary judgment of no literal infringement, but remanding on issue of infringement by equivalents); *Enforcer Prods., Inc. v. Birdsong*, No. 96-1234, 1996 WL 592161, at \*2 (Fed. Cir. Oct. 16, 1996) (unpublished decision) (affirming claim construction and infringement); *Yamaha Corp. v. ESS Tech., Inc.*, No. 95-1362, 1996 WL 146499, at \*5, 8 (Fed. Cir. Mar. 29, 1996) (unpublished decision) (affirming claim construction and denial of preliminary injunction); *Pro-Cut Int'l, Inc. v. United States Int'l Trade Comm'n*, No. 95-1230, 1996 WL 123148, at \*3 (Fed. Cir. Mar. 20, 1996) (unpublished decision) (affirming claim construction and finding of noninfringement); *Gentex Corp.*

of claim construction in the record or in the opinions of the district court.<sup>128</sup> However, the Federal Circuit has upheld jury verdicts, despite the lack of claim construction by the district court, finding substantial evidence to support the verdict under its *de novo* claim construction.<sup>129</sup>

The difficulties arise when the district court's claim construction is erroneous. In some cases the Federal Circuit has reversed the district court's claim construction, but deemed the construction error harmless

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v. Donnelly Corp., 69 F.3d 527, 530 (Fed. Cir. 1995) (affirming claim construction and summary judgment of noninfringement); Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1217, 1220 (Fed. Cir. 1995) (affirming claim construction and infringement findings); Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1573 (Fed. Cir. 1995) (affirming claim construction and grant of summary judgment of noninfringement); Duz-Mor, Inc. v. Hein-Werner Corp., No. 95-1148, 1995 WL 736839, at \*2-3 (Fed. Cir. Dec. 4, 1995) (unpublished decision) (affirming claim construction and noninfringement); Akron Polymer Container Corp. v. Exxel Container, Inc., No. 95-1023, 95-1035, 1995 WL 620148, at \*1 (Fed. Cir. Oct. 20, 1995) (unpublished decision) (affirming claim construction and summary judgment of infringement); Gussin v. Nintendo of Am., Inc., No. 95-1051, 1995 WL 460566, at \*1 (Fed. Cir. Aug. 3, 1995) (unpublished decision) (affirming claim construction and finding of noninfringement); Blumenthal v. Barber-Colman Holdings Corp., No. 93-1005, 93-1006, 1995 WL 453120, at \*2-3 (Fed. Cir. July 31, 1995) (unpublished decision) (affirming claim construction and summary judgment of noninfringement); Proportion-Air, Inc. v. Buzmatics, Inc., No. 94-1426, 1995 WL 360549, at \*1 (Fed. Cir. June 14, 1995) (unpublished decision) (affirming claim construction and bench trial decision of noninfringement); Popeil Pasta Prods., Inc. v. Creative Techs. Corp., No. 95-1017, 1995 WL 319534, at \*1 (Fed. Cir. May 26, 1995) (unpublished decision) (affirming claim construction and noninfringement).

128. See, e.g., Prince Sports Group, Inc. v. Wilson Sporting Goods Co., No. 95-1203, 95-1204, 95-1221, 1996 WL 207762, at \*2 (Fed. Cir. Apr. 26, 1996) (unpublished opinion) (vacating summary judgment and remanding because opinion contained no indication of claim construction); Imazio Nursery, Inc. v. Dania Greenhouses, 69 F.3d 1560, 1570 (Fed. Cir. 1995) (remanding for claim construction and infringement inquiry concerning plant patent because improper standard used); Graco, Inc. v. Binks Mfg. Co., 60 F.3d 785, 791 (Fed. Cir. 1995) (vacating and remanding because of omission of claim construction in district court's opinion).

129. See Wicker v. Standard Register Co., No. 95-1387, 95-1426, 1996 WL 132260, at \*1, 4 n.3 (Fed. Cir. Mar. 25, 1996) (unpublished decision). In *Wicker*, claim construction was submitted to the jury and counsel failed to object. The Federal Circuit construed the claims *de novo* and upheld a jury verdict of infringement based on substantial evidence. Cf. Laitram Corp. v. NEC Corp., 62 F.3d 1388, 1394-95 (Fed. Cir. 1995) (reversing JMOL because of erroneous claim construction and reinstating jury verdict in which jury correctly construed claims); Dow Corning Wright Corp. v. Osteonics Corp., No. 93-1282, 1995 WL 250991, at \*1 (Fed. Cir. Apr. 28, 1995) (unpublished decision) (remanding for a new trial because claim construction was submitted to the jury prior to the *Markman* decision, and noting that entry of judgment is appropriate on a JMOL review, but not on a new trial motion).



and rendered a decision based on the record below without remand.<sup>130</sup> However, when the Federal Circuit reverses a crucial part of the district court's claim construction, the court has wavered between remand and deciding the case on the record presented. Several cases have followed the suggestion in *Wiener v. NEC Electronics, Inc.*<sup>131</sup> that the proper course is to remand for a finding on infringement if the claim construction is erroneous.<sup>132</sup> The court has noted that an "[i]mproper claim

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130. See, e.g., *Wiener v. NEC Elecs., Inc.*, 102 F.3d 534, 534, 540 (Fed. Cir. 1996) (finding claim construction erroneous but harmless error, and affirming summary judgment of noninfringement based on the record). The court also noted that "[i]n most cases, upon detecting an error in claim interpretation, this court would remand for a finding on infringement." *Id.* at 540. See also *Alpex Computer Corp. v. Nintendo Co. Ltd.*, 102 F.3d 1214, 1218-20 (Fed. Cir. 1996) (finding district court's claim construction incorrect and reversing denial of JMOL of noninfringement); *In re Pentel of Am., Ltd.*, No. 95-1206, 1996 WL 347730, at \*3 (Fed. Cir. Jun. 24, 1996) (unpublished decision) (reversing PTO Board of Patent Appeals and Interferences's claim construction and final rejection); *Mason v. Tampa G Mfg. Co.*, No. 95-1184, 1995 WL 605556, at \*4-5 (Fed. Cir. Oct. 12, 1995) (unpublished decision) (reconstructing claims de novo, but affirming summary judgment of noninfringement under proper claim construction); *Ramos v. Biomet, Inc.*, No. 94-1004, 94-1129, 1995 WL 540291, at \*2-3 (Fed. Cir. Sept. 8, 1995) (unpublished decision) (finding district court's claim construction error harmless and upholding infringement by equivalents based on the record); *Alan Tracy, Inc. v. Trans Globe Imports, Inc.*, No. 94-1205, 94-1381, 1995 WL 331109, at \*3 (Fed. Cir. June 2, 1995) (unpublished decision) (finding district's court claim construction in error and reversing bench trial holding of infringement); *Regent Lighting Corp. v. FL Indus., Inc.*, No. 94-1162, 1995 WL 331122, at \*4-5 (Fed. Cir. June 2, 1995) (unpublished decision) (holding district court's claim construction erroneous; but finding patent invalid based on the record).

131. 102 F.3d 534 (Fed. Cir. 1996).

132. These cases show the concrete reality of the insight expressed in *Elf Atochem* that de novo review means "the entire case could be remanded for retrial on different claims." *Elf Atochem N. Am. v. Libbey-Owens-Ford Co., Inc.*, 894 F. Supp. 844, 857 (D. Del. 1995). See *York Prods., Inc. v. Central Tractor Farm & Family Center*, 99 F.3d 1568, 1569 (Fed. Cir. 1996) (revising trial court's claim construction and remanding on infringement); *Insituform Techs., Inc. v. Cat Contracting, Inc.*, 99 F.3d 1098, 1101, 1109 (Fed. Cir. 1996) (vacating JNOV holding of infringement by equivalents due to erroneous claim construction and remanding for new findings regarding equivalents); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1578 (Fed. Cir. 1996) (finding district court's claim construction erroneous, reversing JMOL of noninfringement and remanding on infringement); *Modine Mfg. Co. v. United States Int'l Trade Comm'n*, 75 F.3d 1545, 1549 (Fed. Cir. 1996) (finding claim construction erroneous and remanding on infringement issue); *Novo Nordisk of N. Am., Inc. v. Genentech, Inc.*, 77 F.3d 1364, 1365 (Fed. Cir. 1996) (vacating preliminary injunction due to erroneous claim construction); *Warminster Fiberglass Co., Inc. v. Delta Fiberglass Structures, Inc.*, No. 96-1113, 96-1110, 1996 WL 658835, at \*1-2 (Fed. Cir. Nov. 14, 1996) (unpublished decision) (upholding bench decision of no infringement by equivalents after remand due to erroneous claim construction); *In re Burke*, No. 95-1145, 1996 WL 137527, at \*2

construction can distort the entire infringement analysis."<sup>133</sup> In certain cases remand was unnecessary, despite the erroneous claim construction, because other findings were upheld under the de novo claim interpretation.<sup>134</sup>

Yet in other cases of erroneous claim construction, the Federal Circuit has construed the claims de novo and decided the infringement issue on the record rather than remanding for infringement findings by the district court.<sup>135</sup> The court has rejected objections that this process denies litigants the right to a jury trial on infringement under the correct claim interpretation. *Exxon Chemical Patents, Inc. v. Lubrizol Corp.*<sup>136</sup> provides a striking example of the Federal Circuit deciding a case on the record before the court after de novo review revealed an erroneous claim construction. The Federal Circuit reversed a jury verdict of literal infringement.<sup>137</sup> On de novo review, the Federal Circuit rejected the trial court's adoption of Exxon's proffered claim construction, finding that construction incorrect and the construction offered by Lubrizol only partly correct.<sup>138</sup> The court found it proper to rule on infringement based on the evidence of record, noting that Exxon was on notice of Lubrizol's proposed claim construction from the beginning of the trial.<sup>139</sup> Emphasizing Exxon's failure of proof and Exxon's notice of the possibility of alternative claim constructions, the court added:

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(Fed. Cir. Mar. 27, 1996) (unpublished decision) (reversing summary judgment because of erroneous claim construction); *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 299, 304 (Fed. Cir. 1995) (reversing and remanding infringement finding due to erroneous claim construction); *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 616 (Fed. Cir. 1995) (vacating summary judgment of noninfringement and remanding because of partially incorrect claim construction).

133. *Burke*, 1996 WL 137527, at \*4 (quoting *Key Mfg. Group, Inc. v. Microdot, Inc.*, 925 F.2d 1444, 1448 (Fed. Cir. 1991)).

134. See, e.g., *Herr-Voss Corp. v. Delta Brands, Inc.*, No. 96-1022, 1996 WL 651688, at \*3-6 (Fed. Cir. Nov. 8, 1996) (unpublished decision) (finding district court's claim construction erroneous and vacating noninfringement holding, but affirming invalidity).

135. See, e.g., *General Am. Transp. Corp. v. Cryo-Trans, Inc.*, 93 F.3d 706, 767 (Fed. Cir. 1996), cert. denied, 177 S. Ct. 1334 (1997) (finding the district court's claim construction erroneous; but deciding the infringement issue rather than remanding); *Transmatic, Inc. v. Gulton Indus., Inc.*, 53 F.3d 1270, 1277-78 (Fed. Cir. 1995) (finding the district court's claim construction erroneous and finding literal infringement based on the record contrary to the district court's holding of no literal infringement).

136. 64 F.3d 1553 (Fed. Cir. 1995), reh'g denied and reh'g in banc denied, 77 F.3d 450 (Fed. Cir. 1996).

137. See *id.* at 1555.

138. See *id.*

139. See *id.* at 1558-59 (noting that Exxon presented evidence of infringement under both constructions).

When we determine on appeal, as a matter of law, that a trial judge has misinterpreted a patent claim, we independently construe the claim to determine its correct meaning, and then determine if the facts presented at trial can support the appealed judgment. If not, we reverse the judgment below without remand for a second trial on the correct law.<sup>140</sup>

In dissent, Judge Nies noted that the majority opinion required Exxon to litigate infringement under not only its own and Lubrizol's proffered claim constructions, but also the unknowable position of the Federal Circuit. She asserted this denied Exxon a jury trial under the correct claim construction.<sup>141</sup> In the denial of rehearing in banc in this case, Judge Mayer noted that after *Markman*, claim construction turns more on the meaning adopted by the Federal Circuit panel than on the record or the parties' theories of the case.<sup>142</sup>

### C. Analysis of the *Markman* Decision and Subsequent Cases

While several commentators and judges have criticized the *Markman* decisions by both the Federal Circuit and the Supreme Court, these decisions are best seen as a logical extension, resolving seemingly divergent lines of Federal Circuit precedent. Despite the line of Federal Circuit precedent suggesting that claim construction may contain factual elements (and similar suggestions in Supreme Court precedent),<sup>143</sup> the

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140. *Id.* at 1560.

141. *See id.* at 1569. Judge Nies also noted that Exxon had only dropped the jury instruction on infringement by equivalents after the court had adopted its claim construction. Finding Exxon had not waived this issue under a new claim construction, Nies also believed the majority had denied Exxon a jury trial on equivalence. *See id.* at 1570. Judge Newman agreed that remand on the infringement issue was proper. *See Exxon*, 77 F.3d at 457 (Newman, J., dissenting from the denial of rehearing in banc).

142. *See Exxon*, 77 F.3d at 451 (Mayer, J., concurring) (commenting on the "mischief" caused by *Markman*).

143. *See* Paul N. Higbee, Jr., *The Jury's Role in Patent Cases: Markman v. Westview Instruments, Inc.*, 3 J. INTELL. PROP. L. 407, 424 (1996) (suggesting that making claim construction a matter for the judge will not produce better results); Gregory D. Leibold, Comment, *In Juries We Do Not Trust: Appellate Review of Patent-Infringement Litigation*, 67 U. COLO. L. REV. 623, 647 (1996) (asserting that *Markman* causes more harm than good); Scott A. Lund, Comment, *Patent Infringement and the Role of Judge and Jury in Light of Markman and Hilton Davis*, 21 J. CORP. L. 627, 643 (1996) (*Markman* failed to recognize the credibility determinations that are the factual underpinnings of claim construction); Jason Scully, Comment, *Markman and Hilton Davis, The Federal Circuit Strikes an Awkward Balance: The Roles of the Judge and*

overwhelming majority of precedent suggests that courts have always construed claims as a matter of law.<sup>144</sup> The *Markman* decisions serve to clarify these apparently diverging lines of precedent; but the role of extrinsic evidence, the timing of the claim construction inquiry, and the treatment of erroneous claim constructions remain unresolved.

The Federal Circuit's reliance on the policies of uniformity and notice to competitors further support the decision.<sup>145</sup> More importantly, these policy considerations coalesce with the statutory requirements of patent law, which require an inventor to clearly describe and distinctly claim the invention.<sup>146</sup> These statutory requirements serve the notice function, requiring the patentee to provide the public with an enabling description of the invention and make distinct claims informing the public of the scope of the patentee's exclusive rights to use, make, and sell the invention.<sup>147</sup> The analogy between a patent and a statute captures the statutory requirement that the patent be a fully integrated written instrument that serves the public notice function.<sup>148</sup> The *Markman* decision should promote notice as practitioners are compelled to draft claims that courts and competitors can construe based solely on intrinsic evidence.<sup>149</sup> Furthermore, the Federal Circuit arguably possesses an expertise not present in other courts that will lead to more uniform patent decisions, so that *de novo* review over district court claim constructions will promote uniformity.<sup>150</sup> While many have expressed

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*Jury in Patent Infringement Suits*, 18 HASTINGS COMM. & ENT. L.J. 631, 633 (1996) (asserting that *Markman* was incorrect in taking claim construction from the jury). See *Markman*, 52 F.3d 967, 976-77 (Fed. Cir. 1995); see also *supra* note 21 and accompanying text; *Heald v. Rice*, 104 U.S. 737, 749 (1881).

144. See *Markman*, 52 F.3d at 977-78 (citing numerous Supreme Court cases supporting claim construction as a matter of law); see also *supra* notes 22-25.

145. See *Markman*, 52 F.3d at 978-79.

146. See 35 U.S.C. § 112 (1994).

147. See 35 U.S.C. §§ 112, 271(a) (1994).

148. See *Markman*, 52 F.3d at 987.

149. Prior to *Markman*, the Federal Circuit refused to interpret claims to correct for errors in drafting:

If [patentee] who was responsible for drafting and prosecuting the patent, intended something different, it could have prevented this result through clearer drafting. . . . It would not be appropriate for us now to interpret the claim differently just to cure a draft error. . . . That would unduly interfere with the function of the claims in putting competitors on notice of the scope of the claimed invention.

*Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 951 (Fed. Cir. 1993). Based on this approach and *Markman*, patent attorneys will likely draft claims to avoid any ambiguity.

150. See *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1396 (1996).

the belief that making claim construction a matter of law will not enhance uniformity,<sup>151</sup> both a majority of the Federal Circuit and a unanimous Supreme Court relied on this policy to support their decisions.<sup>152</sup> The Supreme Court's *Markman* opinion reflected a strong deference to the Federal Circuit's decision, premised primarily on expertise in the patent field and the need to promote uniformity in the application of the patent law.

Many view the *Markman* decisions as part of a larger debate about the proper role of judges and juries in patent cases. These commentators and judges see the *Markman* decisions as evidencing a distrust of the jury and as attempting to diminish the role of the jury in patent cases.<sup>153</sup> These critics assert that judges are no more capable of claim construction than juries, and they view *Markman* as an attempt to eviscerate the Seventh Amendment right to a jury in patent infringement cases. However, both the Federal Circuit and the Supreme Court recognized the right to a jury trial in patent infringement cases on the issue of infringement and sought to protect the substance of this right.<sup>154</sup> As the statutory interpretation analogy suggests, courts have always characterized the construction of fully integrated written instruments as a matter of law.<sup>155</sup> *Markman* simply confirmed that since a patent is an integrated instrument, construction of this instrument rests with the court. While claim construction may often determine the results of the infringement

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151. See Lund, *supra* note 143, at 647 (claiming that judges do not have any more training in understanding technology than juries); Scully, *supra* note 143, at 655 (arguing that *Markman* should have attempted to improve jury comprehension instead of taking the issue of claim construction from the jury).

152. See *Markman*, 52 F.3d at 978-79; *Markman*, 116 S. Ct. at 1396; see also John B. Pegram, *Markman and Its Implications*, 78 J. PAT. & TRADEMARK OFF. SOC'Y 560, 565 (1996); Irving S. Rappaport, *How to Win Your "Markman" Hearing*, SB15 A.L.I.-ABA 25, 27 (1996); Mark B. Watson, Note, *Expansion, Compression and Relief: An Analysis of the Jury's Role in Patent Infringement Cases Employing the Doctrine of Equivalents*, 2 ROGER WILLIAMS U. L. REV. 91, 109 (1996).

153. See *Markman*, 52 F.3d at 989 (Mayer, J., concurring); see also Gary A. Hoffman & John A. Wasleff, *A Tale of Two Court Cases: Markman and Hilton-Davis*, COMPUTER LAW., June 1996, at 18 (describing the role of jury distrust in Federal Circuit and Supreme Court *Markman* opinions); Brian Michael Martin, *Federal Circuit Limits Jury's Role in Patent Trials*, 77 J. PAT. & TRADEMARK OFF. SOC'Y 641, 644 (1995) (arguing that distrust of a jury's ability to interpret a patent animated the Federal Circuit); Leibold, *supra* note 143, at 624 (discussing complaints that juries do not understand the technology or the legal standards involved in patent infringement); Lund, *supra* note 143, at 645 (criticizing the Federal Circuit's distrust of juries).

154. See *Markman*, 52 F.3d at 983-84; *Markman*, 116 S. Ct. at 1389.

155. See *Markman*, 52 F.3d at 978 (citations omitted).

case,<sup>156</sup> the right to a jury trial on infringement is not negated. *Markman* serves to reduce the caseload of courts by resolving cases that do not contain factual issues for the jury at an earlier stage,<sup>157</sup> while preserving a jury trial on infringement in cases containing factual disputes apart from claim construction. This process serves judicial efficiency and enhances the role of the jury in cases where a factual dispute on infringement remains. The *Markman* framework focuses jury trials on the factual issues in dispute and the evidence relevant to these disputes.<sup>158</sup> Thus, juries will hear evidence and testimony on disputed issues while extraneous evidence is removed.

*Markman* also helps to clarify the issues on appeal. While patent litigation produced general verdicts that often combined the infringement decision with an implicit claim construction, post-*Markman* decisions produce clear and distinct holdings on claim construction and infringement. The use of special verdicts and jury interrogatories may help to further clarify the jury's infringement findings. This framework enables the Federal Circuit to detect errors in the claim construction and infringement decisions, without trying to dissect a general verdict on the two issues under differing standards of review. Again, the focused inquiry benefits the parties and the jury. The parties gain meaningful, clear review of the issues under the proper standard. The jury's findings become more explicit and focused and are assessed under an unambigu-

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156. See Creel, *supra* note 1, at 318; Hoffman & Wasieff, *supra* note 153, at 20; Peter K. Schalestock, *Equity for Whom? Defining the Reach of Non-Literal Patent Infringement*, 19 SEATTLE U. L. REV. 323, 343 (1996); Watson, *supra* note 152, at 105.

157. See Thomas J. D'Amico & Edna Vassilovski, *Federal Circuit Elaborates on Patent Jury Trial Practice*, INSIDE LITIG., Dec. 1995, at 8, 12 (suggesting more summary judgment after *Markman*); Steven D. Glazer & Steven J. Rizzi, *Markman: The Supreme Court Takes Aim at Patent Juries*, J. PROPRIETARY RTS., May 1996, at 2 (noting that *Markman* will increase the number of cases decided on pre-trial motions); Hoffman & Wasieff, *supra* note 153, at 20 (noting that early claim construction may increase settlements and dismissals); Martin, *supra* note 153, at 648; Joseph R. Re, *Understanding Both Markman Decisions*, 456 PLI/PAT 77, 95 (1996) (noting an increase in summary judgment after *Markman*); Leibold, *supra* note 143, at 646 (noting that *Markman* will increase summary judgments); Martens & Korniczky, *supra* note 81 (asserting *Markman* should substantially increase the grant of summary judgment in patent cases).

158. See Kenneth R. Adamo, *Reforming Jury Practice in Patent Cases: Suggestions Towards Learning to Love Using an Eighteenth Century System While Approaching the Twenty-First Century*, 78 J. PAT. & TRADEMARK OFF. SOC'Y 345, 347 (1996) (noting that *Markman* may reduce trial time by 20-50%); Scully, *supra* note 143, at 648; Watson, *supra* note 152, at 108; Martens & Korniczky, *supra* note 81, at 7 (asserting that advanced disposition of claim construction may simplify issues for jury trial).

ous standard of review. This process arguably insulates jury decisions from the ambiguous dissection and review that occurred pre-*Markman*.

While relying on the Federal Circuit's expertise, the scant Supreme Court opinion addressed claim construction from policy and historical perspectives, citing little precedent on the claim construction issue. The Court's historical approach to the Seventh Amendment issue is consistent with the developing shift in the Court favoring judges over juries,<sup>159</sup> but still protects the substance of the Seventh Amendment right to a jury trial in infringement cases. This approach also allowed the Court to avoid focusing on patent precedent and shift to a more familiar constitutional focus. The opinion arguably reflects the Court's desire to empower the Federal Circuit as the court of last resort in patent cases unless these cases involve constitutional issues.

While the *Markman* decision clarified precedent and showed the Supreme Court's deference to the Federal Circuit on patent matters, the decision left the role of extrinsic evidence, the timing of the claim construction inquiry, and the treatment of erroneous claim constructions unresolved. The Federal Circuit must clarify these issues to allow the *Markman* framework to function efficiently and serve the policy goals of uniformity and notice on which the decision was premised.

The Federal Circuit must expressly allow extrinsic evidence and encourage district courts to assess this evidence explicitly in their opinions. The district court and Federal Circuit cases previously presented show the current, varying, and contradictory positions on the use of extrinsic evidence as a tool for claim construction. These cases show that despite the attempt in *Markman* to limit the role of extrinsic evidence, this evidence has become an accepted and entrenched part of patent litigation. The discretionary use of extrinsic evidence as a tool of last resort in claim construction allows courts the flexibility to use this evidence, but places a limit on this evidence through the process of de novo review. *Markman* correctly captures the requirement that, as a fully integrated written instrument, resorting to extrinsic evidence should usually prove unnecessary. However, the courts have shown a desire to resort to extrinsic evidence to construe claims, rather than invalidate a patent for failure to comply with the statutory requirements. Based on the wide acceptance of extrinsic evidence and its entrenched status in patent litigation, it is unlikely that the trend will shift toward greater

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159. See generally Joseph C. Wilkinson, Jr. et al., *A Bicentennial Transition: Modern Alternatives to Seventh Amendment Jury Trial in Complex Cases*, 37 U. KAN. L. REV. 61 (1988) (suggesting the possibility of a complexity exception to the Seventh Amendment based on Supreme Court precedent and trends in the judge/jury debate).

invalidation. The Federal Circuit needs to expressly allow extrinsic evidence at the discretion of the trial judge and encourage district courts to assess this evidence in their opinions. District courts have expressly stated that they use this evidence and assess its credibility in construing claims that cannot be construed based on intrinsic evidence alone.<sup>160</sup> The Federal Circuit also uses this same evidence at times and acknowledges that it proves helpful in claim construction.<sup>161</sup> Expressly allowing district courts to use and assess the credibility of this evidence and requiring district courts to document this usage in their opinions will create stronger more detailed records for de novo review by the Federal Circuit. Extrinsic evidence will remain the evidence of last resort. However, when used under this new framework, such evidence will provide a better basis for review. The Supreme Court's *Markman* opinion expressly allows these credibility assessments to be subsumed as part of the construction of the patent document as a whole, and thus, explicit in court opinions.<sup>162</sup> This will resolve the dilemmas expressed by district courts who currently hide these credibility assessments and provide a more complete record for de novo claim construction on appeal.<sup>163</sup>

*Markman* also left unanswered the question of when the court should construe the claims. As previously discussed, the courts have taken several approaches to this issue, including the advent of the Markman hearing. The key factor in addressing this issue is that the timing of the claim construction inquiry is largely within the control of the litigants, who usually seek an early, yet fixed, claim construction.<sup>164</sup> Parties can force an earlier claim construction by the court utilizing motions for preliminary injunctions and summary judgment. However, these constructions do not remain fixed throughout the proceedings and can change at the district court and appellate levels. While litigants can force the timing of these proceedings to some degree, district courts have successfully managed the timing of the claim construction inquiry to serve the interests of the parties and judicial efficiency, thus maintaining adequate notice and fairness to the parties. Courts have delayed claim construction until the close of evidence in jury cases or have taken evidence as part of an early Markman hearing. These hearings can

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160. See *supra* note 106.

161. See *supra* notes 123-26.

162. See *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1395 (1996).

163. See, e.g., *supra* note 102, at 859-60.

164. See, e.g., *D'Amico & Vassilovski*, *supra* note 157, at 12 (stating that "parties will likely seek ways to promptly resolve claim construction issues, as by summary judgment").



ensure relevant evidence for claim construction and provide the parties adequate notice before the trial proceedings. Any attempt to mandate the timing of the claim construction inquiry will remove the flexibility needed to ensure fairness to the parties.

The Federal Circuit's refusal to accept claim constructions for review, absent a substantive decision on the merits, serves judicial efficiency, yet leaves litigants unsure if district court claim constructions will stand. Litigants have used summary judgment motions as an avenue to appellate review with mixed success.<sup>165</sup> The Federal Circuit's policy remains sound so long as the procedure for addressing erroneous claim construction does not deny parties a jury trial on infringement under the properly construed claims.

The Federal Circuit's mixed policy on erroneous claim construction works to prejudice some litigants. By remanding in some cases and deciding the issue conclusively in others, the court has left litigants in the position of having to address and present evidence of infringement under all possible claim constructions and infringement theories at the district court level, regardless of the district court's claim construction.<sup>166</sup> The best policy would be to require remand when the Federal Circuit adopts a claim construction that differs from the construction adopted at the district court level. This policy serves two functions. First, litigants will use summary judgment to seek early appellate review of district court claim construction to obtain a binding claim construction and avoid the possibility of repetitive infringement trials. This increased use of summary judgment to obtain appellate review will increase judicial efficiency as more cases are summarily resolved. Second, litigants will not be unfairly prejudiced or denied a jury trial on infringement under the proper claim construction. While this may arguably increase the time needed in infringement cases and lead to trials on remand, parties can avoid repetitive infringement trials and unnecessary trials under erroneous claim constructions through strategic planning. Under this structure, litigants can focus on trial strategies directed at correctly construed claims without presenting evidence supporting every possible claim interpretation and infringement theory. This will focus the trial proceedings and reduce trial time.

The *Markman* decisions have resolved conflicting precedent and clarified the infringement inquiry. By adopting the clarifications of the

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165. Use of summary judgment allows appellate review of the claim construction since the resolution is binding on the parties, but the parties face the risk of losing the case by using this procedure.

166. See, e.g., *Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1569 (Fed. Cir. 1995) (Nies, J., dissenting).

*Markman* framework presented above, the Federal Circuit can reduce the ambiguities created by *Markman*, ensure fairness to litigants, and increase judicial efficiency.

### III. WARNER-JENKINSON CO. V. HILTON DAVIS CO.

#### A. The Warner-Jenkinson Decision and the Supporting Precedent

##### 1. The District Court

As the *Markman* decision was proceeding through the appellate process, another controversy was beginning that would have a similarly great impact in the patent field.<sup>167</sup> Hilton Davis Chemical Company sued Warner-Jenkinson Company<sup>168</sup> in the Southern District of Ohio for infringement under the doctrine of equivalents<sup>169</sup> of U.S. Patent No. 4,560,746 directed to a process for purifying commercial dyes.<sup>170</sup> After a nine day jury trial, the trial court denied Warner-Jenkinson's renewed motion for JMOL.<sup>171</sup> The jury found the patent valid and infringed under the doctrine of equivalents.<sup>172</sup> Warner-Jenkinson appealed.

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167. See Gary M. Hoffman & Eric Oliver, *The Doctrine of Equivalents After Hilton Davis*, COMPUTER LAW., Feb. 1996, at 15, 19, Wayne M. Kennard, *Judicially Created Doctrine of Equivalents and Equivalents Under 35 U.S.C. § 112, Sixth Paragraph*, 416 PLI/PAT 715, 732 (1995).

168. *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512 (Fed. Cir. 1995) (in banc), *rev'd*, 117 S. Ct. 1040, *enforced*, 114 F.3d 1161 (Fed. Cir. 1997). *Hilton Davis* conceded lack of literal infringement. See *Hilton Davis*, 117 S. Ct. at 1046.

169. The doctrine of equivalents is a judicial creation that allows infringement of a patent even though the accused product or process is beyond the literal language of the claims. See 5 CHISUM, *supra* 102, § 18.01, at 18-2.1.

170. The Jepson-type claim appears in the Federal Circuit opinion. See *Hilton Davis*, 62 F.3d at 1515. The patent claims a process with "a membrane having a nominal pore diameter of 5-15 Angstroms under a hydrostatic pressure of approximately 200 to 400 p.s.i.g., at a pH from approximately 6.0 to 9.0." See *id.* The inventors added the pH limitation during prosecution to distinguish U.S. Patent No. 4,189,380 to Booth et al. disclosing a similar process operating above a pH of 9.0. See *id.* at 1515-16. The dispute centered around the operating parameters of Warner-Jenkinson's process, which was shown to operate at a pressure range of 200 to 500 p.s.i.g. and a pH of 5. See *id.* at 1516.

171. See *id.* at 1553 (Nies, J., dissenting).

172. See *id.* at 1515-16. The jury had returned nine special verdicts including a finding of infringement under the doctrine of equivalents. See *id.* at 1553 (Nies, J., dissenting).

## 2. The Federal Circuit

On December 3, 1993, after a three-judge panel heard oral arguments<sup>173</sup> the Federal Circuit sua sponte ordered the appeal heard in banc to address three issues: (1) whether a finding of infringement under the doctrine of equivalents required anything beyond proof under the triple identity test of *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*,<sup>174</sup> (2) whether the application of the doctrine was discretionary; and (3) whether the doctrine was an equitable remedy for the court or an issue of fact for the jury.<sup>175</sup> The Federal Circuit narrowly affirmed the jury verdict in an opinion that failed to garner the support of five of the twelve judges.<sup>176</sup> The per curiam opinion began by noting that "[t]his case presents an opportunity to restate — not to revise — the test for infringement under the doctrine of equivalents."<sup>177</sup> The court noted that Supreme Court precedent consistently recognized the doctrine of equivalents as a protection for patent holders, and that *Graver Tank* had "mapped the modern contours of the doctrine."<sup>178</sup> Based on *Graver Tank*, the court explicitly held "that the application of the doctrine of equivalents rests on the substantiality of the differences between the claimed and accused products or processes, assessed according to an objective standard."<sup>179</sup> In assessing the substantiality of differences, the court conceded that in some cases evidence that the claimed and accused devices or processes perform substantially the same function, in the

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173. The original panel consisted of Judges Mayer, Cowen, and Rader. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, No. 93-1088, 1995 WL 496748, at \*1 (Fed. Cir. Aug. 8, 1995) (unpublished decision).

174. 339 U.S. 605 (1950). The triple identity test permits a finding of equivalence if the accused product or process performs substantially the same function in substantially the same way to obtain the same results as the claimed invention. See *Graver Tank & Mfg., Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950). The triple identity test is often expressed as the function-way-result test.

175. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, No. 93-1088, 1993 WL 761179, at \*1 (Fed. Cir. Dec. 3, 1993) (unpublished decision) (order for rehearing in banc).

176. Of the twelve judges hearing the appeal, the per curiam opinion represented only Judges Cowen, Mayer, Michel, Clevenger, Rader, and Schall. Judge Newman concurred. Chief Judge Archer and Judges Rich, Nies, Plager, and Lourie dissented. Judge Bryson did not participate. See *Hilton Davis*, 62 F.3d at 1512, 1514 n.\*\*. The court assigned the validity issue to the original panel. See *id.* at 1515 n.1. That panel upheld the jury decision that the patent was not invalid. See *Hilton Davis*, 1995 WL 496748, at \*4.

177. *Hilton Davis*, 62 F.3d at 1516.

178. *Id.* at 1517.

179. *Id.* at 1518.

same way, and to achieve the same result — the triple identity test — would support a finding of infringement under the doctrine.<sup>180</sup> However, the court stated that as technology grows more complex the triple identity test may prove insufficient and that evidence beyond the triple identity test is relevant to the equivalence inquiry.<sup>181</sup> The court held that when the record presents other evidence of the substantiality of the differences, the fact-finder must consider this evidence.<sup>182</sup>

The substantiality of the differences are assessed from the perspective of one of ordinary skill in the relevant art.<sup>183</sup> Substantiality of differences rests on objective factors, rather than subjective conclusions.<sup>184</sup> The court relied on *Graver Tank* to set the relevant factors in an infringement inquiry.<sup>185</sup> The court noted that known interchangeability of accused and claimed elements is evidence of an insubstantial difference.<sup>186</sup> The court developed a presumption that evidence of copying allows the fact-finder to infer that the differences are insubstantial.<sup>187</sup> A showing of independent development does not directly affect the infringement inquiry but is relevant for refuting a claim of copying.<sup>188</sup> The court introduced a second presumption that evidence of designing around the patent allows the fact-finder to infer that the differences are substantial, and such evidence weighs against a finding of infringement.<sup>189</sup>

Relying on Supreme Court and Federal Circuit precedent, the court ruled that infringement under the doctrine of equivalents is a question of fact reviewed for clear error when tried to the court and reviewed for

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180. *See id.*

181. *See id.* (citing *Graver Tank & Mfg. Co., v. Linde Air Prods. Co.*, 339 U.S. 605, 609 (1950)) (supporting the proposition that the court should consider all evidence relevant to the substantiality of the differences between the claimed and accused products or processes, not merely evidence on function, way, and result).

182. *See id.*

183. *See id.* at 1519 (citing *Valmont Indus., Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039, 1043 (Fed. Cir. 1993)).

184. *See id.*

185. *See id.* at 1519-20. In *Graver Tank*, the Court stated that known interchangeability of an ingredient not contained in the patent for one that was contained in the patent, evidence of independent development and research, insubstantial differences between the claimed invention and the accused item, evidence related to the triple identity test, evidence of copying, and evidence of designing around a patent are all relevant factors to consider in assessing equivalence. *See Graver Tank*, 339 U.S. at 607-12.

186. *See Hilton Davis*, 62 F.3d at 1519.

187. *See id.*

188. *See id.* at 1520.

189. *See id.*

lack of substantial evidence supporting the verdict when tried to a jury.<sup>190</sup> The court further held that motive is irrelevant to the equivalence inquiry. Infringement is a strict liability offense, and no showing of motive or intent is required to trigger the application of the doctrine of equivalents.<sup>191</sup> While past Federal Circuit precedent had implied an equitable trigger for the doctrine,<sup>192</sup> the court ruled that Supreme Court precedent foreclosed this approach.<sup>193</sup> Every patent holder is entitled to invoke the doctrine of equivalents, and no equitable trigger allows a discretionary application of the doctrine by the trial judge.<sup>194</sup> While the trial judge admits only relevant evidence on the issue of equivalence, the judge plays no role in determining the availability of the doctrine in a particular case.<sup>195</sup> Based on these rulings the court upheld the jury verdict as supported by substantial evidence, rejecting Warner-Jenkinson's claim that the doctrine is an equitable remedy for the court, not the jury.<sup>196</sup>

Judge Newman concurred in the result, but doubted the effectiveness of the doctrine in preventing fraud on a patent and urged the technology community to consider advocating legislative reform.<sup>197</sup> The

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190. *See id.* at 1520-21. The court strongly relied on *Graver Tank*:

A finding of equivalence is a determination of fact. Proof can be made in any form: through testimony of experts or others versed in the technology; by documents, including texts and treatises; and, of course, by the disclosures of the prior art. Like any other issue of fact, final determination requires a balancing of credibility, persuasiveness and weight of evidence. [When tried to the court, it] is to be decided by the trial court and that court's decision, under general principles of appellate review, should not be disturbed unless clearly erroneous. Particularly is this so in a field where so much depends upon familiarity with scientific problems and principles not usually contained in the general storehouse of knowledge and experience.

*Id.* (quoting *Graver Tank*, 339 U.S. at 609-10). The court reviews the jury instructions for prejudicial error. *See id.* at 1522.

191. *See id.* at 1519.

192. *See id.* at 1521 n.2 (citing several Federal Circuit cases suggesting an equity requirement for application of the doctrine). Equitable trigger refers to the requirement that a party seeking to prove infringement under the doctrine of equivalents must show that equitable considerations favor that party before the court will resort to the doctrine.

193. *See id.* at 1521; *see also* *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929) (mentioning no equity element for equivalence); *Winans v. Denmead*, 56 U.S. 330, 338 (1853) (allowing equivalence inquiry in a case at law not equity).

194. *See Hilton Davis*, 62 F.3d at 1521.

195. *See id.* at 1522.

196. *See id.* at 1522-23, 1525.

197. *See id.* at 1529 (Newman, J., concurring).

doctrine protects patent owners against mere colorable differences that avoid the patent document.<sup>198</sup> This protection serves the commercial purpose of protecting the patentee against second-comers "who bore neither the burden of creation nor the risk of failure."<sup>199</sup> Newman focused on the broader question of how the incentives provided by the doctrine affect the balance between fostering invention through patent protection and promoting improvements and competition.<sup>200</sup> She concluded that the doctrine "serves the interest of justice and the public interest in the advancement of technology, by supporting the creativity of originators while requiring appropriators to adopt more than insubstantial technological change."<sup>201</sup> However, Newman criticized the per curiam opinion for failing to clarify the problems in applying the doctrine that had arisen since *Graver Tank*, noting that "[I]t is not the doctrine of equivalents, but the uncertainty of its application, that causes the uncertainty in commercial relationships."<sup>202</sup>

Judge Plager dissented criticizing several aspects of the per curiam opinion.<sup>203</sup> Plager believed the majority failed to address the bounds of the doctrine and clarify the respective roles of the judge and jury during this inquiry. The majority's approach leaves the jury to determine equivalence under minimal instructions.<sup>204</sup> He asserted that patentees currently use the doctrine to enlarge their monopolies beyond the scope allowed by statute by presenting the issue to juries with little guidance other than a formulaic "chant" about the triple identity test.<sup>205</sup> This expansion of the patentee's rights, beyond the scope of the claims, hinders the notice function of patents.<sup>206</sup> Plager further criticized appellate review of infringement decisions under the doctrine:

Another problem with the doctrine is that appellate review of many of these doctrine of equivalents cases is largely *pro forma*. Federal district judges, perhaps understandably, by and large make little pretense of liking these patent infringement cases, and are quite content to give them, and all the issues in them, to

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198. See *id.* at 1530.

199. *Id.* at 1531.

200. See *id.* at 1531-32.

201. *Id.* at 1533-34.

202. *Id.* at 1535.

203. See *id.* at 1536 (Plager, J., dissenting). Chief Judge Archer and Judges Rich and Lourie joined this dissent. See *id.*

204. See *id.* at 1537.

205. *Id.*

206. See *id.* at 1537-38.

juries to decide. The cases typically come to [the Federal Circuit] with nothing more than a general verdict finding infringement. There is no explanation by the jury of the rationale behind their verdict, if any exists.<sup>207</sup>

Plager noted that the Federal Circuit reviews jury instructions for prejudicial error and the verdict for substantial evidence in the record that a hypothetical juror could have believed in reaching the verdict. "[T]he reality is that the doctrine of equivalents is a virtually uncontrolled and unreviewable license to juries to find infringement if they so choose."<sup>208</sup> Plager urged Supreme Court review to remedy the problems unaddressed by the majority.<sup>209</sup>

Plager then focused on the equitable nature of the doctrine and the implications of this equitable basis. Noting that the doctrine "is a judge-made exception to [the] statutory mandates," Plager asserted that the court lacked the power to have made the doctrine into law by noting that nothing in the statute addresses infringement by equivalents, and Congress knew how to include equivalents when they so chose.<sup>210</sup> The claims delineate the scope of the patent grant, and the doctrine of equivalents frustrates the notice function of patent disclosures because competitors can no longer rely on the scope of the claims.<sup>211</sup> Plager agreed with the majority that only when the differences between the claimed and accused products or processes are insubstantial can the doctrine provide a remedy. However, he viewed this as an exercise of the court's equity power.<sup>212</sup> He further agreed that infringement by equivalents was a question of fact, yet attacked the majority's deduction that this required the issue to go to the jury.<sup>213</sup> Plager believes the doctrine of equivalents lies exclusively with the court as a matter of equity:

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207. *Id.* at 1538 (emphasis in original).

208. *Id.*

209. *See id.* at 1539.

210. *Id.* at 1539-40 (noting that the statute specifically addresses equivalence only for means-plus-function claims under 35 U.S.C. § 112(6) (1994)).

211. *See Hilton Davis*, 62 F.3d at 1540.

212. *See id.*

213. *See id.* at 1541. Judge Plager noted that the Supreme Court had not addressed whether the jury should receive the issue of equivalence, adding that *Graver Tank* was a non-jury case providing no occasion for the court to discuss the differences between law and equity and the respective roles of judge and jury. *See id.* at 1543.

Just as matters of 'fact' may be exclusively for the judge, and not for a jury, when the issue is claim interpretation, an issue we have only recently declared uniquely the responsibility of judges, so too matters of 'fact' belong to the court when the court exercises its equitable powers in applying the doctrine of equivalents.<sup>214</sup>

In the alternative, Plager advocated dividing the doctrine of equivalents inquiry between the judge and jury. The judge would determine if the differences between the claimed and accused products or processes were insubstantial enough and the circumstances such as to warrant application of the doctrine. Upon meeting this equitable trigger, the jury would decide if relief was appropriate.<sup>215</sup> At a minimum, the court should have disapproved of general jury verdicts on infringement under the doctrine, and instead should have required special verdicts or interrogatories that would enhance appellate review.<sup>216</sup>

Judge Lourie also dissented, criticizing the majority's approach to the doctrine of equivalents and the application of the new approach in this case.<sup>217</sup> Lourie agreed with Plager "that applicability of the doctrine should be for the court, not the jury."<sup>218</sup> Lourie suggested that the application of the doctrine interfered with the notice function of patents and should be used as an exception to frustrate piracy in unusual cases:

[Application of the doctrine of equivalents should be] the exception, . . . not the rule, for if the public comes to believe (or fear) that the language of patent claims can never be relied on, and that the doctrine of equivalents is simply the second prong of every infringement charge, regularly available to extend protection beyond the scope of the claims, then claims will cease to serve their intended purpose.<sup>219</sup>

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214. *Id.* at 1543 (citing *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 Fed. Cir. 1995) (in banc).

215. *See id.* at 1543-44.

216. *See id.* at 1544 & n.8 (citing Federal Circuit cases attempting more disciplined approaches to the doctrine of equivalents).

217. *See id.* at 1545 (Lourie, J., dissenting). Judges Rich and Plager joined in dissent. *See id.*

218. *Id.* at 1549.

219. *Id.* (quoting *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991)).



Lourie noted that while *Graver Tank* stated that infringement under the doctrine was a question of fact, this did not necessarily imply that the issue is triable to a jury. In fact, *Graver Tank* was itself a non-jury case and the Supreme Court has not ruled in modern times whether infringement under the doctrine of equivalents must be tried to a jury if properly requested.<sup>220</sup> Lourie implicitly requested Supreme Court review, suggesting that only the Supreme Court could properly clarify the doctrine:

In fact, in light of *Graver*, it may be that only the Supreme Court, writing without the confining strictures of *Graver*, can deal cleanly with this issue. Among the reasons why the bench and bar have struggled so much and so long to define the [doctrine of equivalents] are the ambiguity of the *Graver* opinion, the fact that many of today's patent cases are tried to juries and the *Graver* cases did not involve a jury, and the greater complexity of today's patented high technology inventions compared with those made 50 or more years ago. Thus, *Graver* speaks to a time that is long past.<sup>221</sup>

Lourie agreed with the per curiam opinion that in some cases substantial differences between the accused and claimed products or processes were not captured by rote application of the triple identity test.<sup>222</sup> However, he asserted that the majority had placed too much emphasis on the substantiality of differences, noting this was only one of the *Graver Tank* factors.<sup>223</sup> Lourie suggested that the court should consider all of the factors from *Graver Tank* separately, and balance the factors to determine if the circumstances required application of the doctrine in a particular case.<sup>224</sup> Lourie was advocating a discretionary equitable trigger to the application of the doctrine that would reduce the use of the doctrine.<sup>225</sup>

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220. See *id.* at 1549-50.

221. *Id.* at 1549 n.3.

222. See *id.* at 1545-46.

223. See *id.* at 1547.

224. See *id.* at 1548.

225. See *id.* Judge Lourie suggested that judges could make this decision after the jury made factual findings on the factors of *Graver Tank* using special verdicts or interrogatories under the Federal Rules, FED. R. CIV. P. 49. See *id.* at 1550 & n.4.

In a lengthy dissent, Judge Nies asserted that precedent showed that application of the doctrine of equivalents was a mixed question of law and fact.<sup>226</sup> Claim construction is a matter of law, and "[T]he scope of protection which may be given the claim beyond its words is a question of law."<sup>227</sup> The accused product or process must meet each limitation of the claim either literally or by equivalents. This is a question of fact.<sup>228</sup> The correct application of the doctrine of equivalents is ultimately a question of law.<sup>229</sup>

Nies strongly criticized the district court's claim construction procedure and the majority's treatment on appeal. The trial court submitted claim construction to the jury and instructed the jury that it could use expert testimony in determining the meaning of the claims. Nies viewed this instruction as allowing the jury to "weigh" the expert testimony and believed the court had abdicated its responsibilities under *Markman*.<sup>230</sup>

Nies's analysis noted that the only reference to equivalence in the patent statute involves means-plus-function claims not at issue here.<sup>231</sup> A patentee choosing to draft claims in other than means-plus-function language should be bound by the literal language of the claims. A patentee choosing to draft claims in other forms loses the protection of equivalence because the statute does not provide for such protection.<sup>232</sup> The patentee has recourse, upon discovering a broader scope than originally claimed, through 35 U.S.C. § 251.<sup>233</sup> Nies asserted that at a minimum, courts should allow intervening rights or limit damages when the doctrine of equivalents is used to expand claims beyond their literal language.<sup>234</sup>

Nies argued that the per curiam opinion revised the doctrine of equivalents, by removing the safeguards that protect the public, without addressing the right to notice that is a crucial element of patent law.<sup>235</sup> The majority's approach shifts the doctrine of equivalents to a test of

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226. See *id.* at 1550 (Nies, J., dissenting). Chief Judge Archer joined partially in this dissent. See *id.*

227. *Id.*

228. See *id.*

229. See *id.*

230. See *id.* at 1556. Judge Nies asserted that "The jury was literally put to sea without navigational aid." *Id.* at 1557.

231. See *id.* at 159-60 (referring to 35 U.S.C. § 112(6) (1994)).

232. See *id.* at 1560.

233. See *id.* (stating that 35 U.S.C. § 251 (1994) allows the patentee to broaden claims within two years of issuance of the patent through the reissue procedure).

234. See *id.* at 1560-61.

235. See *id.* at 1562.

overall equivalency and no longer requires known equivalence of an element at the time of the patent's issuance.<sup>236</sup> Nies claimed that the Supreme Court had traditionally limited the range of infringing equivalents to those known to be equivalent at the time of patent issuance.<sup>237</sup> This requirement was the law preceding *Graver Tank* and was not altered by that decision.<sup>238</sup> Under this system, the tension between the doctrine of equivalents and notice to the public that pervades the modern system did not exist.

Nies differentiated between claim construction, determining the meaning of claim terms, and claim interpretation, determining the scope of protection based on the claim, questioning whether both were questions of law based on precedent: "*Markman* reaffirmed that the interpretation of the words of a claim is exclusively an issue of law. If *Markman* should be reviewed by the Supreme Court, this case presents the complimentary question whether determination of the scope of the claim likewise is a question of law."<sup>239</sup> Nies presented a strong analysis of past Supreme Court precedent to support her conclusion that both claim construction and claim interpretation were traditionally treated as matters of law for decision by the court.<sup>240</sup>

The court also made equivalence entirely a question of fact, instead of a mixed question of law and fact.<sup>241</sup> The majority's reliance on the statement in *Graver Tank* that a finding of equivalence is a question of fact to support the conclusion that the inquiry is entirely factual marked a strong deviation from past precedent. Nies asserted that *Graver Tank* did not overturn the precedents characterizing the meaning and scope of claims as legal questions, and criticized the majority for characterizing that case as so doing.<sup>242</sup> Nies criticized past and present attempts to

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236. See *id.* at 1563 (citing *Hughes Aircraft v. United States*, 717 F.2d 1351 (Fed. Cir. 1983) for the court's expansion of the comparison test of equivalent elements to include elements developed after patent issuance). The Federal Circuit had wavered on the issue of whether an element had to be a known equivalent at the time of patent issuance or simply equivalent at the time of infringement.

237. See *id.* at 1570 (citations omitted).

238. See *id.* at 1572.

239. *Id.* at 1569 n.21. Judge Nies noted that *Markman* treated claim interpretation and claim construction as synonymous. Nies asserted that *Markman* implied both questions were matters of law. See *id.* at 1568-69.

240. See *id.* at 1563-69.

241. See *id.* at 1562-63.

242. See *id.* at 1578.

expand the doctrine, arguing that these actions had convoluted the analysis to the point of impossibility.<sup>243</sup>

Nies concluded that the proper inquiry requires the judge to determine the meaning and scope of the claims as a matter of law. The trial judge must explain the reasoning for finding that a competitor had notice that the patent covered equivalent elements of the claimed product or process. The issue of equivalence between a claimed element and an accused element not contained in the patent would remain a factual issue for the jury.<sup>244</sup> In this case, since the claim meaning and alleged infringing process parameters were known, the issue was simply the scope of the claims. This was a legal issue for the court, and the court erred in submitting the issue to the jury rather than granting JMOL to Warner-Jenkinson.<sup>245</sup>

### 3. The Supreme Court

A unanimous Supreme Court reversed and remanded to the Federal Circuit.<sup>246</sup> Justice Thomas announced the Court's refusal to end the doctrine of equivalents and the Court's attempt to clarify the proper scope of the doctrine.<sup>247</sup> The Court rejected petitioner's argument that the doctrine of equivalents described in *Graver Tank* did not survive the revision of the Patent Act in 1952.<sup>248</sup> The Court found no reason to deviate from the prior rulings that pre-1952 precedent survived the revision.<sup>249</sup> The concerns that the doctrine is inconsistent with the statutory claiming requirements of 35 U.S.C. § 112,<sup>250</sup> the doctrine circumvents the reissue process of 35 U.S.C. §§ 251-252,<sup>251</sup> and that the doctrine is inconsistent with the primacy of the PTO in determining the scope of patents were previously rejected by the Court in *Graver Tank*

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243. See *id.* at 1563. Judge Nies specifically referred to the court resorting to the doctrine as an automatic second prong of the infringement inquiry when literal infringement is not shown. Most importantly, she chastised the majority for rejecting attempts to constrain the doctrine. See *id.* at 1563 & n.13.

244. See *id.* at 1578-79.

245. See *id.* at 1581.

246. See *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 117 S. Ct. 1040 (1997).

247. See *id.* at 1045.

248. See *id.* at 1047.

249. See *id.* at 1048 (citing *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 342 (1961)).

250. See 35 U.S.C. § 112 (1994).

251. See 35 U.S.C. §§ 251-52 (1994).

and *Winans v. Denmead*<sup>252</sup> over vigorous dissents.<sup>253</sup> The Court did not readdress these concerns. The Court also found that the inclusion of equivalents for means-plus-function claims in § 112(6)<sup>254</sup> was a targeted response that could not support the denial of equivalents to claims not written in means-plus-function form.<sup>255</sup> The Court noted that these policy concerns were better addressed by Congress, who "can legislate the doctrine of equivalents out of existence any time it chooses."<sup>256</sup>

The Court then proceeded to clarify the bounds of the doctrine. The Court recognized the potential conflict between the doctrine and the notice function of the patent system:

We do, however, share the concern of the dissenters below that the doctrine of equivalents, as it has come to be applied since *Graver Tank*, has taken on a life of its own, unbounded by the patent claims. There can be no denying that the doctrine of equivalents, when applied broadly, conflicts with the definitional and public-notice functions of the statutory claiming requirement.<sup>257</sup>

To combat this problem, the Court adopted Judge Nies's element-by-element approach to the doctrine.<sup>258</sup> The Court noted that each element

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252. 56 U.S. 330 (1853).

253. See *Warner-Jenkinson*, 117 S. Ct. at 1047-48, 1047 n.3. The Court also held that the switch from central to peripheral claiming did not alter the viability of *Graver Tank*. See *id.* at 1048 n.4.

254. See 35 U.S.C. § 112(6).

255. See *Warner-Jenkinson*, 117 S. Ct. at 1048 (noting that the express inclusion of equivalents in § 112(6) was a response to *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1 (1946), which rejected claims that use functional language at the exact point of novelty, and that this targeted cure should not be overread for negative implications in other sections of the patent law).

256. *Warner-Jenkinson*, 117 S. Ct. at 1048.

257. *Id.* at 1048-49.

258. See *id.* at 1049. The element-by-element approach requires that the accused product or process meet each limitation of the claim either literally or by equivalents. The overall approach suggests that equivalence does not require this exact correspondence, but merely equivalence between the claimed invention and the accused item. The Court's decision signaled support for the element-by-element approach adopted in *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 935 (Fed. Cir. 1987) (in banc), and advocated so strongly by Judge Nies. See *id.* at 949. The all-elements rule serves as a check on the doctrine of equivalents; despite attempts by courts and litigants to evade this check by focusing on the whole of the claimed and accused products or processes. See *Hughes Aircraft Co. v. United States*, 86 F.3d 1566 (Fed. Cir. 1996), vacated, 117 S. Ct. 1466 (1997) (mem.).

in a claim is essential to determining the scope of the invention, and courts must apply the doctrine to each element of the claim, not the overall invention. This approach prevents broad application of the doctrine of equivalents from effectively eliminating an element in its entirety.<sup>259</sup>

The Court then strengthened prosecution history estoppel as a limit on the doctrine of equivalents. Courts have traditionally invoked prosecution history estoppel in cases where the PTO required an amendment to avoid prior art.<sup>260</sup> The Court sustained this rule, rejecting petitioner's suggestion that estoppel applies regardless of the reason for amendment. The Court rejected petitioner's approach because the PTO might have requested amendments without intent to limit equivalents, and the Court should be reluctant to upset PTO practice without a substantial reason for so doing.<sup>261</sup> A change unrelated to avoiding prior art does not necessarily give rise to estoppel or preclude infringement by equivalents.<sup>262</sup> With this background, the Court adopted a new presumption to limit the application of the doctrine of equivalents:

[T]he better rule is to place the burden on the patent-holder to establish the reason for an amendment required during patent prosecution. The court then would decide whether that reason is sufficient to overcome prosecution history estoppel as a bar to application of the doctrine of equivalents to the element added by that amendment. *Where no explanation is established, however, the court should presume that the PTO had a substantial reason related to patentability for including the limiting element added by amendment.* In those circumstances, prosecution history estoppel would bar the application of the doctrine of equivalents as to that element.<sup>263</sup>

The Court reasoned that this rebuttable presumption serves the notice function of patent claims and gives proper deference to PTO determinations that allowed claims cover only patentable subject matter. This

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259. See *Warner-Jenkinson*, 117 S. Ct. at 1049.

260. See *id.* at 1049-50 (citing cases supporting this proposition).

261. See *id.* at 1050.

262. See *id.* at 1050-51. The court is free to inquire into the PTO objection and the manner in which the amendment avoided the objection in determining if estoppel arises. See *id.* at 1051 n.7.

263. See *id.* at 1051 (emphasis added).

presumption also limits the doctrine of equivalents and prevents conflict between the doctrine and the Patent Act.<sup>264</sup> The Court reversed and remanded for consideration under this framework.<sup>265</sup>

The Court restated that the doctrine of equivalents, like literal infringement, does not require proof of intent. As such, no equitable showing is required before the doctrine is available to the patentee.<sup>266</sup> The Federal Circuit had previously held that designing around a patent raises an inference of substantial differences, while intentional copying raises an inference of insubstantial differences rebuttable by proof of independent development. The Court rejected this approach, holding that independent experimentation is better used as an objective factor to determine the known interchangeability of substituent elements, one of the *Graver Tank* factors used to assess the similarity or difference between claimed and accused elements.<sup>267</sup> The Court further resolved conflicting Federal Circuit precedent by stating that the time for determining equivalence between claimed and accused elements is the time of infringement, not the time of patent issuance. Therefore, equivalence is not expressly limited to elements disclosed in the patent.<sup>268</sup>

In addressing the proper framework for the doctrine, the Court refused to adopt a particular enunciation of the test, choosing instead to focus on broad principles. Noting that the triple identity test may not be adequate in some cases and that the substantial differences test offers little guidance to courts,<sup>269</sup> the Court tried to focus the inquiry: "In our view, the particular linguistic framework used is less important than whether the test is probative of the essential inquiry: Does the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?"<sup>270</sup> The Court believed this framework would reduce imprecision and direct courts to focus on individual elements. The Court left the Federal Circuit to refine this test

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264. *See id.*

265. *See id.* Hilton Davis had added the 6.0 to 9.0 pH limitation by amendment. While clear that the upper limit was added to avoid the Booth prior art, the reason for adding the lower limit was unclear. On remand, the Federal Circuit can inquire into the reasons for the lower limit to determine if estoppel is warranted. *See id.* at 1050-51.

266. *See id.* at 1052.

267. *See id.*

268. *See id.* at 1052-53. This adopts the approach used in *Hughes Aircraft Co. v. United States*, 86 F.3d 1566, 1576 (Fed. Cir. 1996), *vacated*, 117 S. Ct. 1466 (1997) (mem.).

269. *See Warner-Jenkinson*, 117 S. Ct. at 1054.

270. *Id.*

through case-by-case determinations, citing the court's sound judgment and expertise in the patent field.<sup>271</sup>

Finally, the Court refused to address the roles of judges and juries in the equivalence inquiry because it was unnecessary to the resolution of the case at bar. However, the Court noted that there was ample support for the Federal Circuit's decision to leave the issue to the jury, but declined to state whether the Court would reach the same decision if the issue were before them.<sup>272</sup> The Court found nothing in the *Markman* decision that required a result different than that reached by the Federal Circuit.<sup>273</sup> The Court suggested that summary judgment was proper in equivalence cases lacking factual disputes and that special verdicts and interrogatories on each claim element could make review of jury findings on equivalence easier. The court should determine the limits on the doctrine of equivalents as a matter of law either prior to submission to the jury or on post-trial motions for JMOL.<sup>274</sup>

In a short concurrence, Justice Ginsburg sought to clarify how the presumption of estoppel adopted by the Court would apply to issued patents.<sup>275</sup> Strict application of the presumption would frustrate the expectations of patent holders who had no notice of the presumption and no reason to insist that the reasons for amendment be included in the file wrapper. Courts must remember this in assessing the evidence offered and allow patentees to establish now the reason for amendment.<sup>276</sup>

On remand, the Federal Circuit, sitting in banc, remanded the case to the United States District Court for the Southern District of Ohio.<sup>277</sup> The per curiam opinion noted that Hilton Davis had added the lower pH limit of "approximately 6.0" during the prosecution of the patent in suit, but the file wrapper did not provide a reason for this amendment.<sup>278</sup> The court restated the Supreme Court presumption that when "the prosecution history does not reveal the reason for the change, it should be presumed that there was 'a substantial reason related to patentability for including the limiting element added by amendment,'" but noted that the patentee can rebut the presumption by showing the amendment was

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271. *See id.*

272. *See id.* at 1053.

273. *See id.*

274. *See id.* at 1053 n.8.

275. *See id.* at 1054-55 (Ginsburg, J., concurring). Justice Kennedy joined this opinion. *See id.*

276. *See id.* at 1055.

277. *See* Hilton Davis Chem. Co. v. Warner-Jenkinson Co., Inc., 114 F.3d 1161, 1164 (Fed. Cir.), enforcing 117 S. Ct. 1040 (1997), rev'g 62 F.3d 1512 (Fed. Cir. 1995) (in banc).

278. *Id.* at 1162-63.



unrelated to patentability.<sup>279</sup> The court must then decide if the proffered reason is sufficient to overcome prosecution history estoppel as to the added element.<sup>280</sup>

The court stated its belief that, in the future, the PTO and patent applicants will include express statements in the file wrapper of the reasons for making amendments.<sup>281</sup> Given that issued patents are unlikely to contain these express reasons for amendment, the court held that "where the prosecution history is silent or unclear the district court should give a patentee the opportunity to establish the reason, if any, for a claim change."<sup>282</sup> The court stated its reluctance to announce a set method for this analysis:

We hesitate to specify the procedures that the district court can employ to answer the question posed by the newly created presumption of prosecution history estoppel. The better course is to allow the district court to use its discretion to decide whether hearings are necessary or whether the issue can adequately be determined on a written record.<sup>283</sup>

The court remanded to the district court to determine if Hilton Davis could rebut the presumption by showing a reason for adding the lower pH limitation, and if that reason is sufficient to overcome prosecution history estoppel as bar to the doctrine of equivalents.<sup>284</sup>

The court further held that substantial record evidence supported the jury verdict of infringement under the doctrine of equivalents.<sup>285</sup> The court found substantial record evidence to support that one having ordinary skill in the art would know that operation at a pH of 5.0 would perform substantially the same function in substantially the same way to reach substantially the same result as filtration at a pH of 6.0.<sup>286</sup> The court held that this would not vitiate a claim limitation, affirming its holding of equivalence.<sup>287</sup>

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279. *Id.* at 1164.

280. *See id.*

281. *See id.* at 1163.

282. *Id.*

283. *Id.*

284. *See id.*

285. *See id.* at 1164.

286. *See id.*

287. *See id.*

### B. Application of the Warner-Jenkinson Framework

The Federal Circuit and district courts have only begun to readdress the doctrine of equivalents in light of the Supreme Court's *Warner-Jenkinson* decision. Nonetheless, the district court and Federal Circuit decisions reached between the Federal Circuit's *Hilton Davis* decision and the Supreme Court's *Warner-Jenkinson* decision illustrate several issues essential to resolution of the problems confronting the doctrine.

#### 1. The District Courts' Application of *Warner-Jenkinson*

Both prior to and immediately following the Supreme Court's decision in *Warner-Jenkinson*, many district courts have continued to rigidly rely on the triple identity test<sup>288</sup> for determining infringement under the doctrine of equivalents,<sup>289</sup> while acknowledging that additional

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288. Also referred to as the function-way-result test.

289. See *Breuer Elec. Mfg. Co. v. Tennant Co., Inc.*, No. 96 C 1481, 1997 WL 543097, at \*7 (N.D. Ill. Aug. 22, 1997) (finding infringement under doctrine of equivalents by using triple identity test); *Innovative Design Enters., Inc. v. Circular, Inc.*, No. 95 C 6670, 1997 WL 534891, at \*11 (N.D. Ill. Aug. 21, 1997) (using triple identity test to assess equivalents); *Renishaw v. Marposs Societa' Per Azioni*, No. 94-40542, 1997 WL 530874, at \*31 (E.D. Mich. Aug. 13, 1997) (stating that the triple identity test is the proper framework for analyzing infringement under the doctrine of equivalents); *Rome v. Galilean Seafoods, Inc.*, No. CIV.A. 95-10144-REK, 1997 WL 466803, at \*7 (D. Mass. Aug. 11, 1997) (holding that the proper application of the doctrine of equivalents uses triple identity); *GMI Holdings, Inc. v. Stanley Door Sys., Inc.*, 943 F. Supp. 1420, 1427 (N.D. Ohio 1996) (indicating that the triple identity test is needed to show equivalence); *Weatherchem Corp. v. J. L. Clark, Inc.*, 937 F. Supp. 1262, 1279 (N.D. Ohio 1996) (using the function-way-result test to determine infringement by equivalents); *Calmac Mfg. Corp. v. Dunham-Bush, Inc.*, 929 F. Supp. 951, 961 (E.D. Va. 1996) (using the triple identity test to determine if the doctrine of equivalents applies); *Circle R, Inc. v. Smithco Mfg., Inc.*, 919 F. Supp. 1272, 1297-98 (N.D. Iowa 1996) (affirming the principle that infringement by equivalents turns on the triple identity test); *Colgate Palmolive Co. v. W. L. Gore & Assocs., Inc.*, 919 F. Supp. 767, 771 (D. N.J. 1996) (employing the triple identity test to test equivalence); *General Mills v. Hunt-Wesson, Inc.*, 917 F. Supp. 663, 670-71 (D. Minn. 1996) (noting that equivalence may be found where the accused device and the patented invention perform the same function, in the same way, to achieve the same result), *aff'd*, 103 F.3d 978 (Fed. Cir. 1997); *MHB Indus. Corp. v. Dennis Garberg & Assocs., Inc.*, No. CIV. A. 95-10199-GAO, 1996 WL 461592, at \*8 (D. Mass. July 25, 1996) (using the triple identity test to show substantiality of differences), *aff'd*, 105 F.3d 1441 (Fed. Cir. 1997); *Chalais v. Milton Bradley Co.*, No. 95 CIV. 0737 (MBM), 1996 WL 312218, at \*4 (S.D.N.Y. June 11, 1996) (finding that the triple identity test is the appropriate test for determining insubstantial differences); *HBB L.P. v. Ford Motor Co.*, No. 92 C 3287, 1996 WL 164283, at \*21 (N.D. Ill. Apr. 2, 1996) (relying on the triple identity test to show insubstantial differences); *American Permahedge, Inc. v. Barcana, Inc.*, 901 F. Supp.

evidence may have probative value.<sup>290</sup> District courts have also used the insubstantial differences framework presented by the Federal Circuit, both in conjunction with, and in place of, the triple identity test.<sup>291</sup> District courts have, with little controversy, applied the ruling that the determination of infringement by equivalents is a factual matter to be

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155, 160 (S.D.N.Y. 1995) (observing that the function-way-result test determines equivalence), *aff'd*, 105 F.3d 1441 (Fed. Cir. 1997); *Lucas Aerospace, Ltd. v. Unison Indus., L.P.*, 899 F. Supp. 1268, 1280 (D. Del. 1995) (stating that the fact-finder traditionally evaluates the substantiality of differences using the triple identity test); *Edward Lowe Indus., Inc. v. Oil-Dri Corp. of Am.*, No. 94-C-7568, 1995 WL 632043, at \*8 (N.D. Ill. Oct. 25, 1995) (relying on the function-way-result test).

290. *See, e.g.*, *Summer Infant Prods., Inc. v. Playskool Baby Prods., Inc.*, 963 F. Supp. 86, 89 (D. R.I. 1997) (considering the purpose of particular elements and the qualities the element brings when combined with other elements); *Baxter Diagnostics Inc. v. AVL Scientific Corp.*, 924 F. Supp. 994, 1018 (C.D. Cal. 1996) (asserting that as technology becomes more complex, the triple identity test may not suffice, so the court must consider all evidence on the substantiality of differences), *modified*, 954 F. Supp. 199 (C.D. Cal. 1996) (reversing earlier judgment that sensor use not exempt from infringement); *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, No. MDL DKT. 912, 1995 WL 735547, at \*3 (S.D. Ind. Dec. 11, 1995) (acknowledging the triple identity test, but stating that the fact-finder must consider all evidence relevant to the differences between the claimed and accused products or processes), *aff'd in part, rev'd in part*, 119 F.3d 1559 (Fed. Cir. 1997) (ruling that the district court abused its discretion in holding that the patents in suit were unenforceable due to inequitable conduct); *cf.* *Clintec Nutrition Co. v. Baxa Corp.*, No. 94 C 7050, 1997 WL 535043, at \*13 (N.D. Ill. Aug. 22, 1997) (asserting that *Warner-Jenkinson* greatly reduced relevance of alleged infringer's behavior to equivalents inquiry).

291. *See* *Mid-America Bldg. Prods. Corp. v. Richwood Bldg. Prods. Corp.*, 970 F. Supp. 612, 615 (E.D. Mich. 1997) (utilizing both the triple identity and insubstantial differences tests); *Construction Tech., Inc. v. Cybermation, Inc.*, 965 F. Supp. 416, 430, 434 (S.D.N.Y. 1997) (using triple identity test to show insubstantial differences); *Storer v. Hayes Microcomputer Prods., Inc.*, 960 F. Supp. 498, 501 (D. Mass. 1997) (finding that the function-way-result test and Federal Circuit's "circular and somewhat amorphous" insubstantial differences framework can be used to analyze equivalents); *Summer Infant Prods.*, 963 F. Supp. at 89 (noting that the triple identity test remains the main way to show insubstantial differences); *Industrias Metalicas Marva, Inc. v. Lausell*, No. 96-1697 (JP), 1997 WL 557626, at \*10 & n.11 (D. P.R. Aug. 28, 1997) (observing that insubstantial differences is the test of equivalents and can be shown using the triple identity test); *LRC Elecs., Inc. v. John Mezzalingua Assoc., Inc.*, No. 96-CV-1661 FJS DS, 1997 WL 536351, at \*11 (N.D.N.Y. Aug. 25, 1997) (observing that insubstantial differences is the test of equivalents and can be shown using the triple identity test); *Clintec Nutrition*, 1997 WL 535043, at \*12 (finding insubstantial differences and triple identity test can be used to show equivalents); *Mitek Surgical Prods., Inc. v. Wright Med. Tech.*, No. C 96-3341 FMS, 1997 WL 578750, at \*3, 6 (N.D. Cal. Aug. 12, 1997) (using function-way-result test and insubstantial differences test interchangeably).

resolved by the jury.<sup>292</sup> In applying the doctrine of equivalents, district courts have also relied on the all-elements or all-limitations rule.<sup>293</sup>

District courts have continued to use summary judgment on the issue of equivalence in the same manner as they did prior to *Warner-Jenkinson*.<sup>294</sup> However, some courts have found that factual disputes related to the *Graver Tank* factors preclude summary judgment on the issue of infringement by equivalents, despite summary judgment on the issue of

292. See *Johns Hopkins Univ. v. Cellpro*, 931 F. Supp. 303, 328 (D. Del. 1996) (granting a new trial in which the jury will decide infringement under the doctrine of equivalents for all patents in suit); cf. *James River Corp. of Va. v. Hallmark Cards, Inc.*, 915 F. Supp. 968, 986 (E.D. Wis. 1996) (noting that infringement under the doctrine of equivalents is a question of fact, but the judge determines the relevance of evidence for equivalents inquiry).

293. Some district courts utilized the all-elements rule prior to *Warner-Jenkinson*. See, e.g., *MHB Indus.*, 1996 WL 461592, at \*9 (observing that the all-limitations-rule prevents equivalence where the limitation is not present in the accused device), *aff'd*, 105 F.3d 1441 (Fed. Cir. 1997); *California Med. Prods., Inc. v. Tecnol Med. Prods., Inc.*, 921 F. Supp. 1219, 1244 (D. Del. 1995) (asserting that each element or limitation of a claim must be found in accused product). In the wake of *Warner-Jenkinson* district courts are routinely using the element-by-element approach to the doctrine of equivalents. See, e.g., *Bradshaw v. Igloo Prods. Corp.*, No. 94 C 6497, 1997 WL 543109, at \*3 (N.D. Ill. Sept. 2, 1997) (stating that each element of claim is material and doctrine of equivalents must be applied to individual elements not invention as a whole); *Innovative Design Enters., Inc. v. Circulair, Inc.*, No. 96 C 6670, 1997 WL 534891, at \*11 (N.D. Ill., Aug. 14, 1997) (testing equivalents on an element-by-element basis); *Comark Communications, Inc. v. Harris Corp.*, No. CIV. A. 95-2123, 1997 WL 431000, at \*3 (E.D. Pa. July 17, 1997) (focusing on each element separately when determining equivalents).

294. See *GMI Holdings, Inc. v. Stanley Door Sys., Inc.*, 943 F. Supp. 1420, 1430 (N.D. Ohio 1996); *Black & Decker (U.S.) Inc. v. Universal Security Instruments, Inc.*, 931 F. Supp. 427 (E.D. Va. 1996); *Calmac Mfg. Corp. v. Dunham-Bush, Inc.*, 929 F. Supp. 951, 964 (E.D. Va. 1996); *Colgate Palmolive Co. v. W. L. Gore & Assocs., Inc.*, 919 F. Supp. 767, 774 (D. N.J. 1996); *General Mills v. Hunt-Wesson, Inc.*, 917 F. Supp. 663, 671 (D. Minn. 1996), *aff'd*, 103 F.3d 978 (Fed. Cir. 1997); *Bradshaw v. Igloo Prods. Corp.*, 912 F. Supp. 1088 (N.D. Ill. 1996), *aff'd in part, rev'd in part*, 101 F.3d 716 (Fed. Cir. 1996) (vacating judgment on doctrine of equivalents issue); *Lovelett v. Peavey Elecs. Corp.*, No. 95 CIV. 9657 (MBM), 1996 WL 592725, at \*1, 6 (S.D.N.Y. Oct. 16, 1996), *aff'd*, 114 F.3d 1206 (Fed. Cir. 1997); *MHB Indus.*, 1996 WL 461592, at \*1, 7; *Chalais*, 1996 WL 312218, at \*4-6; *Tsakanikas Global Techs., Inc. v. Uniden Am. Corp.*, No. AW-95-1012, AW-95-1881, 1996 WL 544369, at \*1, 3 (D. Md. May 10, 1996); *HBB*, 1996 WL 164283, at \*10-11, 16-19; *Moll v. Northern Telecom, Inc.*, No. 94-5451, 1996 WL 11355, at \*1, 7 (E.D. Pa. Jan. 3, 1996), *aff'd*, 119 F.3d 17 (Fed. Cir. 1997); *Hydraflow v. Enidine Inc.*, 907 F. Supp. 639, 655 (W.D.N.Y. 1995); *Stutz Motor Car of Am., Inc. v. Reebok Int'l, Ltd.*, 909 F. Supp. 1353, 1368 (C.D. Cal. 1995), *aff'd*, 113 F.3d 1258 (Fed. Cir. 1997); *American Permahedge*, 901 F. Supp. at 160; *GTY Indus. v. Genlyte Group, Inc.*, No. CV 94-1280 KN, 1995 WL 781701, at \*5 (C.D. Cal. Dec. 19, 1995); *ASQ Tech., Inc. v. Fortrend Eng'g Corp.*, No. C-93-20888 RPA, 1995 WL 590360, at \*5 (N.D. Cal. Oct. 2, 1995).

literal infringement.<sup>295</sup> Some district courts have attempted to limit application of the doctrine of equivalents, finding that the doctrine should be the exception rather than the rule and suggesting that judges perform a gate-keeping function to limit resort to the doctrine.<sup>296</sup>

Even prior to the Supreme Court's decision in *Warner-Jenkinson*, district courts were using prosecution history estoppel to limit the availability of the doctrine of equivalents. Prosecution history estoppel prevents a patent holder from using the doctrine of equivalents to claim material that had been surrendered during prosecution. This doctrine holds patentees to the concessions they make during prosecution and allows competitors to rely on the public disclosure to determine the scope of a patent holder's rights. Courts generally agree that prosecution history estoppel is a matter of law for the court.<sup>297</sup> Numerous district courts have used prosecution history estoppel to prevent application of the doctrine of equivalents.<sup>298</sup> After *Warner-Jenkinson*, district courts

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295. See *Thorn EMI N. Am., Inc. v. Intel Corp.*, 936 F. Supp. 1186, 1201 (D. Del. 1996) (noting that prosecution history estoppel did not apply so factual issues precluded summary judgment); *Environetics, Inc. v. Millipore Corp.*, 923 F. Supp. 344, 350 (D. Conn. 1996) (observing that the doctrine of equivalents raises factual issues for the jury unless there is a basis for estoppel); *James River*, 915 F. Supp. at 991-92 (stating that factual issues concerning accused product preclude summary judgment); *Optical Coating Lab., Inc. v. Applied Vision, Ltd.*, No. C-92-4689, 1996 WL 251947, at \*6 (N.D. Cal. May 8, 1996) (finding that a substantiality of differences between accused and claimed product presents factual issue for jury); *Edward Lowe Indus., Inc. v. Oil-Dri Corp. of Am.*, No. 94-C-7568, 1995 WL 632043, at \*10 (N.D. Ill. Oct. 25, 1995) (observing that factual issues surrounding evidence of copying and evidence on insubstantial differences preclude summary judgment on infringement by equivalents).

296. See *Chalais*, 1996 WL 312218, at \*3 (finding that the doctrine of equivalents is not available unless differences between claimed and accused product are insubstantial—implying a gate-keeping function for the trial judge); *Hydraflow*, 907 F. Supp. at 654 (observing that the doctrine of equivalents is the exception rather than the rule—otherwise, the public could not rely on the public record to determine the scope of patentee's rights); *Stutz Motor Car*, 909 F. Supp. at 1367 (observing that the doctrine of equivalents is the exception rather than the rule—otherwise, the public could not rely on the public record to determine the scope of patentee's rights), *aff'd*, 113 F.3d 1258 (Fed. Cir. 1997); *Spraytex, Inc. v. DJS&T*, No. CV-95-1474RG (AWJX), 1995 WL 877504, at \*8 (C.D. Cal. Dec. 4, 1995) (observing that the doctrine of equivalents is intended for cases where the differences between products is insubstantial).

297. See *HBB*, 1996 WL 164283, at \*2 (finding that the court determines the scope and meaning of the prosecution history as a matter of law). But cf. *Calmac Mfg.*, 929 F. Supp. at 962 (noting that the scope of prosecution history estoppel may depend on factual issues).

298. See, e.g., *Thorne EMI*, 928 F. Supp. at 465 (finding that prosecution history estoppel bars infringement under doctrine of equivalents).

applied the presumption in the prosecution history estoppel analysis.<sup>299</sup> However, district courts have disagreed on the relationship between using the prosecution history as part of claim construction and prosecution history estoppel. Some courts have held that prosecution history used as part of claim construction is the same as prosecution history estoppel.<sup>300</sup> Other courts have departed from this approach, drawing a sharp distinction between these two uses of prosecution history.<sup>301</sup>

District courts have determined the scope and meaning of claims as a matter of law,<sup>302</sup> but have disagreed as to whether prosecution history estoppel is part of this process. Some courts assert that prosecution history estoppel is unrelated to claim construction and is not an issue for a Markman hearing.<sup>303</sup> Other courts have addressed prosecution history estoppel during a Markman hearing.<sup>304</sup>

## 2. The Federal Circuit's Application of *Warner-Jenkinson*

The precedential value of Federal Circuit decisions concerning equivalence that were reached after *Hilton Davis* and before *Warner-Jenkinson* is uncertain. However, these cases and the cases after

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299. See, e.g., *Mid-America Bldg. Prods. Corp. v. Richwood Bldg. Prods., Inc.*, 970 F. Supp. 612, 615 (E.D. Mich. 1997) (estopping patentee from claiming equivalence because amendment used to overcome prior art prevents equivalents); *Dekalb Genetics Corp. v. Northrup King Co.*, No. 96 C 50169, 1997 WL 587492, at \*3 (N.D. Ill. Aug. 14, 1997) (holding that an amendment made to overcome the examiner's rejection prevents equivalence because of prosecution history estoppel); *Bai v. L & L Wings, Inc.*, No. 95 CIV. 10824 (LMM), 1997 WL 527870, at \*5 (S.D.N.Y. Aug. 22, 1997) (holding that prosecution history estoppel prevents application of doctrine of equivalents to element added by amendment because patentee failed to rebut *Warner-Jenkinson* presumption).

300. See, e.g., *HBB*, 1996 WL 164283, at \*7 (finding no meaningful distinction in practice between prosecution history as part of claim construction and prosecution history estoppel).

301. See, e.g., *Spraytex*, 1995 WL 877504, at \*6 ("The doctrine of prosecution history estoppel is unrelated to the use of the prosecution history to ascertain the literal meaning of the claims").

302. See *Huang v. Autoshade, Inc.*, 945 F. Supp. 1307, 1309 (C.D. Cal. 1996); *HBB*, 1996 WL 164283, at \*1.

303. See, e.g., *Huang*, 945 F. Supp. at 1309 (finding that the prosecution history estoppel is a matter of law to be determined only after success on infringement by equivalents, and that the doctrine of equivalents is not properly addressed at a Markman hearing because it must go to the jury).

304. See, e.g., *Moll v. Northern Telecom, Inc.*, No. 94-5451, 1996 WL 11355, at \*4 (E.D. Pa. Jan. 3, 1996) (using prosecution history to limit scope of claims during Markman hearing); *Thorne EMI N. Am., Inc. v. Intel Corp.*, 928 F. Supp. 449, 465 (D. Del. 1996) (using prosecution history to limit scope of claims and holding that prosecution history bars patentee from asserting infringement by equivalents).

*Warner-Jenkinson* show trends in the Federal Circuit's treatment of equivalence that will inform any possible reformation of the doctrine. The Federal Circuit's decisions were precursors to the Supreme Court's decision in a number of respects, but also show inconsistency on various issues raised by the doctrine of equivalents.

The Federal Circuit has upheld summary judgment on the issue of infringement by equivalents. In cases involving no factual dispute, infringement reduces to a question of law amenable to summary judgment.<sup>305</sup> However, the court has been inconsistent in determining what constitutes a factual dispute precluding summary judgment.<sup>306</sup> Whereas the court frequently grants summary judgment on the issue of literal infringement, summary judgment on infringement by equivalents is less frequently granted, and the issue is more often left for consideration by the jury.

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305. See *Stutz Motor Car of Am., Inc. v. Reebok Int'l Ltd.*, No. 96-1062, 96-1083, 1997 WL 258883, at \*7 (Fed. Cir. May 16, 1997) (unpublished decision); *Ad-In-Hole, Int'l, Inc. v. Hageman*, No. 96-1455, 1997 WL 154003, at \*1 (Fed. Cir. Apr. 2, 1997) (unpublished decision); *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565 (Fed. Cir. 1997); *General Mills, Inc. v. Hunt-Wesson, Inc.*, 103 F. 1978, 981 (Fed. Cir. 1997); *Cole v. Kimberly-Clark Corp.*, 102 F.3d 524, 532 (Fed. Cir. 1996); *Petroscan AB v. Mobil Corp.*, No. 95-1109, 1996 WL 91642, at \*1 (Fed. Cir. Mar. 4, 1996) (unpublished decision); *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 72 F.3d 857, 861 (Fed. Cir. 1995) (unpublished decision), *rev'd*, 117 S. Ct. 1240 (1997), *vacated*, 117 S. Ct. 1240 (1997) (mem.) (remanding for reconsideration in light of *Warner-Jenkinson*); *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed. Cir. 1995); *Gussin v. Nintendo of Am., Inc.*, No. 95-1051, 1995 WL 460566, at \*1 (Fed. Cir. Aug. 3, 1995) (unpublished decision); *Blumenthal v. Barber-Coleman Holdings Corp.*, No. 93-1005, 93-1006, 1995 WL 453120, at \*3 (Fed. Cir. July 31, 1995) (unpublished decision); *Popeil Pasta Prods., Inc. v. Creative Techs. Corp.*, No. 95-1017, 1995 WL 319534, at \*1 (Fed. Cir. May 26, 1995) (unpublished decision).

306. See *Cole*, 102 F.3d at 534 (Rader, J., dissenting) (stating that factual issues surrounding prosecution history estoppel preclude summary judgment on infringement under doctrine of equivalents); *Ethicon Endo-Surgery, Inc. v. United States Surgical Corp.*, 93 F.3d 1572, 1583 (Fed. Cir. 1996) (finding that genuine issues of material fact prevent summary judgment on equivalence issue); *Lifescan, Inc. v. Home Diagnostics, Inc.*, 76 F.3d 358, 362 (Fed. Cir. 1996) (noting that factual issues related to accused process preclude summary judgment); *Bradshaw v. Igloo Prods. Corp.*, No. 96-1199, 1996 WL 663310, at \*3-4 (Fed. Cir. Nov. 15, 1996) (unpublished decision) (noting that summary judgment on equivalence was precluded by factual issues surrounding prior art); *Blumenthal*, 1995 WL 453120, at \*5 (Newman, J., dissenting). Newman asserted that the majority incorrectly construed claims by using patentee's manufactured product to construe claims. Under a correct construction material issues of fact remained, in the comparison of the claimed product and the accused product, that precluded summary judgment on infringement under the doctrine of equivalents). See *id.*

Prior to the *Warner-Jenkinson* decision, the Federal Circuit was applying the all-elements rule<sup>307</sup> and prosecution history estoppel to limit application of the doctrine of equivalents. For example, in *Texas Instruments Inc. v. Cypress Semiconductor Corp.*, the Federal Circuit stated that "[*Hilton Davis* did not] overrule our prior decisions that addressed the specific evidentiary requirements necessary to prove infringement under the doctrine of equivalents. In particular, we did not eliminate the need to prove equivalency on a limitation-by-limitation basis."<sup>308</sup>

However, the court has deviated from this approach at times, suggesting that the element-by-element approach is not required for equivalence.<sup>309</sup> In showing element-by-element correspondence, some cases have continued to require particularized testimony and linking arguments as done prior to *Hilton Davis*.<sup>310</sup> Other cases have suggested that this testimony is no longer necessary after *Hilton Davis*.<sup>311</sup> After *Warner-Jenkinson*, the Federal Circuit has applied the element-by-element approach in assessing infringement under the doctrine of equivalents.<sup>312</sup> The Federal Circuit frequently prevented resort to the

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307. See *General Am. Transp. Corp. v. Cryo-Trans, Inc.*, 93 F.3d 766, 771 (Fed. Cir. 1996) (finding no infringement if a claim limitation is not found in accused product); *Zygo Corp. v. Wyko Corp.*, 79 F.3d 1563, 1568 (Fed. Cir. 1996); *Warminster Fiberglass Co., Inc. v. Delta Fiberglass Structures, Inc.*, No. 96-1113, 96-1110, 1996 WL 658835, at \*2 (Fed. Cir. Nov. 14, 1996) (unpublished decision) (requiring the presence of every element or its substantial equivalent); *Pro-Cut Int'l, Inc. v. United States Int'l Trade Comm'n*, No. 95-1230, 1996 WL 123148, at \*2 (Fed. Cir. Mar. 20, 1996) (unpublished decision); *Southwall Techs.*, 54 F.3d at 1579; *Mason v. Tampa G. Mfg. Co.*, No. 95-1184, 1995 WL 605556, at \*5 (Fed. Cir. Oct. 12, 1995) (unpublished decision).

308. 90 F.3d 1558, 1566 (Fed. Cir. 1996) (citations omitted).

309. See *Wiener v. NEC Elecs., Inc.*, 102 F.3d 534, 541 (Fed. Cir. 1996) (finding that the doctrine of equivalents does not require a one-to-one correspondence of components); *Hughes Aircraft Co. v. United States*, 86 F.3d 1566 (Fed. Cir. 1996) (finding infringement despite not meeting element-by-element approach), *vacated*, 117 S. Ct. 1466 (1997) (mem.) (remanding for reconsideration in light of *Warner-Jenkinson*); *Festo*, 72 F.3d at 863 (determining all-elements rule does not require a one-to-one correspondence).

310. See, e.g., *Carbide Blast Joints, Inc. v. Rickert Precision Indus., Inc.*, No. 95-1040, 95-1059, 1995 WL 710871, at \*8 (Fed. Cir. Dec. 4, 1995) (unpublished decision).

311. See, e.g., *National Presto Indus., Inc. v. West Bend Co.*, 76 F.3d 1185, 1191 (Fed. Cir. 1996) (observing that the Federal Circuit's *Hilton Davis* decision affirmed that equivalence is not a prisoner of formula and no specific formula or argument is required).

312. See *Young Dental Mfg. Co., Inc. v. Q3 Special Prods., Inc.*, 121 F.3d 1137, 1143 (Fed. Cir. 1997) (finding no infringement by equivalents when accused product lacks a claim element); *Eastman Kodak Co. v. Goodyear Tire & Rubber Co.*, 114 F.3d 1547, 1560 (Fed. Cir. 1997) (emphasizing element-by-element approach); *Transco Prods., Inc.*



doctrine of equivalents to recapture material surrendered during prosecution of the asserted patent. It sought to prevent patentees from expanding their rights to the prejudice of competitors who relied on the public disclosure to assess the scope of the patentee's rights. The court noted the unfairness to competitors of allowing a patentee to interpret claims narrowly before the PTO and then to seek to obtain broader coverage through the doctrine of equivalents during an infringement action.<sup>313</sup> For this reason, the court has applied prosecution history estoppel as a bar to the doctrine of equivalents.<sup>314</sup>

The court maintained the traditional rule that prosecution history estoppel is a matter of law for the court and is reviewed de novo on appeal.<sup>315</sup> However, the court has expressed differing views on the relationship between using prosecution history to interpret claims and prosecution history estoppel. For example, in *Southwall Technologies, Inc. v. Cardinal IG Co.*, the Federal Circuit held that "The limit on the range of equivalents that may be accorded a claim due to prosecution history estoppel is simply irrelevant to the interpretation of those claims."<sup>316</sup> Other cases have failed to draw such a sharp distinction between the use of prosecution history in claim construction and estoppel.<sup>317</sup>

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v. Performance Contracting, Inc., No. 96-1336, 1997 WL 459771, at \*5 (Fed. Cir. Aug. 13, 1997) (unpublished decision) (finding that the doctrine of equivalents must be applied using an objective element-by-element inquiry); *Monroe Eng'g Prods., Inc. v. J.W. Winco, Inc.*, No. 97-1134, 1997 WL 459769, at \*1 (Fed. Cir. Aug. 13, 1997) (unpublished decision) (noting that each claimed element or its equivalent must be present in the accused device); *Cedarapids, Inc. v. Nordberg, Inc.*, No. 95-1529, 1997 WL 452801, at \*6 (unpublished decision) (Fed. Cir. Aug. 11, 1997) (noting that the doctrine of equivalents must be applied to individual claim elements, not invention as a whole).

313. See, e.g., *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1107 (Fed. Cir. 1996).

314. See *Wang Labs., Inc. v. Mitsubishi Elecs. Am., Inc.*, 103 F.3d 1571, 1577-78 (Fed. Cir. 1997); *Maxwell*, 86 F.3d at 1112; *Petrosan AB v. Mobile Corp.*, No. 95-1109, 1996 WL 91642, at \*4 (Fed. Cir. Mar. 4, 1996) (unpublished decision); *Gussin v. Nintendo of Am., Inc.*, No. 95-1051, 1995 WL 460566, at \*6 (Fed. Cir. Aug. 3, 1995) (unpublished decision); *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1584 (Fed. Cir. 1995).

315. See, e.g., *Insituform Techs., Inc. v. Cat Contracting, Inc.*, 99 F.3d 1098, 1107 (Fed. Cir. 1996).

316. 54 F.3d 1570, 1578 (Fed. Cir. 1995).

317. See, e.g., *Alpex Computer Corp. v. Nintendo Co. Ltd.*, 102 F.3d 1214, 1220 (Fed. Cir. 1996) (drawing no sharp distinction between the uses of prosecution history).

After *Warner-Jenkinson*, the Federal Circuit has used prosecution history to limit resort to the doctrine of equivalents.<sup>318</sup> However, the Federal Circuit has yet to clarify what amendments during prosecution of a patent are "related to patentability." The Federal Circuit had ruled that elements developed after patent issuance may qualify as equivalents, making the time of infringement the proper time to address equivalence.<sup>319</sup> This foreshadowed the approach adopted by the Supreme Court in *Warner-Jenkinson*. After *Warner-Jenkinson*, the Federal Circuit continued to sanction the use of the triple identity test by district courts,<sup>320</sup> to reject any requirement of an equitable trigger prior to the application of the doctrine of equivalents, and to leave infringement under the doctrine of equivalents to the jury.<sup>321</sup> The Federal Circuit's attempts to limit the doctrine and dissenting opinions criticizing the current scope of the doctrine suggest that the court may act to reduce the availability of equivalents.<sup>322</sup>

Finally, the Federal Circuit has faced problems with application of the doctrine of equivalents caused by erroneous claim constructions by district courts under the *Markman* framework. In many cases, the Federal Circuit decided the issue of infringement under the doctrine of

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318. See *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1574-75 (Fed. Cir. 1997) (finding that prosecution history estoppel precluded a finding of infringement under the doctrine of equivalents because of amendments made to overcome the examiner's rejection based on prior art and because of an amendment made prior to allowance); *Regents of the Univ. of Cal. v. Eli Lilly and Co.*, 119 F.3d 1559, 1571-74 (Fed. Cir. 1997) (noting that the coverage surrendered during prosecution precludes finding of equivalents, and that the court can address the reason for the examiner's rejection and the manner in which the amendment addressed and avoided the objection); cf. *Transco Prods., Inc. v. Performance Contracting, Inc.*, No. 96-1336, 1997 WL 459771, at \*7-8 (Fed. Cir. Aug. 13, 1997) (unpublished decision) (observing that where the patentee did not use the element or limitation to distinguish prior art or overcome an objection, prosecution history estoppel does not bar doctrine of equivalents).

319. See, e.g., *Hughes Aircraft Co. v. United States*, 86 F.3d 1566, 1576 (Fed. Cir. 1996) (affirming that elements developed after patent issuance can be found to be infringing equivalents).

320. See, e.g., *Kransco Mfg., Inc. v. Hayes Specialties Corp.*, No. 95-1236, 95-1237, 1996 WL 30787, at \*3 (Fed. Cir. Jan. 26, 1996) (unpublished decision) (affirming use of triple identity test as used prior to *Warner-Jenkinson* while speaking of insubstantial differences).

321. See, e.g., *Carbide Blast Joints, Inc. v. Rickert Precision Indus., Inc.*, No. 95-1040, 95-1059, 1995 WL 710871, at \*4 (Fed. Cir. Dec. 4, 1995) (unpublished decision) (deciding that doctrine of equivalents is not equitable in nature and advisory verdicts on the issue are improper because the jury must decide the issue).

322. See, e.g., *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991) (noting that the doctrine of equivalents is the exception, not the rule, and asserting the doctrine should not be available in every case).

equivalents based on the record after construing the claims de novo.<sup>323</sup> Dissents in some of these cases and majority opinions in other cases questioned this practice and suggested remand to allow the fact-finder to address infringement under the doctrine of equivalents.<sup>324</sup> Although this disparity is largely a product of the *Markman* framework, the cases show the inconsistency of treatment at the appellate level and how the *Markman* framework can lead to problems in other areas unless properly clarified.

### C. Analysis of the Warner-Jenkinson Decision and Subsequent Cases

The *Hilton Davis* and *Warner-Jenkinson* decisions are further steps in what has been an attempt, increment by increment, to develop a consistent and applicable framework for the doctrine of equivalents. The opinions illustrate the struggle of trying to balance the two competing policies that underlie the doctrine. The doctrine of equivalents was judicially created to prevent the unscrupulous copyist from making

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323. See *Wiener v. NEC Elecs., Inc.*, 102 F.3d 534, 536 (Fed. Cir. 1996) (affirming summary judgment despite erroneous claim construction); *Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1405, 1407 (Fed. Cir. 1996) (finding no infringement by equivalents based on district court's corrected claim construction and reversing contrary district court ruling); *General Am. Transp. Corp. v. Cryo-Trans, Inc.*, 93 F.3d 766, 769-70, 772 (Fed. Cir. 1996) (reversing the district court's finding of infringement by equivalents because of erroneous claim construction, and ruling no infringement under correct construction); *Mason v. Tampa G. Mfg. Co.*, No. 95-1184, 1995 WL 605556, at \*4-5 (Fed. Cir. Oct. 12, 1995) (unpublished decision) (upholding summary judgment of no infringement under the doctrine of equivalents because, based on the record, the accused product lacked a claim element as construed de novo by the Federal Circuit); *Ramos v. Biomet, Inc.*, No. 94-1004, 94-1129, 1995 WL 540291, at \*2-3 (Fed. Cir. Sept. 8, 1995) (unpublished decision) (upholding finding of infringement by equivalents based on record despite district court's erroneous claim construction).

324. See *Insituform Techs., Inc. v. Cat Contracting, Inc.*, 99 F.3d 1098, 1101 (Fed. Cir. 1996) (vacating holding of infringement under doctrine of equivalents due to erroneous claim construction); *General Am. Transp.*, 93 F.3d at 772-73 (Mayer, J., dissenting) (suggesting the district court's claim construction was correct and that the Federal Circuit should uphold infringement decision); *In re Burke*, No. 95-1145, 1996 WL 137527, at \*4 (Fed. Cir. Mar. 27, 1996) (unpublished decision) (remanding case after de novo claim construction because erroneous claim construction distorted equivalence issue); *Modine Mfg. Co. v. United States Int'l Trade Comm'n*, 75 F.3d 1545, 1556 (Fed. Cir. 1996) (remanding on equivalence issue because district court improperly limited claim scope); *Mason*, 1995 WL 605556, at \*5-6 (Rader, J., dissenting) (recommending remand because factual issues remain after de novo claim construction and suggesting the Federal Circuit overstepped its role by deciding factual issues); *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 623 (Fed. Cir. 1995) (vacating decision due to erroneous claim construction and remanding for consideration of infringement).

insubstantial changes to avoid the claims of a patent while pirating the substance of the patented product or process.<sup>325</sup> However, this rationale conflicts with the position that the claims of a patent delineate the scope of the patentee's rights, and courts should not permit a patentee to expand claims to embrace products or processes not covered by the claims.<sup>326</sup> Such expansion would enlarge the rights of the patentee while preventing competitors from designing around or improving on a patented product or process. Since the doctrine expands claims beyond their written scope, competitors are unable to determine the scope of the patentee's rights and are unable to structure their conduct accordingly.<sup>327</sup> This denies competitors the notice necessary to plan their conduct in order to avoid infringement. In trying to balance these competing positions, the Federal Circuit has moved in incremental steps, and *Warner-Jenkinson* is best viewed as another step in this process. Both the Federal Circuit and Supreme Court opinions failed in this balancing because neither opinion provided a clear test for equivalence within a framework applicable by district courts. While the opinions made incremental progress toward developing a consistent framework, both courts failed to develop a test confined to the purposes for which the doctrine was developed.

The Federal Circuit succeeded in certain respects because the holdings of the case and the insights expressed in the concurring and dissenting opinions will continue the process of incremental change. The per curiam opinion continued to affirm the vitality of the doctrine of equivalents and attempted to clarify the test for applying the

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325. See *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950).

326. See Joseph F. Haag, *Hilton Davis Chemical Co. v. Warner-Jenkinson Co.: An Equitable Solution to the Uncertainty Behind the Doctrine of Equivalents*, 80 MINN. L. REV. 1511, 1535, 1541 (1996); Jeff Kuehnle, *Hilton Davis Chemical Co. v. Warner-Jenkinson Co.: Opening the Floodgates on Nonliteral Patent Infringement Through the Doctrine of Equivalents*, 48 BAYLOR L. REV. 589, 600 (1996).

327. See Roger Barrett, *Discretionary Use of the Doctrine of Equivalents in Patent Law: Going Beyond the Triple Identity Test of Graver Tank*, 17 U. HAW. L. REV. 513, 514-15, 523 (1995) (noting the uncertainty caused by expansion of claims); Andrei Iancu, *A Two-Track Approach to the Doctrine of Equivalents in Patent Law: Responding to Hilton Davis*, 35 JURIMETRICS J. 325, 327 (1995) (using the doctrine of equivalents reduces public's ability to rely on claims); see also Haag, *supra* note 326, at 1512; Lund, *supra* note 143, at 642; Dennis J. Mondolino, *Infringement and the Doctrine of Equivalents in Light of Hilton Davis v. Warner-Jenkinson*, 457 PLI/PAT 413, 425 (1996) (discussing this reason as used by the dissenters in *Hilton Davis*); Keith A. Robb, *Hilton Davis and the Doctrine of Equivalents — An Insubstantial Difference*, 4 TEX. INTELL. PROP. L.J. 275, 277 (1996); Schalestock, *supra* note 156, at 336 (arguing that inventors will not risk pursuing some advances without certainty as to the scope of issued patent); Watson, *supra* note 152, at 114.

doctrine.<sup>328</sup> By framing the inquiry as an assessment of the substantiality of the differences between the claimed and accused products or processes, the court correctly recognized that the rigid application of the traditional function-way-result test was both under- and over-inclusive.<sup>329</sup> Rigid application of the triple identity test is often inadequate to serve the policies of the doctrine, especially for certain complex technologies.<sup>330</sup> The shift to insubstantial differences moved toward a more flexible standard that is consistent with a factor identified in *Graver Tank*. Furthermore, the court explicitly recognized that the application of the doctrine is an objective inquiry,<sup>331</sup> and this shifted the focus from subjective intent to factors that are assessed in light of concrete evidence. This shift is also consistent with the objective factors of equivalence delineated in *Graver Tank*. Finally, the majority's holding that intent is irrelevant in assessing equivalence<sup>332</sup> moved infringement under the doctrine of equivalents closer to literal infringement. By making both literal infringement and infringement under the doctrine of equivalents strict liability offenses, the court unified the infringement inquiry as a whole, making the standards of both types of infringement more cogent.

In addition to the successes of the per curiam opinion, the concurring and dissenting opinions raised issues that may shape future incremental steps that may clarify the doctrine. Judge Newman correctly recognized that the underlying problem with the doctrine of equivalents was the application of the doctrine in practice.<sup>333</sup> While the policy underlying the doctrine remains sound, the current framework has led to inconsistent application that has expanded greatly. Judges Plager and Lourie also recognized this vast expansion and sought to develop methods to limit the application of the doctrine that protects patentees from unjust encroachment while not allowing patentees to expand their rights to the detriment of competitors who lacked notice.<sup>334</sup> Judge Plager also recognized that the current system does not foster meaningful appellate review. He suggested that district courts should require juries to use special verdicts and interrogatories, which would help create

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328. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co., Inc.*, 62 F.3d 1512, 1516, 1518 (Fed. Cir. 1995), *rev'd*, 117 S. Ct. 1040 (1997).

329. See *id.* at 1518.

330. See *id.* at 1546 (Lourie, J., dissenting).

331. See *id.* at 1519.

332. See *id.*

333. See *id.* at 1535 (Newman, J., concurring).

334. See *id.* at 1543-44 (Plager, J., dissenting); *id.* at 1549 (Lourie, J., dissenting).

distinct trial-level findings that would be reviewable for clear error by the Federal Circuit.

Most importantly, the five dissenting judges recognized the potential to reshape and develop a consistent doctrine by revising or clarifying the roles of judges and juries in applying the doctrine of equivalents.<sup>335</sup> While the exact roles of judge and jury differed among the dissenters, the recognition of this possibility for reform is crucial and may mark the beginning of a future revision of the doctrine.<sup>336</sup> Judge Plager attempted to work within the *Graver Tank* constraint that application of the doctrine of equivalents is a question of fact.<sup>337</sup> He emphasized that courts often decide factual matters without impinging on the right to trial by jury.<sup>338</sup> Judge Lourie argued for reform of *Graver Tank*, asserting that equivalence should be a question of law for the judge.<sup>339</sup> Judge Nies, like Judge Plager, attempted to work within the confines of *Graver Tank*. She asserted that infringement under the doctrine of equivalents was a mixed question of law and fact.<sup>340</sup> The court has traditionally determined the scope of claims, and this should remain a matter of law for the court. Application of the properly construed claim to the accused product or process has traditionally been and should remain a question of fact for the jury. This approach brings infringement by equivalents in line with literal infringement to a greater degree than the other approaches. While these approaches were not adopted, the recognition by five members of the court of this possible avenue of clarification may signal the path of future reform.

Despite these positive aspects, the Federal Circuit failed to develop a consistent framework for application of the doctrine of equivalents and introduced presumptions that furthered the complexity of an already unworkable inquiry. While recognizing that the triple identity test is not always a sufficient test for equivalence, and adopting the insubstantial differences test,<sup>341</sup> the Federal Circuit did not provide a clear test for determining equivalence. Insubstantial differences are determined using

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335. All five dissenters suggested giving judges a greater role in the equivalence inquiry.

336. In the past, dissenting opinions in doctrine of equivalents cases have foreshadowed future reform, as evidenced by the history behind the adoption of the all-elements rule and the rule requiring assessment of equivalence at the time of infringement rather than at patent issuance.

337. See *Hilton Davis*, 62 F.3d at 1543 (suggesting that the doctrine of equivalents may be a factual issue for the judge due to the doctrine's equitable basis).

338. See *id.*

339. See *id.* at 1549-50.

340. See *id.* at 1550.

341. See *id.* at 1518.

the *Graver Tank* factors as altered by the presumptions introduced by the majority opinion, yet the court never defined "insubstantial differences." By allowing district courts to use the triple identity test to assess the substantiality of differences between claimed and accused products, the Federal Circuit did not address the inconsistent application of this test by district courts. The majority's approach renames the test and nominally allows courts to consider all evidence related to differences between the claims and the accused product or process, but in fact perpetuates the rigid application of the triple identity test currently employed by the district courts.<sup>342</sup>

Furthermore, the Federal Circuit decision altered the *Graver Tank* factors used to assess equivalence, but did not provide guidance on how district courts should apply these altered factors. In *Graver Tank*, the Supreme Court indirectly set forth several factors for courts to consider in assessing equivalence including evidence of copying, the substantiality of the differences between the claimed and accused products or processes, evidence of independent development, known interchangeability of substitutes by one skilled in the art, and whether or not the accused product meets the triple identity test.<sup>343</sup> The Supreme Court did not clarify how to weigh these factors, but apparently considered all the factors to some degree. The Federal Circuit's *Hilton Davis* decision elevated the insubstantial differences factor to the sole test of equivalence. The court further imposed two rebuttable presumptions: allowing evidence of copying to serve as a proxy for insubstantial differences (refutable by evidence of independent development), and allowing evidence of designing around a patent to serve as a proxy for substantial differences.<sup>344</sup> This framework altered the importance of the *Graver Tank* factors without justification. These presumptions have no basis in *Graver Tank* and seemingly introduce an intent factor into the doctrine.<sup>345</sup> While the presumptions may be correct in certain cases, the *Graver Tank* framework allowed consideration of these factors on a case-by-case basis. The Federal Circuit opinion requires courts to draw broad assumptions from evidence of these factors that in effect shift the burden of proof without the individualized case-by-case assessment suggested in *Graver Tank*.

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342. See *supra* note 289.

343. See *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607-12 (1950).

344. See *Hilton Davis*, 62 F.3d at 1519-20.

345. Yet at the same time, the court explicitly rejected an intent element. See *id.* at 1519.

The court's approach also failed to address the widespread use of the doctrine and the respective roles of judges and juries that the dissenters so strongly criticized. The court ruled that the availability of the doctrine does not rest on an equitable basis, but is available to all parties.<sup>346</sup> While this framework parallels the inquiry for literal infringement, the court failed to limit the doctrine in any practical way; the court simply opened the doors to assertions of infringement by equivalents. Since the court declared that equivalence was an issue of fact for the jury,<sup>347</sup> numerous cases must now go to trial on the issue of equivalence. The dissenters strongly criticized this approach, seeking to limit the application of the doctrine through an equitable trigger or speeding the trial process by allowing judges to decide the issue. The majority's approach fails because the doctrine is available to all without safeguards for competitors. This approach undermines the notion expressed in *Graver Tank* that the doctrine is available to prevent fraud on a patent.<sup>348</sup> The court's approach also does not serve judicial efficiency because cases in which literal infringement is resolved early in the process must still go to the jury on the issue of equivalence. The key point made by the dissenters is that the majority's framework leaves too much for the jury without any real constraint on the application of the doctrine of equivalents.

In addressing infringement under the doctrine of equivalents for the first time since *Graver Tank*, the Supreme Court used the opportunity to restate some traditional elements of the doctrine and to clarify some competing debates on the doctrine. Despite these clarifications, the Court failed to resolve the issues of application that have plagued the doctrine. The Supreme Court opinion evidenced a desire to continue revising the doctrine of equivalents incrementally rather than through whole-scale changes. Much like the Federal Circuit decision, the Supreme Court opinion provides possible insight into the future of equivalence, but failed to solve the problems of overly widespread use and inconsistent application that many have criticized.

The Supreme Court affirmed the continued vitality of the doctrine of equivalents<sup>349</sup> and the traditional belief that the application of the doctrine presents a question of fact. The Court affirmed the Federal Circuit's assertion that a showing of equivalents does not require proof

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346. See *id.* at 1522-23.

347. See *id.*

348. See *Graver Tank*, 339 U.S. at 608.

349. See *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 117 S. Ct. 1040, 1045 (1997).



of intent.<sup>350</sup> This decision helps align infringement by equivalents with literal infringement. Both offenses are now strict liability offenses.<sup>351</sup> The Court, by adopting the element-by-element approach to equivalents, ended the debate in the Federal Circuit between the element-by-element approach and the "as a whole" approach.<sup>352</sup> This formulation further united infringement by equivalents and literal infringement. Literal infringement requires that the accused product or process meets each limitation found in the claims. Failure to meet a claim limitation results in a finding of no infringement. The element-by-element formulation of equivalence, requiring the accused process or product to meet each claim limitation literally or by equivalents, allows courts to assess equivalence in much the same manner as literal infringement. This clarification is a strong advancement toward a uniform infringement inquiry.

The Court also settled the debate over whether equivalence should be assessed at the time of infringement or the time of patent issuance by adopting the time of infringement.<sup>353</sup> By settling this dispute within the Federal Circuit, the Supreme Court added to the certainty of the equivalence inquiry. The Court rejected any linguistic framework for the doctrine, defining the essential inquiry as "Does the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?"<sup>354</sup> This statement focuses the equivalence inquiry, but provides little guidance for the concrete application of the doctrine, a consideration which plagues the incremental approach to reshaping the doctrine.

The Supreme Court rejected the presumptions imposed by the Federal Circuit in *Hilton Davis* and restored the process of case-by-case consideration based on the *Graver Tank* factors. In an attempt to limit the widespread use of the doctrine, the Supreme Court turned to prosecution history estoppel. The Federal Circuit has devised a coherent system that clearly delineates what gives rise to estoppel and the scope of the estoppel.<sup>355</sup> Material that is relinquished to avoid prior art is the prime reason giving rise to estoppel.<sup>356</sup> Thus, competitors may determine the scope of the patentee's rights from the prosecution history. The Federal Circuit has consistently held that estoppel bars the patentee from

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350. See *id.* at 1052.

351. See Haag, *supra* note 326, at 1534; Hoffman & Oliver, *supra* note 167, at 16; Lund, *supra* note 143, at 649.

352. See *Warner-Jenkinson*, 117 S. Ct. at 1049.

353. See *id.* at 1053.

354. *Id.* at 1054.

355. See generally 5 CHISUM, *supra* note 102, § 18.05[1]-[2].

356. See *Warner-Jenkinson*, 117 S. Ct. at 1049.

asserting infringement by equivalents as to the estopped matter. The Supreme Court adopted a rebuttable presumption that an amendment offered during the prosecution of a patent was required by the PTO for reasons related to patentability and thus creates an estoppel.<sup>357</sup> The Court believed that this limitation would reasonably curtail the doctrine of equivalents.

The Supreme Court's use of prosecution history estoppel did not create a new limit on the doctrine of equivalents, but rather created an extreme burden on patentees that simply adds complexity to a settled area of patent law. The Federal Circuit used prosecution history estoppel prior to the Supreme Court's decision in *Warner-Jenkinson* as a bar to the doctrine of equivalents.<sup>358</sup> While the Supreme Court adopted this approach in *Warner-Jenkinson*, the presumption that every amendment gives rise to estoppel has the potential to severely burden current patent holders. The Court noted the possibility that the PTO had required amendments without an intent to limit the range of possible equivalents.<sup>359</sup> The concurring opinion of Justice Ginsburg recognized the potential impact that this presumption could have on holders of issued patents:

The new presumption, if applied woodenly, might in some instances unfairly discount the expectations of a patentee who had no notice at the time of patent prosecution that such a presumption would apply. Such a patentee would have had little incentive to insist that the reasons for all modifications be memorialized in the file wrapper as they were made.<sup>360</sup>

As the concurrence suggests, the presumption unfairly burdens the holders of issued patents. However, the ramifications are far greater than suggested. During the prosecution of a patent, the PTO often suggests amendments to clarify the application without expressly stating that the reason is to avoid prior art. Furthermore, phone and office interviews between patent attorneys and PTO examiners are currently documented on four lines of a form. Examiners routinely document a compromise reached during the interview without expressing the reasons for the compromise. Additionally, the file histories of issued patents are often sparse and incomplete. The presumption means in practice that

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357. See *id.* at 1051.

358. See *supra* note 314.

359. See *Warner-Jenkinson*, 117 S. Ct. at 1050.

360. *Id.* at 1055 (Ginsburg, J., concurring).

any past amendment will create an estoppel with regard to the subject matter of the amendment because, for all practical purposes, no record will likely exist that documents the reasons for the change. Patentees will bear the burden of rebutting the presumption and may lose the possibility of equivalence because of lack of evidence. While prosecution history estoppel had been used to restrain the doctrine of equivalents, the Supreme Court's presumption will burden patentees without any true clarification of the framework of equivalence. The Federal Circuit must now struggle to determine what amendments are "related to patentability" and how to apply the Supreme Court's presumption to countless issued patents. While patent attorneys will structure their future conduct to meet this presumption,<sup>361</sup> the burden placed on current patent holders remains unjustified because it will not cure the problems of application that face judges applying the doctrine of equivalents. The presumption is an ill-suited attempt to fix the doctrine of equivalents, and serves only to disturb an area of relatively settled patent law to no party's benefit.

While resolving disputes on some issues of equivalence and attempting to limit the doctrine of equivalents through prosecution history estoppel, the Supreme Court left the continued development of a specific framework for the doctrine to the Federal Circuit, recognizing its expertise in the patent area.<sup>362</sup> While the Supreme Court clarified several broad aspects of the doctrine, the crucial questions of application that plagued the doctrine following *Graver Tank* were no clearer after the decision. The Federal Circuit was left free to reformulate the inquiry, but no true guidance was provided for this monumental task.

Most importantly, the Supreme Court barely addressed the avenue of reform that appears most promising. While affirming that the doctrine of equivalents presents a question of fact, the Court refused to clarify the roles of judges and juries in this inquiry.<sup>363</sup> The Court noted that ample precedent supported the Federal Circuit holding that equivalence was a question of fact for the jury to decide.<sup>364</sup> The Court noted that resolution of the case at bar did not require consideration of "whether, or how

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361. The presumption creates an adversarial relationship between patent attorneys and PTO examiners because the attorneys will struggle with each office action to avoid prosecution history that may later support estoppel. It is more likely that responses to office actions will contain boilerplate language to the effect that the response is unrelated to issues of patentability, but added for some other reason. While the courts will assess these responses in each case and are likely to see the proffered reasons as nothing more than a pretense, the added inquiry fails to serve the intended purpose.

362. See *Warner-Jenkinson*, 117 S. Ct. at 1054.

363. See *id.* at 1053.

364. See *id.*

much of, the application of the doctrine of equivalents can be resolved by the court."<sup>365</sup> In an ambiguous statement that did not reveal their position on the issue, the Court left possible revision through this avenue open to future consideration: "Whether, if the issue [of the role of the judge in the equivalents inquiry] were squarely presented to us, we would reach a different conclusion than did the Federal Circuit is not a question we need decide today."<sup>366</sup> While the Court has often declined to resolve issues not germane to the case at bar, *Warner-Jenkinson* indirectly raised the judge/jury issue at the Federal Circuit level. This path of reform was clearly an issue of controversy, as shown by the splintered Federal Circuit opinions. The Supreme Court's failure to address this issue left the doctrine of equivalents open to incremental reform, while a prime opportunity for whole-scale revision passed.

However, the Court attempted to provide guidance on the application of the doctrine within the existing jury framework. As a check on the unrestrained application of the doctrine by juries, the Court, in dicta, suggested that the use of special verdicts or jury interrogatories would foster appellate review and clarify the findings of the jury.<sup>367</sup> While this approach makes appellate review more meaningful and efficient, it does not provide a framework for consistent application at the district court level. Noting the reluctance of district court judges to grant summary judgment on the issue of equivalence, the Court stated that the Federal Circuit could remedy this problem.<sup>368</sup> This statement confirmed that infringement by equivalents becomes a matter of law when no factual dispute exists and suggested that the judge play some role in determining the limits on equivalence. Yet the judge's role remained undefined. The Court essentially left the Federal Circuit to reform the doctrine incrementally within the guidelines of *Graver Tank* and the additional restraints of *Warner-Jenkinson*. As a whole, the Court's approach failed to enlighten the application of the doctrine of equivalents in a significant manner.

On remand, the Federal Circuit declined to delineate a clear test for applying the doctrine. However, the Federal Circuit will have opportunities in the future to clarify the application of the doctrine of equivalents

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365. *Id.* at 1053.

366. *Id.*

367. *See id.* at 1053 n.8.

368. *See id.*

and to give meaning to the vague presumption developed by the Supreme Court.<sup>369</sup>

#### IV. INCONSISTENCIES BETWEEN THE *MARKMAN* AND *WARNER-JENKINSON* FRAMEWORKS: THE ROLES OF JUDGE AND JURY

Comparing the *Markman* framework for claim construction and the *Warner-Jenkinson* framework for the doctrine of equivalents, reveals significant inconsistencies that suggest possible improvements in the doctrine of equivalents. However, if reform is to be effective, it must focus on two critical elements. First, any changes must try to unify the inquiries for both literal infringement and infringement under the doctrine of equivalents to produce a system that district courts can consistently and uniformly apply. Second, revision must produce an equivalence framework that serves its intended function and is consistent with historical precedent. Any such reform must preserve the substance of the right to a jury trial on the issue of infringement without continuing the currently unrestrained application of the doctrine by juries.

The *Markman* decision, holding that claim construction is a matter of law for the court,<sup>370</sup> clarified the inquiry for literal infringement while preserving the right to a jury trial that issue. The decision maintained and clarified a two-part inquiry for literal infringement: first, the court determines the scope and meaning of the claims as a matter of law, and second, the fact-finder compares the correctly construed claims to the accused product or process.<sup>371</sup> Claim construction is reviewed de novo on appeal.<sup>372</sup> The second step of this process is a matter of fact determined by the jury in a jury trial or by the judge in a bench trial. Jury findings are reviewed for substantial evidence to support the verdict, while in a bench trial these factual findings are reviewed for

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369. For example, the Federal Circuit has the opportunity to address these concerns in three cases remanded by the Supreme Court for reconsideration in light of *Warner-Jenkinson*. See *Honeywell, Inc. v. Litton Sys., Inc.*, 117 S. Ct. 1240 (1997) (mem.); *Shoketsu Kinzoku Kogyo Kabushiki Co. v. Festo Corp.*, 117 S. Ct. 1240 (1997) (mem.); *United States v. Hughes Aircraft Co.*, 117 S. Ct. 1466 (1997) (mem.). All of these opinions vacated prior Federal Circuit decisions involving the doctrine of equivalents and remanded for reconsideration in light of *Warner-Jenkinson*.

370. See *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384 (1996).

371. See *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995); see also *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 821 (Fed. Cir. 1992) (using this traditional two-step inquiry).

372. See *Markman*, 52 F.3d at 979.

clear error.<sup>373</sup> The *Markman* decision clarified the respective roles of judges and juries in the literal infringement inquiry and focused the process of appellate review. Despite the procedural problems addressed above in Parts II.B and C, the framework produces a consistent and uniform test for literal infringement.<sup>374</sup>

The Supreme Court held that this inquiry preserved the right to trial by jury on the issue of literal infringement and was consistent with historical precedent.<sup>375</sup> As a fully integrated written instrument, determination of the meaning and scope of patent claims falls within the traditional functions performed by judges.<sup>376</sup> Equally important, the traditional role of the jury in comparing the claim to the accused product or process is preserved. The Court found that the substance of the right to a jury trial on literal infringement consisted of allowing the jury to make this comparison between the properly construed claim and the accused product or process. The Court believed this framework preserved a patent holder's Seventh Amendment rights, while producing greater uniformity and fostering meaningful appellate review.

The *Warner-Jenkinson* decision failed to produce a similarly consistent inquiry for determining infringement under the doctrine of equivalents. The roles of the judge and jury remain undefined. Under the current inquiry, almost the entire process remains with the jury.<sup>377</sup> While the judge limits the scope of the claims through prosecution history estoppel as a matter of law, the fact-finder determines the possible range of equivalents and compares the claims to the accused product or process to determine infringement by equivalents. Unlike the inquiry for literal infringement, the framework for infringement by equivalents leaves nearly the entire inquiry to the fact-finder. While this process is consistent with historical precedent, it fails to provide

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373. See, e.g., *Genentech, Inc. v. Wellcome Found. Ltd.*, 29 F.3d 1555, 1565 (Fed. Cir. 1994).

374. See *Re*, *supra* note 157, at 80 (asserting that *Markman* was an inevitable decision); Glazer & Rizzi, *supra* note 157, at 2, 5 (discussing why *Markman* fosters certainty); Richard A. Machonkin, Note, *Markman v. Westview Instruments, Inc. and Hilton Davis Chemical Co. v. Warner-Jenkinson Co.: The Federal Circuit Gets Its Laws and Its Facts Straight*, 9 HARV. J.L. & TECH. 181, 203 (1996) (discussing the certainty brought by *Markman*).

375. See *Markman*, 116 S. Ct. at 1393-96.

376. See *id.* at 1395.

377. See Helen Wilson Nies, *Dissents at the Federal Circuit and Supreme Court Review*, 45 AM. U. L. REV. 1519, 1523 (1996).

uniformity, consistency, or the opportunity for meaningful appellate review.<sup>378</sup>

The framework for infringement by equivalents leaves an issue analogous to claim construction to the fact-finder, usually the jury. The doctrine of equivalents is inherently an "expansion" of the patent claims beyond the scope delineated in the written record that allows a patentee to assert infringement against an accused product or process that fails to meet the literal language of the claims.<sup>379</sup> The goal of the doctrine is to prevent the unscrupulous copyist from capturing the essence of the patentee's invention, while avoiding the literal language of the claims.<sup>380</sup> The doctrine attempts to balance this goal against allowing the patentee to expand the scope of the right to exclude beyond material literally covered by the patent. It is generally recognized that it is nearly impossible for a patentee to protect an invention if limited solely to the express language of the claims. The main problem with the current framework for the doctrine of equivalents is that the fact-finder determines the permissible expansion of the claim language. While *Markman* held that the judge determines the scope of the claims as a matter of law, the *Warner-Jenkinson* framework for equivalence allows the jury to expand the scope of the claims as a matter of fact. Thus, the uniformity and consistency created under *Markman* are subject to erosion under the doctrine of equivalents.

The *Markman* opinions reflect the belief that judges, through specialized training and repetition, are more capable of determining the meaning of a written document.<sup>381</sup> While the doctrine of equivalents moves beyond the written document, the same skills suggest that judges should determine the permissible scope of expansion of the disputed claim language. Allowing the jury to determine the extent of permissible claim expansion has the potential to erode the uniformity and consistency on which the *Markman* decision was grounded. Under the current system of establishing equivalence, it remains possible for juries to determine claim scope and meaning, despite a contrary, judicial claim construction for literal infringement.<sup>382</sup> The lack of meaningful appellate

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378. See Haag, *supra* note 326, at 1512 (stating that *Hilton Davis* left the doctrine of equivalents "more unreliable and unpredictable than ever"); George W. Neuner, *Changing Views on Infringement?*, 6 FED. CIR. B. J. 19, 39 (1996) (discussing why *Hilton Davis* fostered uncertainty).

379. See 5 CHISUM, *supra* note 102, § 18.01, at 18-2.1.

380. See *Graver Tank v. Linde Air Prod. Co.*, 339 U.S. 605, 608 (1950).

381. See *Markman*, 116 S. Ct. at 1395.

382. See George E. Badenoch, *Proceeding in the Gray Area After Markman*, INTELL. PROP. STRATEGIST, June 1996, at 1, 3 (noting that *Hilton Davis* effectively allows the jury to ignore the court's claim construction); Randy Lipsitz & Douglas P. Dreyer,

review under the current framework for equivalence prevents correction of this unjust expansion. Allowing judges to limit the doctrine of equivalents through prosecution history estoppel, after a finding of equivalence, fails to curtail the possibility of a vast expansion of the claims by the jury. The fierce criticism of the current application of the doctrine of equivalents focuses on the belief that the doctrine has become too widely used and that juries are expanding claims too far.<sup>383</sup> This expansion chills competitors by rendering them accountable for infringement they could in no way predict or prevent, other than by ceasing their activity which, in their view, did not infringe the asserted patent based on the public record. The inconsistency between claim construction under *Markman* for literal infringement and claim construction by the jury for infringement by equivalents suggests a possible avenue of reform to unify the infringement inquiries and create a more workable standard.

The frameworks for literal infringement and infringement under the doctrine of equivalents converge when the accused product or process is introduced. Under both systems, the fact-finder compares the accused product or process to the properly construed claims. However, the comparison is less troublesome when literal infringement is at issue than when infringement by equivalents is tested. In assessing literal infringement, the fact-finder compares the accused product or process to the claims as construed by the court.<sup>384</sup> The jury tests whether the accused object meets each limitation of the claims as determined by the

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*Markman*: *The Supreme Court Levels Playing Field in Patent Cases*, COMPUTER L. STRATEGIST, July 1996, at 1, 4 (stating that despite a narrow claim construction, jury can expand the claims through doctrine of equivalents); John Rawls, *Recent Changes in Patent Litigation: A Whole New Ballgame*, COMPUTER LAW., Jan. 1996, at 9, 10 (questioning how to avoid jury overriding claim limitations when applying doctrine of equivalents); *Additional Major Problems*, 36 IDEA 443, 445 (1996) (citing Mr. Gholz that *Hilton Davis* does not harmonize with *Markman*); Kuehnle, *supra* note 326, at 602 (suggesting that jury's access to doctrine of equivalents is contrary to judge's control over claim construction); Scully, *supra* note 143, at 639 (noting that *Hilton Davis* negates the power given the judge in *Markman* by allowing the jury to supersede the judge's claim construction).

383. See Schalestock, *supra* note 156, at 324 (noting that the doctrine of equivalents has been transformed from a shield to a sword); Kuehnle, *supra* note 326, at 601, 604 (stating that no real check exists on jury's power to expand the claims through the doctrine of equivalents); Neuner, *supra* note 378, at 39 (indicating that *Hilton Davis* brings more uncertainty into the infringement analysis); Leibold, *supra* note 143, at 654 (suggesting that the doctrine of equivalents is virtually uncontrolled).

384. See, e.g., *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 821 (Fed. Cir. 1992).



court.<sup>385</sup> In determining infringement by equivalents, the jury begins with the claims as construed by the court. The jury then determines whether the accused product or process meets each limitation of the claims either literally or by equivalents. When the accused object meets a limitation literally, no difficulty exists. However, when the accused device does not literally meet a claim limitation, the jury must determine if the product or process meets the limitation by equivalents. This process can be viewed in two similar ways that may have dramatically different implications. Under the first view, the jury is focusing on the accused object to determine if it is equivalent to the claim limitation as construed by the court. In the second view, the jury is deciding whether to "expand" the claim to cover the accused product or process. The first view suggests that equivalence is a jury function because questions concerning the accused device have traditionally been factual matters for the jury. The second view suggests that equivalence may be characterized as a matter for the court because *Markman* suggests that matters involving the scope of the claims are best decided by judges. These views suggest that the determination of equivalence does not focus solely on the claim or the accused item, and courts have failed to clearly define equivalence in a way that settles the character of the inquiry.

While the *Markman* decision clarified distinct roles for judges and juries in the literal infringement inquiry, the current doctrine of equivalents framework leaves the entire process to the jury with minor limitation by the judge. The dichotomy between these approaches results from the lack of definition of equivalence. *Markman* suggests a clear distinction between matters for the judge and for the jury, often characterized as matters of law and fact. Matters relating to the scope and meaning of claims are matters for the court, and matters relating to the accused product or process are matters for the jury.<sup>386</sup> If the court can define equivalents by separating matters related to claims from those related to the accused device, a system similar to that introduced by *Markman* may be implemented. The failure to reconcile differing approaches for literal infringement and infringement by equivalents has caused the court to leave the entire equivalence inquiry to the unbridled

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385. See, e.g., *General Am. Transp. Corp. v. Cryo-Trans, Inc.*, 93 F.3d 766, 769 (Fed. Cir. 1996) ("The application of the claim to the accused device is a question of fact, reviewed for clear error" (citations omitted)).

386. See, e.g., *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed. Cir. 1995); see also Creel, *supra* note 1, at 322 n.17; Higbee, *supra* note 143, at 418; Rudolph P. Hoffman, Jr., *The Doctrine of Equivalents: Twelve Years of Federal Circuit Precedent Still Leaves Practitioners Wondering*, 20 WM. MITCHELL L. REV. 1033, 1038 (1994); Re, *supra* note 157, at 91.

discretion of juries. While the Federal Circuit has made numerous attempts to place incremental constraints on this discretion,<sup>387</sup> none have resulted in a workable system. These failures suggest that whole-scale revision of how the doctrine of equivalents is applied may be necessary.

Finally, *Markman* and subsequent cases provide a final piece that may prove crucial to resolving the problems with the doctrine of equivalents. Under *Markman*, when no factual dispute exists about how the accused product or process functions, literal infringement reduces to a question of law.<sup>388</sup> The judge then determines as a matter of law if the accused product or process meets each limitation of the properly construed claims. This framework speeds the process as summary judgment may resolve the dispute. On appeal, the Federal Circuit often renders a decision based on the record because no factual issues regarding the accused product or process remain. The fact that literal infringement collapses into a question of law raises several possibilities. If no factual issues regarding an accused product or process remain, infringement by equivalents may reduce to a question of law. This possibility is supported by decisions in which district courts have granted and the Federal Circuit has upheld summary judgment on the issue of infringement by equivalents.<sup>389</sup> These cases suggest that the substance of the Seventh Amendment right to a jury trial on infringement rests solely on letting the jury decide issues related to the accused device. If no questions remain about the functioning of the accused product or process, the determination of equivalence may reduce to a legal matter. The Federal Circuit has not addressed the inconsistency between allowing summary judgment on infringement by equivalents and the Court's position that equivalence is a question of fact. Under the current system, if no factual dispute regarding the accused product or process remains, summary judgment is appropriate. However, this means that the court is deciding equivalence, which the court has expressly declared a matter of fact for the jury. This dichotomy, coupled with the inconsis-

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387. See Barrett, *supra* note 327, at 515, 524 (noting that the Federal Circuit has attempted to apply the doctrine more narrowly); Hoffman & Oliver, *supra* note 167, at 15 (noting that the Federal Circuit is moving toward a more restricted application of the doctrine of equivalents); Iancu, *supra* note 327, at 333 (arguing the Federal Circuit, since its inception, has narrowed the doctrine of equivalents); Gary M. Hoffman & Eric Oliver, *With Hilton Davis the Federal Circuit Takes the Doctrine of Equivalents Back to its Roots*, 77 J. PAT. & TRADEMARK OFF. SOC'Y 763 (1995) (suggesting that the Federal Circuit has evidenced a swing toward a restricted application of the doctrine of equivalents).

388. See, e.g., *Gentex Corp. v. Donnelly Corp.*, 69 F.3d 527, 530 (Fed. Cir. 1995).

389. See *supra* note 305.

tencies between literal infringement and infringement by equivalents, suggests a promising new approach to the doctrine of equivalents.

## V. A REVISED APPROACH TO THE DOCTRINE OF EQUIVALENTS

This section suggests a possible revision in the doctrine of equivalents that may unify the inquiries for literal infringement and infringement under the doctrine of equivalents. This approach begins with the *Markman* framework and the current practices of the Federal Circuit as a basis for revising the doctrine. The suggested approach is not an incremental revision of the current doctrine of the type presently utilized by the Federal Circuit and the Supreme Court, but rather a fundamental rethinking of what equivalence is and how it should be assessed.

The reform suggested is premised on the continued vitality of some form of equivalents. The Supreme Court's opinion in *Warner-Jenkinson* affirmed the continued vitality of this doctrine,<sup>390</sup> and the historical adherence to the doctrine in some form suggests that this premise is well founded. The doctrine was judicially created to prevent fraud on a patent. The doctrine was designed to prevent competitors from appropriating the substance of a patentee's invention while avoiding the literal language of the claims. It is now generally accepted that limiting the scope of a patentee's right to exclude to the express language of the claims would make that patent grant a hollow symbol while allowing the unscrupulous copyist to appropriate the benefit of the invention. Despite the vigorous dissent of Justice Black in *Gover Tank*, asserting that a patentee is limited to the express language of the claims, courts have rejected the possibility of such a limitation.<sup>391</sup> The premise that some form of equivalence will remain is so amply supported by historical precedent that it appears beyond dispute.

The suggested reform is also premised on the historical right to a jury trial on the issue of infringement. *Markman* analyzed this right and implied that any reform in patent doctrine must preserve the substance of the Seventh Amendment right to trial by jury on the issue of infringement.<sup>392</sup> The Court in *Markman* tested the preservation of this right using a historical test that focused on whether the substance of the right, as it existed in 1791, was preserved.<sup>393</sup> The suggested reform of the

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390. See *Warner-Jenkinson*, 117 S. Ct. 1040, 1045 (1997).

391. See *Warner-Jenkinson*, 117 S. Ct. at 1047 & n.3 (rejecting Justice Black's approach as foreclosed by precedent).

392. See *Markman*, 116 S. Ct. 1384, 1389 (1996).

393. See *id.*

doctrine of equivalents preserves the substance of the right to a jury trial on infringement, assuming the court continues to use the historical test applied in *Markman*.

To preserve the substance of trial by jury on the issue of infringement, revising the test for infringement under the doctrine of equivalents requires resolution of what substance the right protects and the historical practice at the time the Seventh Amendment was adopted. *Markman* upheld a system that divided the literal infringement inquiry into two parts. The second step of this process requires the jury to compare the accused product or process to the properly construed claims to determine if the accused item meets each limitation of the claims. However, current Federal Circuit precedent holds that when no factual issues exist surrounding the accused device, literal infringement reduces to a matter of law amenable to summary judgment.<sup>394</sup> This suggests that the substance of the right to trial by jury on the issue of infringement rests in allowing the jury to determine issues relating to the accused product or process. In the modern infringement trial, much of the evidence concerns disputes over what the accused product or process is and how it functions. When these disputes are resolved by the jury, literal infringement is a matter of law. The Federal Circuit commonly rules on literal infringement on appeal because factual disputes concerning the accused product or process have been resolved at the trial level by the jury.<sup>395</sup>

Historical cases suggest by implication that juries resolved factual disputes about accused products and processes, but absent such a dispute, decision remained with the judge. For example, in *Singer Manufacturing Co. v. Cramer*, the Court compared the patent at issue to the accused device and determined that the differences were substantial.<sup>396</sup> The Court performed the comparison because there was no dispute about the accused device. The Court held that the trial court should have directed a verdict for the defendant.<sup>397</sup> In *Winans v. Denmead*, the Court ruled that the trial judge was in error when the judge restricted protection to the precise language of the claims without equivalents that protect the substance of the invention.<sup>398</sup> The Court held that the issue of infringement should have gone to the jury under proper instructions.<sup>399</sup> However, the Court suggested that factual issues

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394. See *supra* note 388.

395. See *supra* note 118.

396. See 192 U.S. 265, 285-86 (1904).

397. See *id.* at 286.

398. See 56 U.S. 330, 339 (1853).

399. See *id.* at 344.

remained, necessitating a jury decision.<sup>400</sup> Both current and historical precedent suggest that the substance of the right to a jury trial on infringement is the determination by the jury of disputes about the accused product or process.

The current framework for applying the doctrine of equivalents leaves both the comparison of the accused product or process to the claims of the patent at issue and the determination of whether these are equivalent to the jury. This process leaves more to the jury than mere resolution of disputes concerning the accused product or process. The jury also determines the scope of the claims for equivalence purposes.<sup>401</sup> Whether viewed as an equitable expansion of the claims to cover the accused device or as an interpretation that the accused device equivalently meets each limitation of the written claims, the jury plays a role in determining the scope of the patentee's right to exclude. However, this role is not absolute. Both district courts and the Federal Circuit permit summary judgment on the issue of infringement by equivalents.<sup>402</sup> In fact, the Supreme Court suggested in *Warner-Jenkinson* that judges are obligated to grant summary judgment when "the evidence is such that no reasonable jury could determine two elements to be equivalent."<sup>403</sup> This suggests that at some point equivalents, much like literal infringement, becomes a matter for the court, whether characterized as a matter of law or fact. Yet neither the Federal Circuit nor the Supreme Court have elucidated when this point occurs.

Courts should test the doctrine of equivalents through a two-part inquiry, just as literal infringement is tested. Disputes concerning the function or structure of the accused product or process should remain with the jury. However, the court should determine whether the accused product or process is equivalent to the claimed invention by explicitly balancing the *Graver Tank* factors and the equities of the case. This reform creates a two-part inquiry for infringement under the doctrine of equivalents similar to the two-part inquiry developed in *Markman* for literal infringement. This is not the reform suggested by Judges Plager and Lourie in their *Hilton Davis* dissent. The jury is not totally removed

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400. See *id.* at 340 (suggesting that evidence tended to prove the practical effects of the accused device).

401. See Lipsitz & Dreyer, *supra* note 382, at 1, 4 (noting the jury's ability to expand the claim during the equivalence inquiry beyond the scope of the judge's claim construction). However, the Federal Circuit has held that claims must be interpreted the same way for purposes of literal infringement and infringement under the doctrine of equivalents. See, e.g., *Senmed, Inc. v. Richard-Allan Med. Indus., Inc.*, 888 F.2d 815, 818 (Fed. Cir. 1989).

402. See *supra* notes 294, 305.

403. *Warner-Jenkinson*, 117 S. Ct. 1040, 1053 n.8 (1997).

from the equivalence inquiry. The suggested reform is most analogous to the reform suggested by Judge Nies in her *Hilton Davis* dissent, that the doctrine of equivalents presents mixed questions of law and fact. Making equivalents solely a matter of law for the court would deny patentees their Seventh Amendment right to trial by jury on infringement because the court would decide factual issues about the accused device. The Supreme Court would likely strike down such an approach under the historical test used in *Markman*. The proposed reform works to preserve the function of the jury on the issue of equivalence, while creating a clear role for the judge.

The reform has several bases of support and is consistent with precedent and the policies enunciated in *Markman*. The reform preserves the jury's function of determining factual issues related to the accused product or process. The reform also creates distinct spheres for the judge and jury in the equivalence inquiry, paralleling the roles that currently exist in determining literal infringement. In *Markman*, the Supreme Court relied heavily on a comparison between the relative abilities of judges and juries.<sup>404</sup> The Court found that judges are better suited to determine the meaning of patent terms, since they are more likely to deal with these matters repeatedly and are trained to interpret written instruments.<sup>405</sup> The Court found that judges are more likely to reach the correct interpretation on this issue and are better suited "to evaluate the testimony in relation to the overall structure of a patent."<sup>406</sup> While the determination of equivalence does not rest solely on the interpretation of a written instrument, the rationale of *Markman* supports the proposed reform. Just as claim interpretation requires the weighing of evidence from several sources to determine the scope of the claims, equivalence also requires considering evidence from several sources to determine if the claims cover an accused embodiment. The key is that the focus remains the patent document. Commentators and judges have asserted that the unrestrained discretion of the jury in the current equivalence inquiry has led to too great an expansion of patent rights.<sup>407</sup> Judges are better suited to determine the rights of the patentee based on the patent document and supporting evidence.

The Court in *Markman* also relied on uniformity of interpretation as a basis for the decision.<sup>408</sup> The proposed reform fosters uniformity in several respects. The inquiries for literal infringement and infringement

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404. See *Markman*, 116 S. Ct. 1384, 1395 (1996).

405. See *id.*

406. *Id.*

407. See *supra* note 383.

408. See *Markman*, 116 S. Ct. at 1396.

under the doctrine of equivalents are parallel under the proposed approach, with judges and juries having similar roles in each inquiry. Making the determination of equivalents a matter for the court fosters consistency as judges repeatedly apply a consistent framework to test equivalence. Patentees and competitors can better predict results and structure their conduct accordingly as the equivalence inquiry is repeatedly applied and clarified. This process also fosters meaningful appellate review.

Under the current equivalence framework, the Federal Circuit often faces general jury verdicts on equivalence. While the Supreme Court in *Warner-Jenkinson*, suggested the use of special verdicts and jury interrogatories to clearly show jury verdicts,<sup>409</sup> this practice had not been used by district courts despite previous suggestion by the Federal Circuit. Currently, the Federal Circuit must sort through the possible rationales for jury decisions and then rule according to the possible bases for decision.<sup>410</sup>

Under the revised approach, the Federal Circuit will have the benefit of reasoned district court opinions that show how the ruling on infringement by equivalents was reached. The Federal Circuit can meaningfully assess this reasoning and determine if an error was made. Under the proposed system, both parties will have the benefit of the expertise of the Federal Circuit, and that court can make further incremental revisions in the doctrine as deemed necessary.

To understand the benefits of the proposed system, the details of how the system will function in practice are presented. Consider a hypothetical case charging both literal infringement and infringement under the doctrine of equivalents. At a Markman hearing, the court will determine the scope of the claims and the meaning of disputed terms. Under the revised approach the parties must present arguments on prosecution history estoppel at this hearing since equivalence is an issue. This allows the court to determine the complete scope of the claims at an early stage. While adding prosecution history estoppel to the scope of the Markman hearing may require additional testimony and evidence, the court will already be familiar with the prosecution history of the patent. Any additional burden this approach may cause is outweighed by an early decision of the complete scope of the claims.

At this time, the district court may assess summary judgment motions. If there are no factual issues about the structure or function of

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409. See *Warner-Jenkinson*, 117 S. Ct. 1040, 1053 n.8 (1997).

410. See, e.g., *Spancrete Mach. Corp. v. RH&M Mach. Co.*, No. 93-1415, 1994 WL 424620, at \*6 (Fed. Cir. Aug. 15, 1994) (unpublished decision) (holding that a jury verdict is sustained if there is any reasonable basis for the verdict).

the accused device, then summary judgment on both literal infringement and infringement under the doctrine of equivalents is proper. Since the court has assessed prosecution history estoppel, it may be apparent that the accused device cannot meet a claim limitation because of the estoppel. Summary judgment would be proper in such circumstances. However, if factual issues about the accused product or process remain, summary judgment on literal infringement and infringement by equivalents is improper. Under the current frameworks, summary judgment on literal infringement is common, while summary judgment on equivalents is less common. The proposed framework allows summary judgment to the same degree for both types of infringement. This will increase judicial efficiency as more cases are summarily resolved.

Assuming there is a factual dispute about the accused product or process, the case proceeds to a jury trial on the merits. During the jury trial, the patentee must present particularized testimony and linking arguments on the issue of equivalence, as in the current system.<sup>411</sup> At the close of trial, the jury determines literal infringement. In the proposed system, the jury also resolves the factual disputes that precluded summary judgment on equivalence. These disputes are focused through the prior summary proceedings and throughout the course of the trial. The jury instructions focus on the factual disputes about the accused device, rather than equivalence as a whole. The jury determines these factual disputes and returns special verdicts or answers to interrogatories. This procedure does not burden the trial process because the evidence presented on the factual issues of equivalence is nearly the same as the evidence for literal infringement with the exception of the particularized and linking testimony. However, the burden is no greater than exists under the current framework.

After the jury resolves the factual disputes about the accused product, the judge determines equivalence as a matter of fact. While this determination could be made a matter of law, *de novo* review would prove overly burdensome. The trial judge's determinations would receive no weight and decisions at the trial court level could become cursory. Making the determination a factual matter for the court gives some deference to the trial judge's determination and provides the Federal Circuit a more limited yet still meaningful review. The trial judge will have had the benefit of weighing the credibility of witnesses during the trial, entitling the judge's decisions to some deference. The

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411. See, e.g., *Lear Siegler, Inc. v. Sealy Mattress Co.*, 873 F.2d 1422, 1425 (Fed. Cir. 1989) (requiring separate proof of each *Graver Tank* factor).



proposed system envisions that the district court judge will issue an opinion containing the jury's resolution of the factual issues of equivalence and the answers to the special verdicts, the jury's determination of the literal infringement issue, and the judge's decision on equivalence. The judge decides the issue of equivalence by assessing the *Graver Tank* factors: the known interchangeability of an ingredient not contained in the patent, evidence of copying, evidence of independent development and designing around the patent, and the substantiality of the differences between the claimed and accused products or processes.<sup>412</sup> The court weighs these factors along with the state of the prior art against the scope of the claims as limited by prosecution history estoppel. The judge may also consider the equities of the case in balancing these factors. Based on these factors, the court then determines if the alleged infringer has appropriated the substance of the patentee's invention through insubstantial changes and substitutions. The judge balances the factors as required in the particular case with no factor being dispositive in advance. This allows for case-by-case determinations as merited by the evidence presented. JMOL and post-trial motions are then addressed.

Under the proposed approach, the parties benefit from focused use of the jury. The parties can formulate jury interrogatories and submit special verdict forms that lead to reasoned decisions on the factual issues about an accused product or device. The right to a jury trial on infringement is preserved. The parties have access to the same procedural tools that are currently available. The Markman hearing addresses prosecution history estoppel at an early stage when the court is assessing similar evidence to determine the scope of the claims. The proposed system unites the frameworks for literal infringement and infringement under the doctrine of equivalents.

Most importantly, the parties gain meaningful appellate review. The Federal Circuit will have clearly reasoned jury findings and a judicial opinion that explains how the factors were analyzed by the trial judge to rule on equivalence. This allows the court to assess whether the jury's factual findings were supported by substantial evidence and to evaluate the procedural aspects of the equivalence determination. The Federal Circuit determines if the trial judge's ruling on equivalence was clearly erroneous. From the trial court opinion, the Federal Circuit determines if the trial court correctly balanced the factors relevant to equivalence. This leads to a uniform procedure as the Federal Circuit determines rules

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412. See *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607-12 (1950).

for striking this balance. The current rules may prove adequate, but the court may revise these as necessary.

Under the proposed approach, the trial judge determines equivalence based on the *Graver Tank* factors and the equities of the case. This approach adopts the current system, but shifts the decision-making power to the judge. The *Warner-Jenkinson* opinions reflect a consensus that the *Graver Tank* factors are adequate for determining equivalence.<sup>413</sup> The equities of the case are captured in these factors, but in some cases may tip the balance. The proposed system does not utilize an equitable trigger for application of the doctrine of equivalents, but conforms to the *Warner-Jenkinson* approach that the doctrine is available in all cases.<sup>414</sup> Use of an equitable trigger would distort the parallel between literal infringement and infringement under the doctrine of equivalents. Litigants would face two trials: one to meet the equitable trigger and another to determine if the accused device infringes under the doctrine. The proposed approach makes these inefficient and duplicative procedures unnecessary. In shifting the power of decision to the trial judge, the proposed approach may lead to better and more consistent decisions and foster appellate review. Trial judges and the Federal Circuit can limit the doctrine to better serve its purpose of preventing piracy without the unjust expansion of claims that has plagued the current application of the doctrine. The expertise of the Federal Circuit in the patent area, recognized by the Supreme Court in *Markman* and *Warner-Jenkinson*, will serve as a further check on application of the doctrine. While claims will still cover material beyond their written scope, the expertise of the Federal Circuit will serve as a check to limit this expansion.

The Federal Circuit can adopt this approach in any of the cases remanded in light of *Warner-Jenkinson* or in a future in banc decision. Although the proposed system is a dramatic shift from the incremental approach of reform traditionally used for the doctrine of equivalents, this reform appears quite possible. In *Warner-Jenkinson*, the Supreme Court left the process of refining the doctrine to the Federal Circuit and left the roles of judges and juries open to change.<sup>415</sup> The *Hilton Davis* decisions at the Federal Circuit level showed support for shifting some degree of responsibility for application of the doctrine to the trial judge. Five judges advocated giving the judge a greater degree of power in some

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413. See *Warner-Jenkinson*, 117 S. Ct. at 1052 (abandoning the Federal Circuit's presumptions and returning to the original *Graver Tank* factors).

414. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co., Inc.*, 62 F.3d 1512, 1522 (Fed. Cir. 1995) (in banc), rev'd, 117 S. Ct. 1040 (1997).

415. See *Warner-Jenkinson*, 117 S. Ct. at 1053 n.8.

form, and one concurring judge advocated legislative reform.<sup>416</sup> Six judges advocated leaving the equivalence inquiry to the jury. The changing composition of the court enhances the possibility that some shift in the role of judges and juries in the equivalence inquiry may be forthcoming.<sup>417</sup> The proposed approach suggests one possible form such a shift may take. The possibility of legislative reform suggested by Judge Newman<sup>418</sup> and the Supreme Court<sup>419</sup> appears unlikely. The inability to formulate a clear test for the doctrine of equivalents suggests that legislative reform of this judge-made doctrine is doubtful. Given this fact, the best option available is whole-scale revision of the application of the doctrine. Any future change is likely to focus on the roles of judges and juries, respectively.

## VI. CONCLUSION

The recent decision in *Markman* clarified the roles of judges and juries in claim construction and developed a uniform and consistent inquiry for assessing literal infringement. Despite minor procedural problems, the decision announced the domain of judges and juries in infringement trials. Suggestions for addressing these minor procedural issues, left unresolved by *Markman*, were presented in Part II.C. The Federal Circuit must expressly allow extrinsic evidence and encourage district courts to incorporate their assessments of this evidence in opinions. Extrinsic evidence and credibility assessments should be made explicit, so the Federal Circuit can meaningfully review this evidence. This evidence has become an entrenched facet of patent litigation, and this use should not be hidden, but rather made explicit. The Federal Circuit should not mandate any particular time for district courts to construe claims, but should safeguard against timing that prejudices litigants. Finally, the Federal Circuit should remand cases in which the district court's claim construction is determined to be erroneous. This will provide litigants a trial under the correct claim constructions, and prevent parties from being forced to present evidence of infringement under all possible claim constructions.

In *Warner-Jenkinson*, the Court attempted to enlighten the inquiry for infringement under the doctrine of equivalents. However, the

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416. See *Hilton Davis*, 62 F.3d at 1529 (Newman, J., concurring); *Warner-Jenkinson*, 117 S. Ct. at 1046.

417. Judge Bryson did not participate in *Markman* or *Hilton Davis*. Judge Nies passed away on August 7, 1996. Judge Gajarsa was appointed to fill the vacancy.

418. See *Hilton Davis*, 62 F.3d at 1529 (Newman, J., concurring).

419. See *Warner-Jenkinson*, 117 S. Ct. at 1048.

opinions failed to produce a uniform infringement inquiry that would resolve the problems of application that have plagued the doctrine in modern times. By analyzing the inconsistencies among *Markman*, *Warner-Jenkinson*, and the current approach to the doctrine of equivalents, a possible basis of reform was presented. The doctrine of equivalents should be made a matter of fact, assessed by the trial judge. The jury should determine issues relating to the accused product or process through the use of special interrogatories. The trial judge should determine the scope of permissible equivalents and whether the accused product or process is covered by the claims. This approach unifies the inquiries for literal infringement and infringement under the doctrine of equivalents, while preserving the Seventh Amendment right to a jury trial in infringement cases. The roles of judges and juries are parallel under the inquiries for both types of infringement. These reforms will produce more meaningful appellate review because the current general jury verdicts will be replaced by the reasoned opinions of trial judges. The reforms are consistent with the Supreme Court's reasoning that judges are better suited to address the scope and meaning of claims. The revised approach to the doctrine of equivalents promotes uniformity and better serves litigants and the goal of judicial efficiency. This revised approach, coupled with the suggestions for addressing the minor procedural problems left unresolved in *Markman*, has the potential to ease the current confusion of infringement litigation.

While future changes in the doctrine of equivalents remain uncertain, a plausible resolution of the problem is attempted. Only future application of the proposed approach can test its validity. The approach is consistent with *Markman* and current precedent while still preserving the substance of the right to trial by jury on the issue of infringement. The *Hilton Davis* dissents suggest that future reform of the doctrine may focus on the roles of judges and juries. Reform in this area is a promising approach that may clarify the currently vague and unchecked doctrine. Dividing the application of the doctrine of equivalents between the judge and jury, with ultimate decision-making power residing with the judge, has the potential to end the problems and inconsistencies that so many have criticized. Whatever reform is chosen, it is evident that the doctrine of equivalents needs whole-scale revision, not simply a restatement or an insubstantial change.