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NOTES

TIPPING THE BALANCE: *HILTON DAVIS* AND THE SHAPE OF EQUITY IN THE DOCTRINE OF EQUIVALENTS

It has ... been asked, what need of the word 'equity'?¹

Competing policies underscore almost every aspect of the patent system. They shape choices between the ideals of capitalism and tolerance of limited monopolies, between the rights of the individual and those of society, between the pursuit of the state-of-the-art and the foreclosure of innovation. Such policies shape the doctrine of equivalents no less, and the resulting tension has led to community-wide disagreement, lack of predictability, and Supreme Court scrutiny of the doctrine.² Caught between the goal of advancing the technological arts and the need for providing adequate notice to potential infringers, the doctrine of equivalents seeks "to prevent an infringer from stealing the benefit of the invention[,]"³ when an accused device⁴ does not infringe literally⁵ any of the claims in the patent.⁶

1. THE FEDERALIST NO. 80, at 539 (Alexander Hamilton) (Jacob E. Cooke ed., 1961).

2. On October 15, 1996, the Supreme Court heard oral arguments in its review of the Federal Circuit's decision in *Hilton Davis Chemical Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512 (Fed. Cir. 1995), *cert. granted*, 116 S. Ct. 1014 (1996).

3. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950) (quoting *Learned Hand* in *Royal Typewriter Co. v. Remington Rand, Inc.*, 168 F.2d 691, 692 (2d Cir.), *cert. denied*, 335 U.S. 825 (1948)).

4. For the purposes of this Note, the term "device" will encompass devices, processes, and any other form of invention.

5. See *infra* notes 50-53 and accompanying text (discussing literal infringement).

6. *Graver Tank*, 339 U.S. at 607; see *infra* note 51 (explaining the specification and claims of a patent).

Without question, the doctrine of equivalents is a tool of equity.⁷ Recent debate, however, has questioned the way in which the doctrine approaches the principles of equity. Discontent with the focus of equivalency analysis, and especially with the roles that juries and intent play in that analysis, has divided the patent community.⁸

Many in the community argue that the doctrine of equivalents is an equitable doctrine outside the province of a jury because the doctrine fails the historical test that determines whether a particular action warrants a jury.⁹ Others argue that the doc-

7. See *Dolly, Inc. v. Spalding & Evenflo Co.*, 16 F.3d 394, 399 (Fed. Cir. 1994) (noting the Federal Circuit's recognition of the "equitable principles of the doctrine of equivalents" in *Sun Studs, Inc. v. ATA Equip. Leasing, Inc.*, 872 F.2d 978, 989 (Fed. Cir. 1989)); *International Visual Corp. v. Crown Metal Mfg. Co.*, 991 F.2d 768, 774 (Fed. Cir. 1993) (Lourie, J., concurring) ("In recent years, we have emphasized that the doctrine of equivalents is equitable in nature."); *Texas Instruments Inc. v. United States Int'l Trade Comm'n*, 988 F.2d 1165, 1173 (Fed. Cir. 1993) (noting that "[i]nfringement under the doctrine of equivalents has been 'judicially devised to do equity'" (quoting *Loctite Corp. v. Ultraseal, Ltd.*, 781 F.2d 861, 870 (Fed. Cir. 1985))); *Valmont Indus., Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039, 1044 (Fed. Cir. 1993) ("The doctrine of equivalents equitably expands exclusive patent rights.").

8. The role of juries in patent cases has been the focus of much litigation recently and has caught the attention of the Supreme Court. *E.g.*, *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384 (1996); *In re Lockwood*, 50 F.3d 966 (Fed. Cir.), *vacated*, *American Airlines, Inc. v. Lockwood*, 116 S. Ct. 29 (1995). The Supreme Court affirmed the Federal Circuit ruling in *Markman* that juries are inappropriate in construing claims for the purposes of establishing a patent's validity, *Markman*, 116 S. Ct. at 1393-95, and will review the Federal Circuit's decision in *Hilton Davis* that juries are appropriate in equivalency analysis. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512 (Fed. Cir. 1995), *cert. granted*, 116 S. Ct. 1014 (1996).

9. See, *e.g.*, *Hilton Davis*, 62 F.3d at 1539-43 (Plager, J., dissenting); *id.* at 1549-50 (Lourie, J., dissenting); *id.* at 1554-59 (Nies, J., dissenting); Stanley L. Amberg, Brief for Amicus Curiae in Support of Appellee on the Third Question Posed by the Court, *Hilton Davis* (No. 93-1088), *reprinted in* 3 FED. CIR. B.J. 357 (1993) [hereinafter Amberg Brief]; Federal Circuit Bar Association, Brief for Amicus Curiae, *Hilton Davis* (No. 93-1088), *reprinted in* 3 FED. CIR. B.J. 345 (1993) [hereinafter Federal Circuit Bar Brief]; Richard A. Machonkin, Note, *Markman v. Westview Instruments, Inc. and Hilton Davis v. Warner-Jenkinson Co.: The Federal Circuit Gets Its Laws and Its Facts Straight*, 9 HARV. J.L. & TECH. 181 (1996).

The historical test set out in *Chauffeurs, Teamsters & Helpers Local No. 391 v. Terry*, 494 U.S. 558 (1990), looks to the remedy sought and compares the issue at bar with actions available at the time of the Seventh Amendment's adoption in 1791 in order to determine whether a particular action is legal or equitable and whether the action warrants a jury. *Id.* at 565. Equitable actions do not warrant a jury under this test. *Id.*

trine is equitable only insofar as it ensures fairness in the patent system and, therefore, as a component of the larger, factual infringement issue, should not preclude trial by jury.¹⁰ The recent Supreme Court decision in *Markman v. Westview Instruments, Inc.*¹¹ may provide the first step toward resolving the issue. In *Markman*, a unanimous Court held that juries have no place in construing a patent's claims.¹² Although interpreting claims has traditionally been an issue for the judge alone,¹³ the court in *Markman* examined the propriety of allowing the jury to construe claims when questions of fact exist regarding the correct construction.¹⁴ The Supreme Court held that the Seventh Amendment did not compel such a jury review.¹⁵ Because claim construction during literal analysis plays a vital role in determining the scope of equivalency for analysis under the doctrine of equivalents,¹⁶ the decision reinforced the judge's role in defining the scope of equivalency.¹⁷ Although the impact of *Markman* on infringement analysis under the doctrine of equivalents is unclear, the Court's discussion of issues stretching beyond the fact/law distinction to the doctrine of equivalents provides critical insight into the Supreme Court's current attitude toward juries in patent cases.¹⁸

In *Hilton Davis Chemical Co. v. Warner-Jenkinson Co.*,¹⁹ however, the Federal Circuit recently confirmed the continued role of juries in determining patent infringement under the doctrine of equivalents.²⁰ Basing its decision largely on its char-

For want of a better term, "pure equity" will denote the type of issue triable to a chancellor or judge without a jury.

10. See, e.g., *Hilton Davis*, 62 F.3d at 1521-23; American Bar Association, Brief for Amicus Curiae in Support of Appellant, *Hilton Davis* (No. 93-1088), reprinted in 3 FED. CIR. B.J. 375 (1993) [hereinafter ABA Brief].

11. 116 S. Ct. 1384 (1996).

12. *Id.* at 1396.

13. *Id.* at 1393-95.

14. *Id.* at 1387-96.

15. *Id.* at 1396.

16. See *infra* notes 113, 115-25 and accompanying text.

17. See *infra* note 113 and accompanying text.

18. See Machonkin, *supra* note 9.

19. 62 F.3d 1512 (Fed. Cir. 1995), *cert. granted*, 116 S. Ct. 1014 (1996).

20. *Id.* The Supreme Court has granted review of the Federal Circuit's decision. 116 S. Ct. 1014 (1996). Warner-Jenkinson's arguments, however, go more to the

acterization of the word "equity,"²¹ the Federal Circuit rejected the compelling arguments advocating the doctrine as a pure equity issue²² and failed to account for a consideration of intent in defining its notion of fairness.²³ Ultimately, the court upset pervasive notions regarding both the jury's role in equivalency analysis and the doctrine's motivating purpose.²⁴ In doing so, the Federal Circuit sanctioned an analytical structure that will disadvantage competitor/defendants.

Although an attempt to stabilize the doctrine of equivalents,²⁵ *Hilton Davis* represents the confusion and inadequacy inherent in today's doctrine of equivalents analysis. The case also exemplifies the historical tensions underlying the doctrine. The doctrine of equivalents seeks to foster technological development by protecting the patentee from the "unscrupulous copyist" who, in an effort to avoid the literal extent of a patent's claims, makes only insignificant changes when creating his own device.²⁶ Indirectly, the doctrine of equivalents emphasizes the importance of substantial differences between patented and unpatented devices, advocating technological development by "leapfrogging" rather than by encouraging successive, minor improvements.²⁷ For all of its efforts to further technological development, the doctrine of equivalents ultimately stifles that

validity of the doctrine of equivalents than to the propriety of juries or individual elements in the equivalency analysis. Petition for a Writ of Certiorari, Warner-Jenkinson Co., at 13-30, *Hilton Davis* (No. 95-728).

21. See *Hilton Davis*, 62 F.3d at 1521-23.

22. *Id.* at 1520-21.

23. *Infra* notes 283-315 and accompanying text.

24. See *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607-08 (1950). Recognizing the impact of its decision, the majority in *Hilton Davis* prefaced its discussion of the case's merits with the statement that "[t]his case presents an opportunity to restate—not to revise—the test for infringement under the doctrine of equivalents." *Hilton Davis*, 62 F.3d at 1516.

25. *Id.*

26. *Graver Tank*, 339 U.S. at 607-08.

27. See *Hilton Davis*, 62 F.3d at 1532-33 (Newman, J., concurring). Judge Newman suggested that "[i]f minor improvements are likely to be captured by the doctrine of equivalents, this might cause the would-be competitor to move to diverging areas instead of simply tagging along at the periphery of the patentee's claims." *Id.* at 1532 (Newman, J., concurring). As a result, the doctrine of equivalents could encourage "leapfrogging" advances as opposed to substantial imitation. *Id.* (Newman, J., concurring).

development by providing patentees with hazy boundaries of protection that fail to provide competitors with adequate notice.²⁸ The holding in *Hilton Davis* did little to either cure the problem of inadequate notice or stem the rampant litigation that results from lack of notice.²⁹

The creation of the Federal Circuit (designed to handle patent cases and provide uniformity in patent law) brought with it a dramatic increase in patent litigation³⁰ and fostered unprecedented interest in the use of juries.³¹ The creation of the Federal Circuit also enhanced the strength of patents, which, when coupled with the problems of jury comprehension and biases that favor the patentee,³² has increased patentees' incentives to litigate.³³

In this increasingly predatory environment, the doctrine of equivalents is considered less a leveling device employed as an exception to ordinary infringement analysis; it has instead become "simply a second bite at the apple for the patent owner in attempting to prove infringement."³⁴ *Hilton Davis* effectively nullified previous efforts to curb patentee advantages.³⁵ As a result, the doctrine has lost much of its equitable nature, and the accused infringer finds himself severely disadvantaged in the courtroom.³⁶ Indeed, because *Hilton Davis* has increased patentees' incentives to litigate, the accused infringer's chances

28. *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1543 (Fed. Cir. 1987) (Newman, J., dissenting).

29. See Gary M. Hoffman & Eric Oliver, *The Doctrine of Equivalents After Hilton Davis*, COMPUTER LAW., Feb. 1996, at 17.

30. See Jon F. Merz & Nicholas M. Pace, *Trends in Patent Litigation: The Apparent Influence of Strengthened Patents Attributable to the Court of Appeals for the Federal Circuit*, 76 J. PAT. & TRADEMARK OFF. SOC'Y 579, 580 & n.10 (1994).

31. See *Abolition of Jury Trials in Patent Cases*, 34 IDEA: J.L. & TECH. 77, 84, 93-94 (1994) [hereinafter *Abolition*].

32. See *infra* notes 334-67 and accompanying text.

33. See Michael P. Chu, Note, *An Antitrust Solution to the New Wave of Predatory Patent Infringement Litigation*, 33 WM. & MARY L. REV. 1341, 1341-54 (1992).

34. Clarence J. Fleming, *The Doctrine of Equivalents—Should It Be Available in the Absence of Copying?*, 76 J. PAT. & TRADEMARK OFF. SOC'Y 233, 234 (1994).

35. One example of these efforts is the greater burden placed on patentees to prove infringement of all elements of the patented device. *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931 (Fed. Cir. 1987), *cert. denied*, 485 U.S. 1009 (1988).

36. See *infra* notes 211-367 and accompanying text.

of landing in the courtroom are enhanced significantly.³⁷ Restoring the doctrine of equivalents to its exceptional, equitable role will revive fairness for both patentees and infringers,³⁸ restrict much of the current predatory litigation,³⁹ and, ultimately, remove an impediment to technological development.⁴⁰

The Supreme Court should replace the current analytical structure with one that requires the judge and jury to share responsibility in the analysis. Under such a structure, the judge would determine, as a threshold matter, the degree of differences between the patented and accused devices.⁴¹ If insubstantial differences exist, and the trial is to a jury, the jury would then be responsible for finding any factors that would aid in the infringement determination.⁴² When examining these factors, it is of critical importance that the jury consider the competitor's intent.⁴³ The jury must find that the competitor intended to steal the patented device; otherwise, no infringement under the doctrine of equivalents should exist.⁴⁴ The judge would then weigh the competitor's intent and any other applicable factors against the substantiality of differences and make the final, equitable determination on infringement.⁴⁵ Such a structure strikes a balance between the history of the doctrine of equivalents and the current state of the patent system so as to ensure fairness for both patentees and competitors.

This Note studies the current state of the doctrine of equivalents in the highly-litigious patent community. The first section explains the nature of patent infringement and examines the historical underpinnings as well as the current role of the doctrine in determining infringement. The next section discusses the Federal Circuit's articulation of the doctrine in *Hilton Davis*.

37. See Hoffman & Oliver, *supra* note 29, at 17.

38. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1560 (Fed. Cir. 1995) (Nies, J., dissenting), *cert. granted*, 116 S. Ct. 1014 (1996).

39. See Hoffman & Oliver, *supra* note 29, at 17.

40. See *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 614-15 (1950) (Black, J., dissenting).

41. See *infra* notes 256-64, 368-75 and accompanying text.

42. See *infra* notes 376-80 and accompanying text.

43. See *infra* notes 283-315 and accompanying text.

44. See *infra* notes 283-315, 373-74 and accompanying text.

45. See *infra* notes 215-55, 375 and accompanying text.

The final section analyzes the court's decision in light of the doctrine's history, the role of intent, and due process concerns regarding notice and jury use. Finally, this Note uses the foregoing sections to support in detail the analytical structure suggested above.⁴⁶

THE NATURE OF PATENT INFRINGEMENT AND THE DOCTRINE OF EQUIVALENTS

"[A] narrow exception to our competitive enterprise system,"⁴⁷ patents provide necessary protection for the technological arts. In providing for a system of patents, the Constitution grants Congress the power to allow inventors limited monopolies for their creations with the hope of furthering technological development.⁴⁸ Unauthorized manufacture, use, or sale of a patented device violates this monopoly right.⁴⁹

Infringement can take one of two forms, literal or equivalent,⁵⁰ and the process of determining infringement focuses on the patent's claims⁵¹ in essentially two steps, claim construction⁵² and claim application.⁵³ Claim construction involves in-

46. Because *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384 (1996), discussed many of the issues that this Note will address, albeit in a different context, references to *Markman* will undergird much of the analysis.

47. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 617 (1950) (Black, J., dissenting).

48. See U.S. CONST. art. I, § 8, cl. 8 ("To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . .").

49. 35 U.S.C. § 271 (1994). Although the patent is presumed to be valid, 5 DONALD S. CHISUM, PATENTS § 19.01 (1995), the patentee nevertheless has the burden of proving infringement, 4 *id.* § 18.06[1]. A prevailing patentee may be entitled to an injunction, 35 U.S.C. § 283, and damages, *Id.* § 284, which can be trebled if the infringement was willful, 5 CHISUM, *supra*, § 20.03[4].

50. See ROBERT L. HARMONY, PATENTS AND THE FEDERAL CIRCUIT § 6.1 (3d ed. 1994).

51. A patent comprises claims and a specification. See ROBERT P. MERGES, PATENT LAW AND POLICY 31 (1992). The claims set out the patented material and determine the metes and bounds of protection. *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1387-88 (1996). The specification describes the invention and serves as an aid in interpreting the claims. *Id.*

52. *Charles Greiner & Co. v. Mari-Med Mfg., Inc.*, 962 F.2d 1031, 1034 (Fed. Cir. 1992). In *Markman*, the Supreme Court held that claim construction is an issue exclusively for the judge. 116 S. Ct. at 1395.

53. *Charles Greiner*, 962 F.2d at 1034. Infringement analysis focuses on the

interpreting the individual terms used in the claims of the patent-in-suit and then construing those claims to define the patent's coverage.⁵⁴ Claim application involves comparing the accused device to the claims of the patent-in-suit in order to determine whether the accused device falls within the scope of the patent's claims.⁵⁵

Before determining whether an accused device infringes a patented device under the doctrine of equivalents, a fact finder first determines whether the accused device infringes literally.⁵⁶ An accused device infringes literally when it contains each element specified in the claims of the patent-in-suit.⁵⁷ The question of infringement under the doctrine of equivalents arises when the accused device does not fall squarely within the claim.⁵⁸ Although an accused device may not infringe a patent literally, it may nevertheless infringe that patent under the doctrine of equivalents if it performs substantially the same function as the patented device in substantially the same way to reach substantially the same result.⁵⁹

A court-created animal⁶⁰ designed to deliver patentees from

patent's claims. Martin J. Adelman, *The New World of Patents Created by the Court of Appeals for the Federal Circuit*, 20 U. MICH. J.L. REF. 979, 994 (1987). Infringement often arises from inadequate claim language, limited knowledge of existing technology, and the "dynamic nature of technology." *Id.* As a result of new technology, ambiguities in terminology cloud an understanding of what is the patented technology. Roy Collins III, *The Doctrine of Equivalents: Rethinking the Balance Between Equity and Predictability*, 22 GOLDEN GATE U. L. REV. 285, 294 (1992) ("[P]atent disputes . . . are prone to awkward semantic assessments and needlessly imprecise determinations of infringement."). Dispelling the ambiguities in terminology is a task more suited for the judiciary than for the layman; claim construction invites a lawyerly mind to determine the legal effect of the terms. See *Markman*, 116 S. Ct. at 1395.

54. *Charles Greiner*, 962 F.2d at 1034.

55. *Id.*

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

57. *Id.* ("If accused matter falls clearly within the claim, infringement is made out and that is the end of it.")

58. See *Graver Tank*, 339 U.S. at 607.

59. *Id.* at 608 (quoting *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929)). References to "substantiality" or "insubstantiality" in this Note connote application of the function/way/result test. The logic of function/way/result also works in reverse. The reverse doctrine of equivalents allows for a finding of noninfringement when the accused device falls within the literal terms of the claims but does not meet function/way/result requirements. *Id.* at 608-09.

60. *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 870 (Fed. Cir. 1985) ("The doc-

"the mercy of verbalism,"⁶¹ the doctrine of equivalents first appeared before the Supreme Court in 1853.⁶² A century later, the Court's last pronouncement on the doctrine showed no significant alterations in the analysis.⁶³ The function/way/result test provides the basis for equivalency analysis and essentially has become the sole determinant of infringement under the doctrine.⁶⁴

As the language of the function/way/result test suggests, insubstantial differences between the patented and accused devices form the touchstone of infringement under the doctrine of equivalents.⁶⁵ The patent system tolerates copying as long as the intent is to design *around* the patent.⁶⁶ In designing around the patent, however, the competitor must ensure that his device does more than just narrowly escape the expressed claim language of the patent.⁶⁷ The necessary amount of difference to effectively design around patented devices should therefore be the same as that which is necessary to avoid infringement.⁶⁸

trine has been '*judicially devised to do equity*'" (emphasis added). Although Congress has yet to codify the doctrine of equivalents, the Patent Act of 1952 did recognize certain equivalents in means-plus-function language. See 35 U.S.C. § 112 (1994).

61. *Graver Tank*, 339 U.S. at 607.

62. *Winans v. Denmead*, 56 U.S. (15 How.) 330 (1853). Although not referred to as the doctrine of equivalents, the principles underlying the doctrine had existed since the original patent acts. See, e.g., *Odiorne v. Winkley*, 18 F. Cas. 581, 582 (C.C.D. Mass. 1814) (No. 10,432) ("The material question . . . is . . . whether the given effect is produced substantially by the same mode of operation and the same combination of powers"); *Gray v. James*, 10 F. Cas. 1015, 1016 (C.C.D. Pa. 1817) (No. 5718) ("Where the machines are substantially the same, and operate in the same manner to produce the same result, they must be in principle the same").

63. *Graver Tank*, 339 U.S. at 607 ("[C]ourts have also recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing").

64. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1517-18 (Fed. Cir. 1995) (discussing the sufficiency of function/way/result to determine infringement, but noting the applicability of other factors in the determination), *cert. granted*, 116 S. Ct. 1014 (1996).

65. It is important to understand that, in extending patent coverage to devices with merely insubstantial differences, the doctrine of equivalents does not enlarge the claim. *Wilson Sporting Goods Co. v. David Geoffrey & Assocs.*, 904 F.2d 677, 684 (Fed. Cir.), *cert. denied*, 498 U.S. 992 (1990). Rather, the doctrine "*expands the right to exclude* [the manufacture, use, or sale of the patented device] to 'equivalents' of what is claimed." *Id.*

66. See *Hilton Davis*, 62 F.3d at 1520.

67. See Paul N. Katz, *The Doctrine of Equivalents and Its Impact on "Designing Around"*, 4 FED. CIR. B.J. 315, 315-16, 320-21 (1994).

68. *Id.* at 316; Keith A. Robb, Note, *Hilton Davis and the Doctrine of Equiva-*

Two competing policies of the patent system tug at the doctrine of equivalents. Pulling in one direction is the notion that, in order to create an economic incentive for technological development, a patentee must have the protection of all that falls within the scope of her patent.⁶⁹ Pulling in the other direction, however, is the notion that in order to encourage the development of technology a competitor must have adequate notice of what technology the patent embraces.⁷⁰ With adequate notice a competitor can legally and effectively design around the patent and thereby develop improvements in the art.⁷¹ Without notice, the competitor has no certain or predictable way to assess what constitutes infringement, and, as a result, technological progress suffers.⁷² Absent specific judicial guidelines and accurate claims, the doctrine of equivalents leaves a competitor without that notice, and, as a result he is in a darkened room left to find the bounds of liability by touch and guesswork alone.⁷³

The doctrine of equivalents enables a patentee to protect her invention more effectively. That protection, however, comes at the competitor's expense.⁷⁴ Because the doctrine's very nature introduces uncertainty into the question of infringement, an

lents—*An Insubstantial Difference*, 4 TEX. INTELL. PROP. L.J. 275, 282 (1996) (citing *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991)).

69. Katz, *supra* note 67, at 315.

70. *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1542-43 (Fed. Cir. 1987) (Newman, J., dissenting); Katz, *supra* note 67, at 315-16; see also Kurt L. Glitzenstein, *A Normative and Positive Analysis of the Scope of the Doctrine of Equivalents*, 7 HARV. J.L. & TECH. 281, 315-16 (1994) (arguing that material not claimed in a patent is left to the public).

71. Katz, *supra* note 67, at 315-16.

72. *Perkin-Elmer*, 822 F.2d at 1543 ("If courts are not to hinder the progress of technological advance, certainty and predictability are as important in the application of equitable as of legal principles.")

73. "[A] 'zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims would discourage invention only a little less than unequivocal foreclosure of the field.'" *Markview v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1396 (1996) (quoting *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236 (1942) (discussing claim construction)).

74. Although the nature of the patent system may support giving the patentee an advantage over the competitor, see *Abolition*, *supra* note 31, at 84-85, that advantage should remain within the bounds of fairness, see *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1560 (Fed. Cir. 1995) (Nies, J., dissenting), *cert. granted*, 116 S. Ct. 1014 (1996).

effective and equitable patent system should only resort to equivalency analysis in exceptional circumstances.⁷⁵ Reliance on the function/way/result formula, although an attractive salve, has done little to provide the necessary level of certainty. Rather, rotely employing a doctrine that was intended to remain free from the trappings of formulaic and mechanistic application⁷⁶ has removed confidence and predictability in innovation.⁷⁷

The Role of Claims in Determining Infringement Under the Doctrine of Equivalents

Now integral components of the patent system, claims originally were absent from patents.⁷⁸ Formerly, a patent applicant need only describe the invention in order to differentiate it sufficiently from the prior art and thereby obtain a patent.⁷⁹ Any determination of infringement consequently hinged on the impermissible use of the "essence" of the patented device.⁸⁰ Equivalency—today the foundation of the doctrine of equivalents exception—was originally the primary test for infringement, much like literal infringement is the primary test today.⁸¹ A

75. *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991); cf. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 617 (1950) (Black, J., dissenting) (noting that judicial expansion of a claim's language will lead to uncertainty that will burden business).

76. *Graver Tank*, 339 U.S. at 609.

77. *Id.* at 615-17 (Black, J., dissenting); *London*, 946 F.2d at 1538.

78. Patent Act of 1790, ch. 7, § 2, 1 Stat. 109, 110 (repealed 1793); *Hilton Davis*, 62 F.3d at 1563-64 (Nies, J., dissenting); Paul C. Craane, Comment, *At the Boundaries of Law and Equity: The Court of Appeals for the Federal Circuit and the Doctrine of Equivalents*, 13 N. ILL. U. L. REV. 105, 133 n.161 (1992).

79. *Lowell v. Lewis*, 15 F. Cas. 1018, 1020 (C.C.D. Mass. 1817) (No. 8568); Craane, *supra* note 78, at 133 n.161.

80. See *Odiorne v. Winkley*, 18 F. Cas. 581, 582 (C.C.D. Mass. 1814) (No. 10,432); *Gray v. James*, 10 F. Cas. 1015, 1016 (C.C.D. Pa. 1817) (No. 5718); see also *Lowell*, 15 F. Cas. at 1019-20 (holding that "a specific machine, substantially new in its structure and mode of operation, and not merely changed in form, or in the proportion of its parts" did not infringe).

81. See *Odiorne*, 18 F. Cas. at 582; *Lowell*, 15 F. Cas. at 1019-20; *Gray*, 10 F. Cas. at 1016; Harold C. Wegner, *Equitable Equivalents: Weighing the Equities to Determine Patent Infringement in Biotechnology and Other Emerging Technologies*, 18 RUTGERS COMPUTER & TECH. L.J. 1, 15-21 (1992); cf. *Hilton Davis*, 62 F.3d at 1564 (Nies, J., dissenting) (noting that the doctrine of equivalents first existed as a test of validity).

full understanding of the doctrine of equivalents therefore requires an analysis of the historical role of patent claims.

In order to remove the burden of "ascertaining the exact invention of the patentee by inference and conjecture"⁸² from the courts, the Patent Act of 1836⁸³ required the patentee to include claims that "particularly specify and point out the part, improvement, or combination which he claims as his own invention or discovery."⁸⁴ The Act, however, did little to clarify infringement analysis; patentees used the claims to define only the invention's core attributes or essence.⁸⁵ These broadly termed claims of "essence" provided no more clarification than did the general specification.⁸⁶ Equivalency analysis thus remained the prevailing test for infringement.⁸⁷

Not until the Patent Act of 1870⁸⁸ did "peripheral claims" replace central claims.⁸⁹ Peripheral claims defined the outer limits, rather than the core, of the patent's coverage.⁹⁰ Infringement analysis moved away from utilizing specification-based equivalency and, instead, focused on claim-based literalness.⁹¹ The doctrine of equivalents therefore took a secondary role in infringement analysis, employed only when the equities of a particular case required an equivalency test.⁹²

82. *Hilton Davis*, 62 F.3d at 1539 (Plager, J., dissenting) (quoting *Keystone Bridge Co. v. Phoenix Iron Co.*, 95 U.S. 274, 278 (1877)).

83. Ch. 357, 5 Stat. 117 (repealed 1870).

84. § 6, 5 Stat. at 119; see also Craane, *supra* note 78, at 133 n.161 (asserting that under the Patent Act of 1790 patents were valueless because of the cost of private inquiry into validity). The Patent Act of 1836 further required that the applicant "fully explain the principle and the several modes in which he has contemplated the application of that principle or character by which it may be distinguished from other inventions." § 6, 5 Stat. at 119.

85. See RIDSDALE ELLIS, *PATENT CLAIMS* §§ 4-6 (1949). This method of claiming an invention's core attributes is called "central claiming" and allows for no limitation on the scope of protection.

86. Ronald D. Hantman, *Doctrine of Equivalents*, 70 J. PAT. & TRADEMARK OFF. SOC'Y 511, 516-17 (1988).

87. See *Winans v. Denmead*, 56 U.S. (15 How.) 330, 344 (1853).

88. Ch. 230, 16 Stat. 198 (repealed 1952).

89. *Id.* § 26; Wegner, *supra* note 81, at 18-21.

90. Wegner, *supra* note 81, at 19.

91. *Id.*

92. *Id.*; see Collins, *supra* note 53, at 298. Congress passed the Patent Act of 1952 soon after the decision in *Graver Tank*. 35 U.S.C. § 1 (1994). Although the Act

The Graver Tank Precedent

Decided over forty-five years ago, *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*⁹³ is the Supreme Court's most recent pronouncement on the doctrine of equivalents. In deciding that the defendant's welding flux device infringed the patentee's device,⁹⁴ the Court emphasized the importance of halting the "unscrupulous copyist" who might otherwise bypass the literal language of the patent's claims,⁹⁵ and the use of the function/way/result test under the "proper circumstances."⁹⁶ The Court further emphasized the doctrine's equitable nature, stating that "[w]hat constitutes equivalency must be determined against the context of the patent, the prior art, and the particular circumstances of the case."⁹⁷

does not provide for analysis under the doctrine of equivalents, it does recognize equivalents as they pertain to claims written in "means-plus-function" language. *Id.* § 112. The revised act provides that:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and *such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.*

Id. (emphasis added). A "means-plus-function" claim would allow a patentee to replace "standard" claim language, such as "chair" with broader language, such as "a means for sitting." See *id.* Highly common today, means-plus-function language has increased the difficulty in defining the scope of the doctrine of equivalents. Collins, *supra* note 53, at 296.

Determining equivalency under section 112—equivalency for use in literal analysis—is distinct, however, from determining equivalency for use in doctrine of equivalents analysis. *Id.* Section 112 equivalency requires that the structure in the accused device be the same or equivalent and perform the identical functions as disclosed in the patent specification, whereas analysis under the doctrine of equivalents requires application of the function/way/result test. *Id.* at 297-300. The operative difference in equivalency is that these claims limit the patentee's range of equivalency, whereas the doctrine of equivalents expands the patentee's range. Valmont Indus., Inc. v. Reinke Mfg. Co., 983 F.2d 1039, 1042-44 (Fed. Cir. 1993) (citing Johnston v. IVAC Corp., 885 F.2d 1574, 1580 (Fed. Cir. 1989)); Collins, *supra* note 53, at 297-300.

93. 339 U.S. 605 (1950).

94. The defendant substituted in its flux a nonalkaline earth metal, manganese, for the patentee's alkaline earth metal, magnesium. *Id.* at 610. This substitution was the sole difference between the two versions of flux. *Id.*

95. *Id.* at 607.

96. *Id.* at 608.

97. *Id.* at 609.

Stating that the determination of equivalence is a question of fact, the Court went on to hold that the credibility of evidence supporting equivalency "is to be decided by the *trial court* Particularly is this so in a field where so much depends upon familiarity with specific scientific problems and principles not usually contained in the general storehouse of knowledge and experience."⁹⁸ The Court's characterization of equivalency as a factual issue does seem to suggest the propriety of a jury, as used in literal infringement cases.⁹⁹ The Court's finding that the trial court should decide the issue of equivalency, however, supports an ultimately contrary belief in the impropriety of using a jury to determine equivalency.¹⁰⁰

Taking its cue from copyright law, the Court further differentiated the nature of equivalency analysis from that of literal analysis by emphasizing the infringer's intent. Stating that "[o]ne who *seeks to pirate* an invention, like one who *seeks to pirate* a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy,"¹⁰¹ the Court, throughout its opinion, referred to the doctrine of equivalents as a tool to combat various manifestations of intent.¹⁰² Typically, patent theory only considers a defendant's intent when determining whether to award treble damages.¹⁰³ Without explicitly holding so, the Court forcefully suggested that, in the equitable realm of the doctrine of equivalents, intent is determinative.

98. *Id.* at 610 (emphasis added).

99. *Id.*

100. *Graver Tank* was tried to the bench. *Id.* at 611.

101. *Id.* at 607 (emphasis added to highlight the Court's focus on intent). Judge Learned Hand described infringement under a copyright theory: "[J]ust as [the copyright owner] is no less an 'author' because others have preceded him, so another who follows him, is not a tort-feasor unless he pirates his work." *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49, 54 (2d Cir.), *cert. denied*, 298 U.S. 669 (1936).

102. The Court employed such terms as "unscrupulous copyist," "pirate," "fraud," "stealing," "conceal," and "imitation." *Graver Tank*, 339 U.S. at 607-08.

103. See 5 CHISUM, *supra* note 49, § 20.03[4]. Additionally, patent theory does not account for "look and feel" comparisons between devices. See Martin J. Adelman & Gary L. Francione, *The Doctrine of Equivalents in Patent Law: Questions That Pennwalt Did Not Answer*, 137 U. PA. L. REV. 673, 703 (1989). Copyright theory, however, does employ "look and feel" comparisons and considers intent when making those comparisons. See *id.*

In addition to the consideration of intent, the lack of proper notice also highlights the doctrine's departure from traditional patent theory. In his dissent to the finding of infringement, Justice Black argued the need for adequate notice through the use of clear claim language and warned of the future implications of the majority's holding.¹⁰⁴ In light of the realization of Justice Black's fears, courts should apply the doctrine of equivalents in exceptional cases only and should bring the doctrine in line with the reissue process.¹⁰⁵

The Federal Circuit and Its Modern Doctrine of Equivalents

Pursuant to the Federal Courts Improvements Act of 1982,¹⁰⁶ Congress established the Federal Circuit in order to "improve the uniformity of patent decisions and the stability of patent law."¹⁰⁷ Since then, the Federal Circuit has become essentially the court of last resort in patent cases.¹⁰⁸ In large part, the Federal Circuit has fulfilled this role.¹⁰⁹ With respect to the doctrine of equivalents, however, the Federal Circuit has yet to establish either a consistent or an effective approach.¹¹⁰

The Federal Circuit, however, has set out general attributes of the doctrine that govern its application today. With its focus still on the claims and their limitations,¹¹¹ the doctrine of equiva-

104. *Graver Tank*, 339 U.S. at 614-16 (Black, J., dissenting).

105. *Id.* (Black, J., dissenting). The reissue process allows patentees, within a period of time, to amend their claims after the patent has issued; the process also protects competitors for actions taken between the original issue and reissue dates. See *infra* notes 318-22 and accompanying text.

106. Pub. L. No. 97-164, 96 Stat. 25 (codified as amended at 28 U.S.C. § 1295 (1994)).

107. John B. Pegram, *Should the U.S. Court of International Trade Be Given Patent Jurisdiction Concurrent with That of the District Courts?*, 32 HOUS. L. REV. 67, 85-86 (citing S. REP. NO. 275, 97th Cong., 2d Sess. 2 (1981), reprinted in 1982 U.S.C.C.A.N. 11, 15).

108. Rudolph P. Hofmann Jr., *The Doctrine of Equivalents: Twelve Years of Federal Circuit Precedent Still Leaves Practitioners Wondering*, 20 WM. MITCHELL L. REV. 1033, 1034 (1994); see, e.g., Robert Desmond, Comment, *Nothing Seems "Obvious" to the Court of Appeals for the Federal Circuit: The Federal Circuit, Unchecked by the Supreme Court, Transforms the Standard of Obviousness Under the Patent Law*, 26 LOY. L.A. L. REV. 455, 455 (1993) ("The Supreme Court has remained silent while the [Federal Circuit] has boldly redefined the criteria used to determine whether an invention is patentable under the patent law.").

109. See *Merz & Pace*, *supra* note 30, at 579.

110. Collins, *supra* note 53, at 285-86.

111. *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1533 n.9

lents requires the patentee to show particularized evidence of insubstantial differences between the patented and accused devices.¹¹² An accused device must contain every limitation (or element), or equivalent thereof, found in every claim of the patent in order to infringe that patent.¹¹³ This "all elements" analysis therefore compares the accused device to the patented device element-by-element.¹¹⁴

Before comparing elements, however, courts must first determine the appropriate scope of equivalency to apply to each claim.¹¹⁵ In doing so, courts consider whether the patented invention is a pioneer in its art, a marked improvement, or a narrow improvement.¹¹⁶ Knowledge of forthcoming technology is unsure; claims for pioneer inventions therefore receive a greater scope of equivalency than do claims for inventions in a crowded art.¹¹⁷ Marked improvements receive a "substantial range of equivalents," while narrow improvements receive only a limited range of equivalents, if any at all.¹¹⁸ Moreover, where the

(Fed. Cir. 1987). Defining the scope of equivalency for each claim is a matter of law for the judge. *Winans v. Denmead*, 56 U.S. (15 How.) 330, 333-34 (1853); *Texas Instruments Inc. v. United States Int'l Trade Comm'n*, 988 F.2d 1165, 1173 (Fed. Cir. 1993).

A limitation, or element, in a patent claim reduces the scope of the claim. 5 CHISUM, *supra* note 49, § 18.03[4]. The limitation enables the patent applicant to obtain a patent by removing material that would either encompass prior art or would otherwise infringe on another patent. *Id.*

112. *Lear Siegler, Inc. v. Sealy Mattress Co.*, 873 F.2d 1422, 1425 (Fed. Cir. 1989).

113. *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991) (citing *Lemelson v. United States*, 752 F.2d 1538, 1551 (Fed. Cir. 1985)); *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 935 (Fed. Cir. 1987) (citing *Perkin-Elmer*, 822 F.2d at 1532-33).

114. *Pennwalt*, 833 F.2d at 935. *But see* *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 871 (Fed. Cir. 1985) (noting the appropriateness of considering whether the accused device "may be using the most important aspect if not the gist of the [plaintiff's] inventions"); *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1364-66 (Fed. Cir. 1983) (employing an "equivalencé as a whole" analysis). Donald Chisum provides an explanation for the divergent approaches; he distinguishes between comparing the actual manifestations of the devices as a whole and comparing the claimed subject matter to the accused device as a whole. 5 CHISUM, *supra* note 49, § 18.04[1][b].

115. 5 CHISUM, *supra* note 49, § 18.04[2].

116. *Id.* § 18.04[2][a].

117. *Thomas & Betts Corp. v. Litton Sys., Inc.*, 720 F.2d 1572, 1580 (Fed. Cir. 1983).

118. 5 CHISUM; *supra* note 49, § 18.04[2][a].

claims designate a specific value as necessary for the invention to function, a court may allow no equivalency.¹¹⁹

Additional limitations found in a patent's prior art, context, and prosecution history can defeat the application of the doctrine of equivalents.¹²⁰ Equivalents to claims in a patent cannot cover technology that was known before the patent issued.¹²¹ The boundary of equivalency extends only as far as the prior art—that technology already present in the public domain—allows.¹²² If the prior art discloses the accused device, then no infringement exists.¹²³

A patent's context also plays an important role in determining infringement.¹²⁴ Courts therefore look to the purpose of each claim and its elements, as well as to the interchangeability of claimed and unclaimed "ingredients" by a person skilled in the art to ensure that the patentee has not claimed matter beyond that which she disclosed.¹²⁵

Similarly, the prosecution¹²⁶ history of a patent can also estop application of the doctrine of equivalents.¹²⁷ Essentially, the patentee cannot reclaim in litigation what she surrendered during prosecution.¹²⁸ If, in asserting infringement, the patentee points to material in the accused device that she sacrificed in order to secure her patent, then no infringement exists.¹²⁹ These limitations, in conjunction with the "all-elements" approach, helped to rein in the doctrine of equivalents.¹³⁰ Enter

119. *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1582-84 (Fed. Cir. 1996).

120. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 609 (1950).

121. *See Wilson Sporting Goods Co. v. David Geoffrey & Assocs.*, 904 F.2d 677, 683 (Fed. Cir.) (holding that a determination whether prior art covers a particular device is a matter of law) (citing *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861 (Fed. Cir. 1985)), *cert. denied*, 498 U.S. 992 (1990).

122. *Id.* at 684.

123. *Id.* at 683.

124. *Graver Tank*, 339 U.S. at 609.

125. *Id.*

126. In patent law, "prosecution" refers to the process of obtaining a patent. MERGES, *supra* note 51, at 30. "Litigation," or asserting a patent, refers to the process of enforcing a patentee's rights of exclusion. RICHARD T. HOLZMANN, *INFRINGEMENT OF THE UNITED STATES PATENT RIGHT 1* (1995).

127. 5 CHISUM, *supra* note 49, § 18.05.

128. *Id.* §§ 18.05, 18.05[3].

129. *Id.* § 18.05.

130. *See* Thomas K. Landry, *Certainty and Discretion in Patent Law: The On Sale*

Hilton Davis.

*Hilton Davis Chemical Co. v. Warner-Jenkinson Co.*¹³¹

Hilton Davis is notable more for what it failed to do than for what it actually accomplished.¹³² Although the Federal Circuit has attempted in the past to equalize the positions of the patentee and the defendant,¹³³ its decision in *Hilton Davis* represents a return to the doctrine's roots¹³⁴ and, consequently, a skewing of positions in favor of the patentee.

The controversy in *Hilton Davis* centered on a process for filtering dyes called "ultrafiltration."¹³⁵ An improvement over a traditional method called "salting out," ultrafiltration employs osmosis to separate manufacturing by-products from the dye through a membrane.¹³⁶ Hilton Davis and Warner-Jenkinson, both dye manufacturers, developed independently their own versions of ultrafiltration.¹³⁷ Although Warner-Jenkinson tested its process one week before Hilton Davis did in 1982, Hilton Davis was first to produce a successful process and obtained the patent-in-suit for that process.¹³⁸ In order to secure its patent, however, Hilton Davis limited the claims for its ultrafiltration process to specific pressures of 200-400 p.s.i.g., pHs of 6.0 to 9.0, and pore diameters of five to fifteen Angstroms.¹³⁹

Bar, the Doctrine of Equivalents, and Judicial Power in the Federal Circuit, 67 S. CAL. L. REV. 1151, 1193-94 (1994).

131. 62 F.3d 1512 (Fed. Cir. 1995), *cert. granted*, 116 S. Ct. 1014 (1996).

132. In this way, *Hilton Davis* is what it purported to be: a restatement, rather than a revision, of the doctrine of equivalents.

133. *See, eg., Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931 (Fed. Cir. 1987), *cert. denied*, 485 U.S. 1009 (1988); Landry, *supra* note 130, at 1196.

134. *See* Gary M. Hoffman & Eric Oliver, *With Hilton Davis the Federal Circuit Takes the Doctrine of Equivalents Back to Its Roots*, 9 HARV. J.L. & TECH. 181 (1996).

135. *Hilton Davis*, 62 F.3d at 1515.

136. *Id.*

137. *Id.* at 1515-16.

138. *Id.* Both Hilton Davis and Warner-Jenkinson unknowingly hired Osmonics, Inc., a manufacturer of filtration equipment, to conduct their tests. *Id.* at 1516.

139. *Id.* In order to avoid estoppel by prior art, Hilton Davis amended its original Claim 1 to encompass only such processes operating "at a pH from approximately 6.0 to 9.0." *Id.* at 1515-16. A prior patent disclosed an ultrafiltration process operating at a pH above 9.0 and "preferably between 11 and 13." *Id.* at 1516.

Warner-Jenkinson did not make its process known to the public until 1986, after Hilton Davis had already introduced its process commercially.¹⁴⁰ Warner-Jenkinson's version of ultrafiltration operated at pressures of 200-500 p.s.i.g. and at a pH of 5.0.¹⁴¹ Despite the fact that the two processes functioned under different specifications, Hilton Davis sued Warner-Jenkinson in 1991 for patent infringement.¹⁴² The case went to a jury, which found that Warner-Jenkinson had not infringed literally.¹⁴³ The jury did, however, find infringement under the doctrine of equivalents but declined to award treble damages for willful infringement.¹⁴⁴ Warner-Jenkinson appealed on the issues of infringement and validity,¹⁴⁵ and after hearing oral arguments in 1993, the Federal Circuit decided to rehear the appeal en banc.¹⁴⁶ The court called for briefs discussing three issues: (1) whether infringement under the doctrine of equivalents requires more than insubstantiality of differences, (2) whether the issue of infringement under the doctrine of equivalents is an equitable remedy for the court to decide, and (3) whether application of the doctrine of equivalents is discretionary when no literal infringement exists.¹⁴⁷

Without explicitly overruling or modifying any precedent,¹⁴⁸ the majority found that (1) although a court may consider additional factors (excluding intent), insubstantial differences between the processes alone may suffice for a finding of infringement,¹⁴⁹ (2) infringement under the doctrine of equivalents was

140. *Id.* Shortly after introducing its own ultrafiltration process, Warner-Jenkinson discovered the existence of the Hilton Davis process. *Id.* Hilton Davis did not learn of the Warner-Jenkinson process until 1989. *Id.*

141. *Id.* No actual pore diameters for Warner-Jenkinson's membrane were presented at trial, although experts testified that the membrane "would have a nominal pore diameter of 5 to 15 Angstroms." *Id.*

142. *Id.*

143. *Id.*

144. *Id.* The jury awarded Hilton Davis only 20% of the requested damages, but the judge granted a permanent injunction prohibiting Warner-Jenkinson from using its process at pressures below 500 p.s.i.g. and pHs below 9.01. *Id.*

145. *Id.*

146. *Id.*

147. *Id.*

148. Hoffman & Oliver, *supra* note 29, at 19.

149. *Hilton Davis*, 62 F.3d at 1518.

not an equitable issue for the court to decide in a jury trial,¹⁵⁰ (3) application of the doctrine of equivalents was not discretionary when there was no literal infringement,¹⁵¹ and (4) substantial evidence of equivalency between the Hilton Davis and Warner-Jenkinson processes existed.¹⁵²

The decision in *Hilton Davis* stressed the importance of objectivity in applying the doctrine of equivalents, especially regarding the substantiality of differences and the interchangeability of the accused elements with the patented elements.¹⁵³ The Federal Circuit purposefully drew short of adopting insubstantiality of differences as the sole test of infringement under the doctrine of equivalents, thereby allowing consideration of other factors that could provide an objective assessment of infringement.¹⁵⁴ For example, the court was willing to consider factors such as the defendant's efforts to design around the patent-in-suit.¹⁵⁵

The majority attached no weight, however, to the defendant's intent to infringe,¹⁵⁶ even though the purpose of the doctrine is to curb piracy. Stating that the doctrine of equivalents is not limited to cases of "unscrupulous copy[ing]"¹⁵⁷ and that intent to copy is not an element of patent infringement generally, the Federal Circuit held that intent is only a concern with respect to treble damages.¹⁵⁸

The court held that copying is relevant under the doctrine only to the extent that it indicates whether the defendant has made substantial changes in his product.¹⁵⁹ Designing around a patent, however, has greater relevance to equivalency analysis in that, being "the stuff of . . . competition[,]," it is technologically and economically desirable.¹⁶⁰ The accused infringer who can

150. *Id.* at 1520-22.

151. *Id.* at 1522.

152. *Id.* at 1524.

153. *Id.* at 1517-22.

154. *Id.* at 1518.

155. *Id.* at 1519-20.

156. *Id.* at 1519.

157. *Id.* (quoting *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607 (1950)).

158. *Id.*

159. *Id.*

160. *Id.* at 1520 (quoting *State Indus., Inc. v. A.O. Smith Corp.*, 751 F.2d 1226,

show evidence of designing around the patented device has dealt a heavy blow to the patentee's case.¹⁶¹ Independent development—i.e., lacking sufficient knowledge of the earlier device to qualify as designing around—is only relevant indirectly.¹⁶² Other factors, the court reasoned, also may be relevant to the question of infringement, but no factors beyond insubstantiality are necessary to determine infringement.¹⁶³

The Federal Circuit also took a limited view of the doctrine's equitable nature, stating that a simple reference to a body of precedent as "equitable" does not require exclusive review by a chancellor.¹⁶⁴ When the term "equity" is meant only as a synonym for what is fair and just, it does not necessarily mandate procedures such as trial without a jury.¹⁶⁵

Construing *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*¹⁶⁶ to mean that the doctrine of equivalents exists only to preserve fair protection of a patentee's rights, the majority in *Hilton Davis* further argued that, because all infringement is a matter of fact, the doctrine of equivalents is triable to a jury.¹⁶⁷ The majority also relied on the fact that *Graver Tank* did not discuss the doctrine as a matter for a chancellor as further support for its view that doctrine of equivalents cases warrant juries.¹⁶⁸ The majority failed to point out, however, that *Graver Tank* was a bench trial and therefore required no special discussion of chancellors.¹⁶⁹ The Supreme Court in *Graver Tank* actually had stated that the determination of equivalence was best suited for the judge, who possessed the necessary

1236 (Fed. Cir. 1985)).

161. *Id.*

162. *Id.*

163. *Id.* at 1518.

164. *Id.* at 1521; 1 DAN B. DOBBS, LAW OF REMEDIES: DAMAGES-EQUITY-RESTITUTION § 2.1(3) (2d ed. 1993). "[I]n a case that is tried to a jury as a 'law' case, [however,] the judge might still make important decisions turn on equitable estoppel or other equity doctrines." *Id.* "Chancellor" refers to a judge sitting in equity. See BLACK'S LAW DICTIONARY 231 (6th ed. 1990).

165. 1 DOBBS, *supra* note 164, § 2.1(3).

166. 339 U.S. 605 (1950).

167. *Hilton Davis*, 62 F.3d at 1520-21. The implication is that no issue of fact can be an issue of equity. See *id.* at 1541 (Plager, J., dissenting).

168. *Id.* at 1521.

169. *Graver Tank*, 339 U.S. at 611.

knowledge and experience.¹⁷⁰ Furthermore, although the majority in *Hilton Davis* insisted that "*Graver Tank* [did] not discuss any of the principles commonly attending the chancellor's invocation of equitable power, such as . . . the mandatory balancing of the equities,"¹⁷¹ *Graver Tank*, in fact, required that "equivalency must be determined against . . . the particular circumstances of the case" and that the judge should weigh the factors to determine equivalency.¹⁷² Although one might argue that the Supreme Court placed responsibility for equivalency determination with the judge simply because *Graver Tank* was a bench trial, the language surrounding the passage strongly suggests that the Supreme Court specifically intended to extend the judge's responsibility to trials where juries had decided the issue of literal infringement as well.¹⁷³

The majority also removed from the judge any discretion regarding the applicability of the doctrine of equivalents to a particular case.¹⁷⁴ The doctrine of equivalents has always been available to the patentee, argued the majority, and Supreme Court cases on the doctrine have established firmly that application of the doctrine is not discretionary.¹⁷⁵ Still, prosecution history estoppel and restrictive claiming can preclude application of the doctrine.¹⁷⁶

The Concurrence and Dissents: Illustrations of the Current Debate

Representative of the current debate surrounding the doctrine of equivalents, the concurrence and dissents in *Hilton Davis* discussed the doctrine's place and usefulness in infringement analysis, as well as the proper role of juries in equivalency analysis.¹⁷⁷ Though concurring with the majority, Judge Newman

170. *Id.* at 610.

171. *Hilton Davis*, 62 F.3d at 1521.

172. *Graver Tank*, 339 U.S. at 609-10.

173. *See id.*

174. *Hilton Davis*, 62 F.3d at 1522.

175. *Id.* at 1521.

176. *See, e.g., Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581-84 (Fed. Cir. 1996); *Mark I Mktg. Corp. v. R.R. Donnelley & Sons Co.*, 66 F.3d 285, 291 (Fed. Cir. 1995), *cert. denied*, 116 S. Ct. 917 (1996).

177. *Hilton Davis*, 62 F.3d at 1529-83 (Newman, J., concurring; Plager, J., dis-

nevertheless expressed her doubts about the usefulness of the doctrine of equivalents,¹⁷⁸ commenting that "[t]he uncertainty in judicial application of the [doctrine of equivalents] surely serves the patentee, perhaps disproportionately."¹⁷⁹ Newman's comment illustrates the advantage that patentees enjoy in doctrine of equivalents cases and the difficulty in applying a doctrine that allows little, if any, notice as to what acts will constitute infringement.

Focusing on the role of juries rather than the adequacy of notice, Judge Plager argued in his dissent that putting the doctrine of equivalents to a jury is "operationally unsatisfactory and jurisprudentially unjustified,"¹⁸⁰ and that both history and the public interest support the purely equitable nature of the doctrine of equivalents.¹⁸¹ In agreeing with Judge Plager that the doctrine of equivalents is a matter for the judge, not the jury,¹⁸² Judge Lourie noted that although no modern Supreme Court ruling governs the issue of judge/jury roles in equivalency analysis,¹⁸³ the doctrine's historical function of weighing various factors is an equitable determination and more a job for a

sentencing; Lourie, J., dissenting; Nies, J., dissenting).

178. The doctrine of equivalents has become increasingly complex because technological progress occurs from both the "originators" of concepts and from "those who improve, enlarge, and challenge" concepts. *Id.* at 1531-32 (Newman, J., concurring).

179. *Id.* at 1534 (Newman, J., concurring). Judge Newman did postulate that the lack of certainty of a patent's coverage could cause "leapfrogging" in technological development rather than advancing technology one minor improvement at a time. *Id.* at 1532-33 (Newman, J., concurring).

180. *Id.* at 1542 (Plager, J., dissenting). "[J]udges bear the responsibility of ensuring that, when the claims being urged are not based on clearly defined rights, the balance that is struck is struck in the public interest." *Id.* at 1545 (Plager, J., dissenting).

181. *Id.* at 1539-43 (Plager, J., dissenting). Judge Plager argued further that: [W]hen there is a wrong for which there is no adequate remedy at law, equity courts have traditionally gone beyond the law to impose a just and equitable result. Thus in those special cases in which the competitor's product is literally different but the difference is so insubstantial as to constitute a "fraud on the patent," a court in the exercise of its extraordinary equity power may extend the remedy of infringement in order to protect the rights of the patentee granted by law.

Id. at 1540 (Plager, J., dissenting).

182. *Id.* at 1549 (Lourie, J., dissenting).

183. *Id.* (Lourie, J., dissenting).

judge than a question for the jury.¹⁸⁴ Judge Nies's dissent offered different reasoning for the inappropriateness of juries in determining infringement under the doctrine of equivalents.¹⁸⁵ Although she approached the doctrine as a mixed question of law and fact,¹⁸⁶ Judge Nies argued that infringement analysis resolves itself into a question of law for the bench after the claims have been interpreted and the elements of the accused device determined.¹⁸⁷ Furthermore the current state of the doctrine, argued Judge Nies, makes equivalency analysis by a jury ineffective.¹⁸⁸

Judge Plager suggested that a proper solution for the jury problem would be either to remove the doctrine of equivalents from jury consideration altogether or to have the judge and jury share responsibility for applying the doctrine.¹⁸⁹ In sharing responsibilities, trial judges, with proper guidance from the Federal Circuit, would determine when insubstantiality and "circumstances so sufficiently special"¹⁹⁰ exist such that analysis under the doctrine of equivalents is warranted.¹⁹¹ The jury would then apply the function/way/result test and determine as a matter of fact whether the accused device infringes.¹⁹² Such an arrangement would strike a balance between the discretion of the bench and the historical role of the jury in determining infringement by equivalency.¹⁹³ Judge Lourie suggested a similar allocation of duties.¹⁹⁴ He contemplated giving the relevant factors surrounding the alleged infringement to the jury for factual determination and then having the judge weigh those

184. *Id.* (Lourie, J., dissenting).

185. *Id.* at 1550-83 (Nies, J., dissenting).

186. *Id.* at 1550 (Nies, J., dissenting).

187. *Id.* (Nies, J., dissenting). Judge Nies also presented an historical analysis, concluding that "[i]n a jury case, proper instructions must identify factual issues and legal limitations on finding equivalency." *See id.* at 1579 (Nies, J., dissenting).

188. *Id.* at 1563 (Nies, J., dissenting) ("We have made the infringement analysis so convoluted it is impossible for most district court judges untrained in 'patentese' to follow, much less jurors.").

189. *Id.* at 1543-44 (Plager, J., dissenting).

190. *Id.* at 1543 (Plager, J., dissenting).

191. *Id.* at 1543-44 (Plager, J., dissenting).

192. *Id.* at 1544 (Plager, J., dissenting).

193. *Id.* (Plager, J., dissenting).

194. *Id.* at 1550 (Lourie, J., dissenting).

factors equitably.¹⁹⁵

To Judge Lourie, consideration of factors beyond the function/way/result test were vital to a proper and fair application of the doctrine of equivalents.¹⁹⁶ Arguing that the majority interpreted *Graver Tank* incorrectly,¹⁹⁷ Lourie contended that the Supreme Court did not hold that insubstantiality alone constituted infringement.¹⁹⁸ Other factors were also deemed relevant, such as whether (1) the patented invention was a pioneer in its field, (2) the defendant developed its product through independent research or through imitation, (3) those skilled in the art considered the patented and accused elements interchangeable, (4) the patentee sought reissue, and (5) the patentee's behavior hindered the public's reasonable understanding of the scope of the claims.¹⁹⁹

Furthermore, according to Judge Lourie, consideration of intent is critical.²⁰⁰ Lourie argued that the fact that intent is irrelevant in determining literal infringement does not render intent meaningless in determining equivalency infringement.²⁰¹ The doctrine of equivalents exists to frustrate piracy; without consideration of the defendant's intent to pirate the patented invention, the doctrine of equivalents would ensnare devices that are undeserving of equivalency analysis.²⁰² "The whole tenor of *Graver Tank* is to make that distinction" between intended and unwitting infringement.²⁰³

That distinction is essential to a fair legal analysis, and a fair legal analysis is essential to the survival of the doctrine of equivalents; ultimately, "[i]f we are to persist in an extra-statutory remedy, it should be as fair to *both sides* as that provided in the statute."²⁰⁴ The doctrine of equivalents, as defined by the

195. *Id.* (Lourie, J., dissenting).

196. *Id.* at 1547 (Lourie, J., dissenting).

197. *Id.* (Lourie, J., dissenting).

198. *Id.* (Lourie, J., dissenting).

199. *Id.* (Lourie, J., dissenting).

200. *Id.* at 1547-48 (Lourie, J., dissenting).

201. *See id.* at 1547 (Lourie, J., dissenting).

202. *Id.* at 1548 (Lourie, J., dissenting).

203. *Id.* (Lourie, J., dissenting).

204. *Id.* at 1560 (Nies, J., dissenting).

majority in *Hilton Davis*, is "wholly arbitrary"²⁰⁵ and removes the public's protection from "unknowable infringement."²⁰⁶ At the same time, the doctrine provides the patentee with an attractive alternative to pursuing reissue to correct her claims and "is as unfair as broadened reissues of a patent without intervening rights."²⁰⁷

The concurrence and dissents brought out aspects of the doctrine of equivalents that the majority failed to address effectively. The inherent uncertainty in the doctrine undermines its usefulness and provides the patentee an unfair advantage over competitors. Lack of appreciation for the doctrine's history further benefits the patentee by encouraging neglect of the historically appropriate and effective roles of the judge and jury. Additionally, ignoring the defendant's intent bypasses the equitable principles that support the doctrine.

The Error of Hilton Davis

The Federal Circuit's approach to the doctrine of equivalents in *Hilton Davis* appears to be an attempt to balance certainty with fairness in a jury trial. Unfortunately, the Federal Circuit's attempt accomplished neither certainty nor fairness.²⁰⁸ For all practical purposes notice remains insufficient. Furthermore, the sense of fairness that the court touched on in *Pennwalt Corp. v. Durand-Wayland, Inc.*²⁰⁹ subsequently has disappeared through the court's refusal to consider fully the role of intent, the impropriety of juries in equivalency analysis, and the unfair effects that jury miscomprehension and bias have on a defendant in doctrine of equivalents litigation. Moreover, the Federal Circuit's failure to "specify by name any prior precedent that would be overruled, modified, or in any way affected by their ruling, [has left] litigants . . . to their own devices to ascertain what precedent can still be relied upon and what precedent is

205. *Id.* at 1562 (Nies, J., dissenting).

206. *Id.* (Nies, J., dissenting).

207. *Id.* at 1560 (Nies, J., dissenting); see also *infra* notes 318-22 and accompanying text (discussing the reissue process).

208. See Bryan Collins, *Updates in Science and Technology: Hilton Davis Chemical Co. v. Warner-Jenkinson Co.*, 2 B.U. J. SCI. & TECH. L. 4, 17 (1996).

209. 883 F.2d 931 (Fed. Cir. 1987), *cert. denied*, 485 U.S. 1009 (1988); see *supra* note 35.

effectively overruled by *Hilton Davis*.²¹⁰

*Equity As Pure Equity*²¹¹

The Historical Nature of the Doctrine

In reaching its decision, the Federal Circuit failed to appreciate fully the history and equitable nature of equivalency analysis. Though decided after *Hilton Davis*, *Markman v. Westview Instruments, Inc.* recognized the role of history in attempting "to classify a mongrel practice," and noted the ability of a court to parse an equitable issue from a larger issue for independent review.²¹² Had the Federal Circuit attached similar weight to the history of the doctrine of equivalents, it might well have decided differently the roles of the jury and intent. The majority in *Hilton Davis* maintained instead that the factual nature of the doctrine of equivalents mandated jury review where the plaintiff requested one.²¹³

In 1791, suits for patent infringement were actions on the case²¹⁴ and therefore warranted juries.²¹⁵ Equivalency analysis, at that time the only viable test for infringement, was therefore subject to a jury trial.²¹⁶ Indeed, the fact that juries reviewed many of the earliest cases involving equivalency analysis supports the majority's view.²¹⁷ That support diminishes, how-

210. Hoffman & Oliver, *supra* note 29, at 19.

211. See *supra* note 9.

212. *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1389-90, 1396 (1996).

213. *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1521 (Fed. Cir. 1995), *cert. granted*, 116 S. Ct. 1014 (1996).

214. Patent Act of 1790, ch. 7, § 4, 1 Stat. 109, 111 (repealed 1793). The term "actions on the case" refers to actions founded on the common law or upon acts of the legislature. 1 JOSEPH CHITTY, A TREATISE ON PLEADING 131 (Springfield, Mass., G. & C. Merriman 15th ed. 1859).

215. 1 CHITTY, *supra* note 214, at 131; Patrick Devlin, *Jury Trial of Complex Cases: English Practice and the Time of the Seventh Amendment*, 80 COLUM. L. REV. 43, 44 (1980). "Thus, patent litigation in that early period was typified by so-called novelty actions, testing whether 'any essential part of [the patent had been] disclosed to the public before,' and 'enablement' cases, in which juries were asked to determine whether the specification described the invention well enough to allow members of the appropriate trade to reproduce it" *Markman*, 116 S. Ct. at 1390-91 (citations omitted).

216. See Amberg Brief, *supra* note 9, at 361.

217. See, e.g., *Winans v. Denmead*, 56 U.S. (15 How.) 330 (1853); *Odiorne v.*

ever, when one considers that the early patent acts required only vague descriptions of the invention claimed.²¹⁸ Such vague descriptions could not accommodate the test for literal infringement as it is known today. Equivalency thus served as the primary test for infringement in the early cases and, under the early acts, was a jury issue.²¹⁹ With the advent of modern claiming methods, the doctrine of equivalents underwent a critical change in its application and is now used solely in an equitable capacity.²²⁰

Recognizing the faults of equivalency analysis, Congress effectively removed equivalency from statutory infringement.²²¹ The requirement of peripheral claiming shifted focus from the central nature of an invention to the outer limit of the protection sought.²²² The Patent Act of 1870²²³ thus removed the need to determine infringement by equivalency unless the particular equities so required.²²⁴ Instead, literal infringement analysis came to the fore as the method best suited for determining infringement.²²⁵ Infringement generally remains triable to a jury today, but the right to a jury should extend no further than literal analysis. When an action invokes the doctrine of equivalents, the analysis enters the realm of equity where use of a jury no longer applies.²²⁶

Winkley, 18 F. Cas. 581 (C.C.D. Mass. 1814) (No. 10,432); Gray v. James, 10 F. Cas. 1015 (C.C.D. Pa. 1817) (No. 5718); Charles W. Bradley, *The Changing Role of Juries in Patent Litigation*, in INTELLECTUAL PROPERTY LAW INSTITUTE 1995, at 113, 155 n.1 (PLI Patents, Copyrights, Trademarks, & Literary Property Course Handbook Series No. G-416, 1995).

218. See *supra* notes 78-87 and accompanying text; see also *Markman*, 116 S. Ct. at 1391 & n.6 (describing the discontent with the "amorphous character" of patent law in England and quoting Chief Justice Eyre in *Boulton & Watt v. Bull*, 2 H. Bl. 463, 491, 126 Eng. Rep. 651, 665 (C.P. 1795), who said that "[p]atent rights are no where that I can find accurately discussed in our books").

219. Cf. *Collins*, *supra* note 53, at 287 ("[T]he early standard of infringement was essentially the doctrine of equivalents as a matter of law, rather than equity.").

220. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1539-40 (Fed. Cir. 1995) (Plager, J., dissenting), *cert. granted*, 116 S. Ct. 1014 (1996); Federal Circuit Bar Brief, *supra* note 9, at 355-56.

221. See *Wegner*, *supra* note 81, at 19.

222. *Id.*

223. Ch. 230, 16 Stat. 198 (repealed 1952).

224. See *Collins*, *supra* note 53, at 288; *Wegner*, *supra* note 81, at 19.

225. See *Wegner*, *supra* note 81, at 19.

226. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1542-43

Although infringement by equivalency was triable to a jury originally, that fact alone should not serve as a basis for requiring juries in today's doctrine of equivalents cases. A fundamental change in the patent system, the replacement of equivalency analysis with literal analysis,²²⁷ illustrates recognition of the inherent problems of equivalency analysis. Maintaining the "tradition" of juries in doctrine of equivalents cases may undermine the changes in the patent system more than it furthers them.²²⁸ Juries were present in the early equivalency analysis simply because patent cases warranted juries, and equivalency analysis was the only test available. The switch to literal analysis as the primary test represented a recognition of the faults of equivalency analysis²²⁹ and the problems with placing equivalency analysis in the hands of the jury.

In addition to the historical development of the doctrine of equivalents, many commentators point to the law of contracts as a basis for the pure equity nature of the doctrine.²³⁰ Consider-

(Fed. Cir. 1995) (Plager, J., dissenting), *cert. granted*, 116 S. Ct. 1014 (1996); *id.* at 1549 (Lourie, J., dissenting).

227. See Robert M. Meeks, *Metaphors of Infringement and Equivalence: The Solution of Our Problems*, 2 J. INTEL. PROP. L. 279, 283-92 (1994).

228. See Wegner, *supra* note 81, at 18-19. Oversight and blind adherence to tradition could explain the fact that juries have remained present in doctrine of equivalents cases since the institution of peripheral claiming. See *Hilton Davis*, 62 F.3d at 1542-43 (Plager, J., dissenting). Moreover, the pro-defendant atmosphere of patent litigation prior to the creation of the Federal Circuit could also explain why a defendant might not object to the few instances of trial by jury. Cf. *Abolition*, *supra* note 31, at 84 (describing the hardships that faced the patentee before the arrival of the Federal Circuit).

229. Wegner, *supra* note 81, at 18-19.

230. See, e.g., *Hilton Davis*, 62 F.3d at 1563-83 (Nies, J., dissenting); Amberg Brief, *supra* note 9, at 357. Mr. Amberg presents the contract argument:

[T]he contract—the patent's written claims—is deemed accurately to reflect the written meeting of the minds of the [Patent] Office and the applicant. The written claims are submitted by the applicant, who may be assumed to have employed words accurately reflecting his or her then-existing state of mind. If the Office examiner allows the claims, it is presumed that he or she read and understood the claims and agreed to the written claims as accurately conforming to the examiner's state of mind as to what was allowable subject matter under the applicable statutory criteria. . . . Thus, upon allowance of the written claims, there was a meeting of the minds, an agreement, that was accurately expressed in the words of those claims. A later reformation-expansion of the expressed words of the claims to conform to an unexpressed intent, or change of

ing a patent to be a contract between the patentee and the government, those commentators view the doctrine of equivalents as a tool for reforming the patent contract.²³¹ When literal analysis failed to produce a fair result, the courts resorted to the original equivalency analysis.²³² In this way, the courts essentially reformed the claims, much as a court would reform the terms of a contract.²³³ Viewed as a method of contract reformation, which is a matter for the judge,²³⁴ the doctrine of equivalents is then an equitable issue for the judge to decide, even though it rests within the legal action of infringement.²³⁵

Because the question of infringement under the doctrine of equivalents involves issues of both law and fact, a further question to pose is whether a judge may parse a pure equity issue from the larger legal action and decide the equity issue without

mind, of one of the parties (the applicant) can only be accomplished by reissue

Id. at 361-62 (citations omitted). Regulations of the Patent and Trademark Office (PTO) provide further support for the contract analogy in that they require that the action of the PTO be based solely on the written record. *Id.* at 361 (quoting 37 C.F.R. § 1.2 (1995)).

231. See Amberg Brief, *supra* note 9, at 361-62.

232. See Wegner, *supra* note 81, at 18-21.

233. See Amberg Brief, *supra* note 9, at 361-62.

234. See *Transmatic, Inc. v. Gulton Indus., Inc.*, 835 F. Supp. 1026, 1029 (E.D. Mich. 1993) (citing *Ensearch Corp. v. Shand Morahan & Co.*, 952 F.2d 1485, 1502 (5th Cir. 1992)), *aff'd*, 53 F.3d 1270 (Fed. Cir. 1995).

235. See *Transmatic*, 835 F. Supp. at 1028-29; Stanley L. Amberg, *Equivalents and Claim Construction: Critical Issues En Banc in the Federal Circuit*, in *PATENT LITIGATION* 1994, at 713, 739 (PLI Patents, Copyrights, Trademarks, & Literary Property Course Handbook Series No. G-396, 1994) (discussing the conditions that might allow trial of the doctrine to the bench alone).

One might make a further argument for the doctrine of equivalents as an issue of pure equity. Early cases applying equivalency analysis, *see, e.g.*, *Odiorne v. Winkley*, 18 F. Cas. 581, 582-83 (C.C.D. Mass. 1814) (No. 10,432), often also concerned the issue of inequitable conduct or fraud in obtaining a patent. In those early cases, the jury decided the question of inequitable conduct. *See id.* As with equivalency analysis, no provision exists today in the patent statute regarding inequitable conduct. Today, however, the question of inequitable conduct is an issue for the judge alone to determine and may be taken from the jury in an infringement action. *Paragon Podiatry Lab., Inc. v. KLM Lab., Inc.*, 984 F.2d 1182, 1190 (Fed. Cir. 1993) (*per curiam*). Although both equivalency and inequitable conduct determinations were intended to prevent fraud on the patent system, the two doctrines nevertheless have come to rest on opposite sides of the jury question. A fuller analysis of the doctrine's historical parallels may provide further support for allowing only a judge to determine infringement under the doctrine of equivalents.

a jury.²³⁶ Commentators have argued that Supreme Court precedent indicates that parsing is impermissible,²³⁷ and the generally accepted conclusion has been that "[d]espite the disadvantages of jury trials . . . the [patent] system must continue to live with juries because of" faulty precedent.²³⁸

Parsing, however, would ensure that each issue in a case receives its proper consideration. Employing this logic, a district court in Michigan recently determined in *Transmatic, Inc. v. Gulton Industries, Inc.*²³⁹ that the doctrine of equivalents was an equitable issue suitable for parsing from the legal infringement action.²⁴⁰ The Michigan court recognized that Supreme Court precedent implicitly would allow a judge to parse equitable elements from legal actions.²⁴¹ Additionally, a recent Federal Circuit case, holding that a judge alone must resolve the issue of inequitable conduct, implied that the equitable defense of inequitable conduct may be removed from the legal action of infringement.²⁴² Unfortunately, the question of parsing remains unsettled with respect to the doctrine of equivalents; the Federal Circuit found that the district court in *Transmatic* had erred on the issue of literal infringement and therefore did not address the issues surrounding the doctrine of equivalents or parsing.²⁴³

The recent Supreme Court decision in *Markman*, however, lends support to the applicability of parsing. In *Markman*, the Supreme Court approached the issue of claim construction as a

236. Amberg, *supra* note 235, at 729-39.

237. *See id.* at 731 (discussing the effect of *Beacon Theaters, Inc. v. Westover*, 359 U.S. 500 (1959), and *Dairy Queen, Inc. v. Wood*, 369 U.S. 469 (1962), on parsing).

238. Adelman, *supra* note 53, at 1005 (referring to *Beacon Theaters*, 359 U.S. at 500, and *Dairy Queen*, 369 U.S. at 469).

239. 835 F. Supp. 1026 (E.D. Mich. 1993), *aff'd*, 53 F.3d 1270 (Fed. Cir. 1995).

240. *Id.* at 1029 (relying on *Lytle v. Household Mfg., Inc.*, 494 U.S. 545 (1990)).

241. *Id.*

242. *See* *Paragon Podiatry Lab., Inc. v. KLM Lab., Inc.*, 984 F.2d 1182, 1190 (Fed. Cir. 1993) (*per curiam*); *infra* note 375.

243. *Transmatic, Inc. v. Gulton Indus., Inc.*, 53 F.3d 1270, 1276 (Fed. Cir. 1995). The majority in *Hilton Davis* acknowledged neither *Transmatic* nor the fact that, in other instances, the doctrine of equivalents has been considered purely equitable and suitable for parsing from a legal action. *See* *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1516-29 (Fed. Cir. 1995), *cert. granted*, 116 S. Ct. 1014 (1996).

question of "whether a particular issue occurring within a jury trial . . . is itself necessarily a jury issue, the guarantee being essential to preserve the right to a jury's resolution of the ultimate dispute," that "ultimate dispute" being the issue of infringement in general.²⁴⁴ In deciding that the jury should play no role in claim construction, the Court answered its question in the negative.²⁴⁵

Even if courts were to recognize the doctrine as a matter of pure equity, however, the problem of remedies still remains. The second half of the *Chauffeurs* test considers whether the remedy sought is of a legal or equitable nature.²⁴⁶ Patentees can obtain legal or equitable remedies for infringement in the form of damages or injunctions, respectively.²⁴⁷ Regardless of the equitable nature of the doctrine of equivalents, if the patentee seeks only an injunction, then no jury will determine the issue; injunctions are exclusively bench issues.²⁴⁸ If damages are sought, however, the balance swings in favor of conducting a jury trial.²⁴⁹ In spite of the doctrine's pure equity nature, then, juries likely will continue to be a part of doctrine of equivalents litigation when a plaintiff seeks damages.²⁵⁰ Unlike the defense of inequitable conduct, equivalency analysis remains a part of the plaintiff's general infringement action. Basing the use of juries on the nature of the remedy sought weakens the ideal of fairness inherent in equity jurisprudence and further hampers application of the doctrine of equivalents.

Discretionary Application of the Doctrine of Equivalents

In order to revitalize the doctrine's exceptional nature, the trial judge should retain discretion as to its applicability.²⁵¹

244. *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1389 (1996).

245. *Id.* at 1396.

246. *See Chauffeurs, Teamsters & Helpers Local No. 391 v. Terry*, 494 U.S. 558, 565 (1990). A legal remedy would promote the use of a jury; an equitable remedy would dissuade such use. *See id.* at 564.

247. 35 U.S.C. §§ 283, 284 (1994).

248. Amberg Brief, *supra* note 9, at 368.

249. *Id.* at 366-69.

250. *See Adelman, supra* note 53, at 1005. *But see infra* notes 368-80 and accompanying text (discussing possible altered roles for the jury).

251. *Cf. John E. Gartman, Infringement Under the Doctrine of Equivalents: Gazing*

The Federal Circuit's removal of the judge's discretion does not mean, however, that the doctrine of equivalents applies in every case. Were the doctrine of equivalents to apply in every case in which the plaintiff had requested a jury, a judge would be unable to decide the issue of infringement as a matter of law. Instead, the issue would always have to go to a jury—under *Hilton Davis*—for a determination of infringement under the doctrine of equivalents. Yet in cases decided after *Hilton Davis*, the Federal Circuit has held that the district court judge may decide the issue of infringement as a matter of law, not only with respect to literal infringement, but also with respect to infringement under the doctrine of equivalents. For example, in *Mark I Marketing Corp. v. Donnelley & Sons Co.*,²⁵² the court recognized that prosecution history still “serves as a check on the applicability of the doctrine of equivalents” and, despite the fact that the plaintiff had requested a trial by jury,²⁵³ granted judgment as a matter of law on the issue of infringement.²⁵⁴ Moreover, in *Athletic Alternatives, Inc. v. Prince Manufacturing, Inc.*,²⁵⁵ the Federal Circuit explicitly held that where a patentee has claimed restrictive values in her patent, the doctrine of equivalents cannot apply at all. In drafting his claims precisely, the patentee in *Athletic Alternatives* allowed no room for equivalents and therefore could not withstand summary judgment of infringement under the doctrine of equivalents.²⁵⁶ Since *Hilton Davis*, the Federal Circuit has thus recognized that a judgment as a matter of law on the issue of infringement can stand, even where the judgment explicitly precludes application of the doctrine of equivalents.

These cases illustrate the Federal Circuit's reluctance to attach equivalency analysis to every infringement action. Unfortunately, these cases also illustrate the court's imprecise definition

into the Crystal Ball, 3 FED. CIR. B.J. 299, 304-06 (1993) (predicting that, despite fear than an equitable threshold would cause excessive uncertainty in patent law, the majority of the Federal Circuit would support the notion of an equitable threshold).

252. 66 F.3d 285, 291 (Fed. Cir. 1995), cert. denied, 116 S. Ct. 97 (1996).

253. Civil Docket for Case No. 92-CV-8380, at 2 (N.D. Ill. filed Oct. 25, 1995).

254. *Mark I*, 66 F.3d at 292.

255. 73 F.3d 1573, 1581-83 (Fed. Cir. 1996).

256. *Id.* at 1582-83.

of the term "discretion," and they open the door to semantic arguments. One interpretation might be that the doctrine always applies, but sometimes the particular degree of equivalents is nil. This interpretation does not account for the exclusion of a jury, however. Another interpretation might be that the doctrine does not apply in every case, but when it does, the judge has no choice but to apply it. This latter interpretation begs the question as to who should decide whether the doctrine applies in a given case. The cases following *Hilton Davis* indicate that the judge should make that decision.²⁵⁷ Taking the next logical step, if insubstantiality of differences is the minimum necessary requirement for infringement under the doctrine of equivalents,²⁵⁸ then the judge should also determine the substantiality of differences between the patented and accused devices. Granting discretionary power to the trial judge is consistent with the Supreme Court's statement that the final determination of insubstantiality should rest with the court, which is more familiar with science and "principles not usually contained in the general storehouse of knowledge and experience."²⁵⁹

Equity As Fairness

The Federal Circuit in *Hilton Davis* rejected pure equity arguments and instead construed "equitable" to mean no more than a broad ideal of fairness.²⁶⁰ The court maintained that the doctrine of equivalents had never been a doctrine of pure equity,²⁶¹ nor had the doctrine been triable to the bench alone.²⁶² In light of the history and nature of the doctrine of equivalents,

257. See *Athletic Alternatives*, 73 F.3d at 1581-84; *Mark I*, 66 F.3d at 292.

258. *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1518 (Fed. Cir. 1995), cert. granted, 116 S. Ct. 1014 (1996).

259. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 610 (1950); see *supra* notes 94-101 (discussing the Supreme Court's view of the judge as the proper assessor of equivalency); see also *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1395-96 (1996) (discussing the superiority of the judge with respect to claim construction).

260. *Hilton Davis*, 62 F.3d at 1521.

261. *Id.*

262. See *id.* at 1520-21.

the Federal Circuit's assessment rings hollow. Its focus on fairness, however, is not misplaced. Parties arguing to a chancellor seek special attention to fairness in the resolution of an issue.²⁶³ Although the doctrine of equivalents involves this type of special attention, the Federal Circuit's application of equity as a vehicle to achieve fairness unfortunately falls short of its goal.

Equity as fairness seeks to protect patentees from frauds on their patents.²⁶⁴ Equity must also, however, protect accused infringers from unfair trials and liability without adequate notice of the law.²⁶⁵ Although the doctrine of equivalents purposely operates in the patentee's favor to an extent,²⁶⁶ with its goal being to level what was formerly a pro-defendant playing field, the legal system still must treat the litigants fairly.²⁶⁷ Under *Hilton Davis*, the legal system has failed to provide the necessary fairness.

Much of the unfairness results from the current litigation environment. Although juries were present in almost all of the initial American patent cases,²⁶⁸ patent litigation came to involve juries rarely and tended to work against the patentee.²⁶⁹ The creation of the Federal Circuit, however, has strengthened patents and brought about a dramatic increase in both patent litigation and jury use.²⁷⁰ Litigation increased by fifty percent during the 1980s, with a jump of twenty-five percent between 1991 and 1992 alone.²⁷¹ In turn, litigation to juries, who strong-

263. See *id.* at 1521.

264. *Id.*

265. See *White v. Dunbar*, 119 U.S. 47, 51-52 (1886); *Evans v. Eaton*, 20 U.S. (7 Wheat.) 356, 434 (1822); *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991); *Adelman & Francione*, *supra* note 103, at 682.

266. Federal Circuit Bar Brief, *supra* note 9, at 354.

267. See *Hilton Davis*, 62 F.3d at 1560 (Nies, J., dissenting); *Abolition*, *supra* note 31, at 95.

268. *Bradley*, *supra* note 218, at 155 n.1.

269. *Abolition*, *supra* note 31, at 77, 84, 93-94; Nicholas M. Cannella & Timothy J. Kelly, *Jury Trials and Mock Jury Trials*, in *PATENT LITIGATION 1993*, at 731, 738 (PLI Patents, Copyrights, Trademarks, & Literary Property Course Handbook Series No. G-375, 1993).

270. See *Merz & Pace*, *supra* note 30, at 580.

271. *Id.* at 580 & n.10 (citing Ludwig E. Kolman & Thomas L. Duston, *In Patent Litigation, Can Teamwork Work?*, NAT'L L.J., Jan. 24, 1994, at S14).

ly tend to favor patentees,²⁷² has also increased, with patentees prevailing significantly more often in jury trials than in bench trials.²⁷³ The resulting "predatory" litigation in the patent community²⁷⁴ has gone beyond leveling the field for the patentee to actively operating against the accused infringer.²⁷⁵ Until *Hilton Davis*, the Federal Circuit had taken steps to counteract this bias. With respect to the doctrine of equivalents, for example, the Federal Circuit required in *Pennwalt Corp. v. Durand-Wayland, Inc.*²⁷⁶ that a patentee prove element-by-element infringement,²⁷⁷ thereby placing a greater burden on the patentee to prove infringement. The Federal Circuit failed to keep pace, however. *Hilton Davis* effectively negated such gains to defendants and returned an unfair advantage to litigious patentees.

The Need To Consider Intent

The pro-patentee environment under *Hilton Davis* calls for a retooling of the doctrine of equivalents that will (1) forestall the doctrine's improper use and diminish the incentive to forego the reissue process in favor of suing under the doctrine of equivalents,²⁷⁸ (2) restore the doctrine's exceptional status,²⁷⁹ and

272. See *infra* notes 356-67 and accompanying text.

273. See *Abolition*, *supra* note 31, at 84. During the period 1979-1989, patentees won 62% of the time before a jury and 49% of the time before a judge. Cannella & Kelly, *supra* note 269, at 739.

274. See Chu, *supra* note 33, at 1341-55; see also *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1537 (Fed. Cir. 1995) (Plager, J., dissenting) (noting the regular use of the doctrine of equivalents in order to gain protection greater than that granted by statute), *cert. granted*, 116 S. Ct. 1014 (1996); Adelman & Francione, *supra* note 103, at 683 (noting that the doctrine of equivalents has allowed abusive patent litigation).

275. See *Hilton Davis*, 62 F.3d at 1534 (Newman, J., concurring); *id.* at 1560 (Nies, J., dissenting); Robert L. Harmon, *Seven New Rules of Thumb: How the Federal Circuit Has Changed the Way Patent Lawyers Advise Clients*, 14 GEO. MASON U. L. REV. 573, 582 (1992).

276. 833 F.2d 931 (Fed. Cir. 1987), *cert. denied*, 485 U.S. 1009 (1988).

277. *Id.* at 935. Viewing each element within the context of the entire claim, the court in *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1533 (Fed. Cir. 1987), observed that "[i]t is . . . well settled that each element of a claim is material and essential, and that, in order for a court to find infringement, the plaintiff must show the presence of every element or its substantial equivalent in the accused device." (quoting *Lemelson v. United States*, 752 F.2d 1538, 1551 (Fed. Cir. 1985)).

278. See *Hilton Davis*, 62 F.3d at 1560 (Nies, J., dissenting); Adelman &

(3) remove a general jury bias against defendants.²⁸⁰

In *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*,²⁸¹ the Supreme Court held that insubstantial differences are a "necessary predicate" for infringement under the doctrine of equivalents.²⁸² The Court neither held nor implied, however, that insubstantial differences are the sole sufficient predicate. The Supreme Court repeatedly has held that the doctrine serves to prevent the "unscrupulous copyist"²⁸³ from committing "fraud on a patent."²⁸⁴ Although the Court has not required intent specifically, both the history²⁸⁵ and the objective²⁸⁶ of the

Francione, *supra* note 103, at 715-20.

279. See *Hilton Davis*, 62 F.3d at 1537 (Plager, J., dissenting).

280. See Harmon, *supra* note 275, at 582.

281. 339 U.S. 605 (1950).

282. *Hilton Davis*, 62 F.3d at 1517.

283. *Graver Tank*, 339 U.S. at 607.

284. *Id.* at 608; see *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929); *Winans v. Denmead*, 56 U.S. (15 How.) 330, 344 (1853).

The majority in *Hilton Davis* construed this language to mean that the doctrine of equivalents exists to "prevent 'fraud on a patent,' not fraud by the accused infringer." *Hilton Davis*, 62 F.3d at 1519 (quoting *Graver Tank*, 339 U.S. at 608) (citations omitted). The intended distinction is not convincing. Construing "fraud" to refer to the amount of difference between devices, *id.* at 1519, does not dismiss the issue of intent. Inseparable from fraud is the connotation of "perjury, . . . misrepresentation[.]" *Knauer v. United States*, 328 U.S. 654, 657 (1946) (concerning fraud outside the context of patents), and intent. The PTO has recognized the connection between intent and fraud: "[N]o patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct." Duty to Disclose Information Material to Patentability, 37 C.F.R. § 1.56(a) (1994) (emphasis added). Moreover, the references in *Graver Tank* to the "unscrupulous copyist," piracy, and stealing, *Graver Tank*, 339 U.S. at 607, compel the inclusion of intent in equivalency analysis.

285. See *Odiorne v. Winkley*, 18 F. Cas. 581, 582-83 (C.C.D. Mass. 1814) (No. 10,432). In *Odiorne*, Justice Story left the question of intent to the jury, noting that a finding of infringement would result in treble damages. *Id.* at 583. Justice Story's logic appears to follow from the fact that, when one obtained a patent at that time, the law presumed that he did so in light of all existing patents. *Id.* at 582-83. If a patent issued that nevertheless infringed another existing patent, the second patentee was thus deemed to have acted "surreptitiously." *Id.* at 582. Such a "surreptitious" act, having the required willfulness, warranted an award of enhanced damages. See *id.* at 583. If a finding of infringement automatically resulted in an award of treble damages for willful infringement, then it follows that intent was necessary for a determination of infringement by equivalency. See also *Gray v. James*, 10 F. Cas. 1015, 1018 (C.C.D. Pa. 1817) (No. 5718) (noting the applicability of intent); Joseph R. Re & Lynda J. Zadra-Symes, *Infringement Under the Doctrine of Equivalents: The Federal Circuit's First Ten Years*, 785 A.L.L.-A.B.A. 77, 113 (1992), available in

doctrine of equivalents urge consideration of intent. The majority in *Hilton Davis*, however, declined to consider intent in conjunction with substantiality of differences in its application of the doctrine.²⁸⁷

The majority's discussion of intent ultimately belies itself. The court was receptive only to considering—in varying degrees—copying, designing around, and independent development. Copying refers to the outright theft of the patented invention²⁸⁸ and, by definition, requires intent. Designing around, sometimes characterized as a sanctioned form of copying,²⁸⁹ refers to a competitor's attempt to avoid the patent's claims in order to advance the state-of-the-art and fuel the competition that characterizes the patent system.²⁹⁰ Courts therefore regard evidence of designing around favorably.²⁹¹ Independent development refers to the case in which a competitor creates his device without knowledge or notice of the patented device.²⁹²

The court stated that evidence of independent development was relevant only to the issue of damages and had no effect on the amount of difference between the patented and accused devices.²⁹³ Evidence of copying, however, was directly relevant to the issue of infringement and created a "suggestion" that the differences were insubstantial.²⁹⁴ Also directly relevant was evidence of designing around.²⁹⁵ Unlike copying, evidence of designing around created a "suggestion" that the differences were in fact substantial.²⁹⁶

As a preliminary matter, the Federal Circuit made a considerable leap in logic by noting that the presence of copying or de-

Westlaw, TP-ALL Library (noting that intent has been the "overriding equitable factor resulting in the doctrine's applicability").

286. See *Hilton Davis*, 62 F.3d at 1548 (Lourie, J., dissenting).

287. See *id.* at 1519-20.

288. See Robb, *supra* note 68, at 282.

289. Katz, *supra* note 67, at 316.

290. *Hilton Davis*, 62 F.3d at 1520; Robb, *supra* note 68, at 282.

291. See *Hilton Davis*, 62 F.3d at 1520.

292. See Robb, *supra* note 68, at 282.

293. *Hilton Davis*, 62 F.3d at 1520.

294. *Id.* at 1519.

295. *Id.* at 1520.

296. *Id.*

signing around will effect the substantiality of differences (and that the presence of independent development will have no such effect). As an absolute value, the actual amount of difference between devices would remain constant; neither copying, nor designing around, nor independent development can alter these static, physical manifestations. These factors do, however, reflect whether the differences at issue were the result of piracy or innovation.²⁹⁷ In this way, they go more to the overall issue of infringement, not the amount of variation between the patented and accused devices.

Accordingly, any analysis under the doctrine of equivalents should separate these factors, and their attendant "suggestions," from the question of substantiality. To attach copying and designing around to the question of substantiality is to provide the fact finder with a facade behind which it can factor in evidence of intent.²⁹⁸ The Federal Circuit's analysis challenges logic and suppresses the true nature of the doctrine of equivalents.

Moreover, an explanation as to how two forms of copying—copying per se and designing around—result in polar inferences rests only on a consideration of the competitor's intent. Application of the Federal Circuit's analysis requires that copying (per se) lead to a suggestion of insubstantial differences.²⁹⁹ The suggestion arises not because those differences are insubstantial in a technical sense. It arises merely because the competitor *intended* to do no more than steal the patented invention. Similarly, the suggestion of substantial differences that accompanies designing around arises not from the actual technical differences, but from the mere fact that the competitor *intended not* to steal the patented invention.

With regard to independent development, the majority misinterpreted the Supreme Court's view of independent research in

297. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 612 (1950).

298. The court's statement that "[e]vidence of independent development is highly relevant, however, to refute a patent owner's contention that the doctrine of equivalents applies because the accused infringer *copied*, that is, *intentionally appropriated* the substance of the claimed invention," *Hilton Davis*, 62 F.3d at 1520 (emphasis added), provides a definition of "copied" that further blurs the court's distinction between the infringement and damages phases of trial.

299. *Id.* at 1519.

Graver Tank. The Supreme Court in *Graver Tank* stated that "[w]ithout some explanation or indication that [the accused device] was *developed by independent research*, the trial court could properly infer that the accused [device] is the result of *imitation* rather than experimentation or invention."³⁰⁰ Independent research and the intent to copy, or their absence, then, was of substantial importance to the Supreme Court's analysis.³⁰¹

The Federal Circuit's discussion of intent discounts the Supreme Court's concerns in *Graver Tank*, and becomes logically inconsistent when their analyzed beyond its face-value. In its review of *Hilton Davis*, the Supreme Court should therefore recognize openly the importance of intent and require its presence in any finding of infringement under the doctrine of equivalents.

Without intent, the doctrine of equivalents is no more than a second stab at proving infringement for the patentee, and the doctrine loses both its equitable nature and its justification.³⁰² Consideration of intent should take into account whether the accused device is the result of independent development (involving no copying), copying in order to design around the patented device (involving a constructive employment of copying and respect for the patent system), or copying in order to pirate the patented device (involving a subversive employment of copying in an effort to circumvent the patent system).³⁰³

Requiring intent for a finding of infringement under the doctrine of equivalents can also serve as a deterrent. Behavior, not end-products, motivates the doctrine.³⁰⁴ If a defendant loses a case on equivalence, a second competitor is unlikely to venture

300. *Graver Tank*, 339 U.S. at 612 (emphasis added).

301. *Id.*; see also *Winans v. Denmead*, 56 U.S. (15 How.) 330, 334 (1853) (noting that one device, made without reference to another device, does not infringe when it arrives at the same end).

302. Indeed, in its brief to the Supreme Court, *Hilton Davis* used language indicating the role of intent, stating that the doctrine of equivalents "mak[es] it difficult for a copier to simply *maneuver* around a patent's claims by making only 'insubstantial changes'." Respondent's Brief in Opposition at 14, *Hilton Davis* (No. 95-728) (emphasis added) (quoting *Larson*, *infra* note 346, at 11).

303. See *Hilton Davis*, 62 F.3d at 1547-49 (Lourie, J., dissenting); *International Visual Corp. v. Crown Metal Mfg. Co.*, 991 F.2d 768, 775 (Fed. Cir. 1993) (Lourie, J., concurring).

304. *Hilton Davis*, 62 F.3d at 1548 (Lourie, J., dissenting).

near the same ground unless he possesses more favorable equities, such as evidence sufficient to show his good behavior.³⁰⁵ Consequently, requiring intent gives the competitor additional notice of what constitutes infringement by alerting the competitor to what behavior is not acceptable. Other factors in addition to intent should enter the analysis to the extent they are applicable. Although considering factors beyond the function/way/result test may appear to muddy the waters unnecessarily,³⁰⁶ such consideration not only provides competitors with better information regarding infringement,³⁰⁷ but it also comports with the Supreme Court's aim to avoid a formulaic approach to the doctrine of equivalents.³⁰⁸ If a competitor doubts that his device contains substantial differences, he will know that any continued manufacture, sale, or use of his device must be in good faith. Requiring intent as a threshold to equivalency analysis would also reduce the number of cases reviewed under the doctrine of equivalents, and coincides with the history and nature of the doctrine, both of which urge the restriction of its use to exceptional cases.³⁰⁹

Due Process Under the Doctrine of Equivalents

Additionally, the Federal Circuit's articulation of the doctrine of equivalents fails to address adequately questions regarding due process under the Fifth Amendment.³¹⁰ The sense of fairness that motivates the Fifth Amendment animates the Federal Circuit's notion of equity embodied in the doctrine of equivalents.³¹¹ In *Hilton Davis*, however, the Federal Circuit did not

305. *Id.* (Lourie, J., dissenting).

306. *See* Landry, *supra* note 130, at 1196-98.

307. *See* *Hilton Davis*, 62 F.3d at 1547-48 (Lourie, J., dissenting).

308. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 609 (1950).

309. *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991); *see* *Graver Tank*, 339 U.S. at 617 (Black, J., dissenting).

310. U.S. CONST. amend. V ("No person shall . . . be deprived of life, liberty, or property without due process of law . . .").

311. *See* *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1521 (Fed. Cir. 1995), *cert. granted*, 116 S. Ct. 1014 (1996); *cf.* Patrick Devlin, *Equity, Due Process and the Seventh Amendment: A Commentary on the Zenith Case*, 81 MICH. L. REV. 1571, 1583-605 (1983) (discussing due process as equity in the context of complex cases).

apply that sense of fairness equally to both parties. The court failed to consider the importance of notice to the defendant. Furthermore, the court placed an admittedly complex analytical tool in the hands of laymen³¹² and ignored the attendant effects that complexity and bias create in a jury trial.³¹³

The Need for Notice

Often quoted for its whimsical imagery, the "wax nose" passage in *White v. Dunbar*³¹⁴ drives home the serious need for notice of what will constitute infringement. For those competitors who follow the spirit of the Intellectual Property Clause³¹⁵ and continue to develop technology, a finding of infringement by equivalency without sufficient notice can mean a deprivation of property without due process of law.³¹⁶

Lack of adequate notice as a result of inaccurate claims is especially unfair to the defendant in light of the patentee's opportunity to cure any deficient claims within two years of the patent's issuance.³¹⁷ Much like the doctrine of equivalents, the reissue process allows the patentee to enlarge the scope of pro-

312. See *Hilton Davis*, 62 F.3d at 1531-32 (Newman, J., concurring); Collins, *supra* note 53, at 311.

313. See *Hilton Davis*, 62 F.3d at 1563 (Nies, J., dissenting); *infra* notes 334-67, and accompanying text.

314. 119 U.S. 47, 51-52 (1886). The Court stated that:

Some persons seem to suppose that a claim in a patent is like a nose of wax which may be turned and twisted in any direction . . . so as to make it include something more than, or something different from, what its words express The claim is a statutory requirement, prescribed for the very purpose of making the patentee define precisely what his invention is; and it is unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms.

Id.

315. U.S. CONST. art. I, § 8, cl. 8.

316. See *Adelman & Francione*, *supra* note 103, at 683; *supra* notes 26-29 and accompanying text (discussing the adverse effects of the doctrine of equivalents on technological advancements). In discussing claim construction, the Supreme Court noted that without the consistency of a judge, "[t]he public [would] be deprived of rights supposed to belong to it, without being clearly told what it is that limits those rights." *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1396 (1996) (alterations in original) (quoting *Merrill v. Yeomans*, 94 U.S. 568, 573 (1877)).

317. See 35 U.S.C. § 251 (1994); 4 CHISUM, *supra* note 49, § 15.03.

tection.³¹⁸ During the interim between a patent's grant and re-issue, competitors who have produced devices that later become subject to the reissue process are entitled to intervening rights.³¹⁹ Those rights protect a competitor's acts that, though once considered innocent under the patent, are later considered to infringe on the patent.³²⁰ Without those rights, competitors would face infringement liability without adequate notice.³²¹ In reforming the patent, the doctrine of equivalents achieves the same end as reissue,³²² but makes no comparable intervening rights available to the competitor.³²³

In an area of law known for its uncertainty, the doctrine of equivalents would benefit greatly from added certainty and uniformity. As the Supreme Court recognized in *Markman*, the court can provide uniform treatment of an issue sufficient to warrant a reduced role for the jury.³²⁴ Without adequate notice, the defendant enjoys neither the certainty nor the safeguards that accompany the reissue process. Viewed in this light, the doctrine of equivalents is more a due process violation against the defendant than an equitable remedy for the patentee.³²⁵ Recognition of the need for notice through precise claiming has propelled statutory amendments with the hope of alerting competitors as to what "actions [will] infringe a granted patent."³²⁶ Indeed, *Hilton Davis* represents an attempt to provide notice, and the Federal Circuit's version of the doctrine of equivalents supplies notice of how courts will employ equivalen-

318. See 35 U.S.C. § 251; 4 CHISUM, *supra* note 49, § 15.03[1]; *supra* note 65.

319. 35 U.S.C. § 252; 4 CHISUM, *supra* note 49, § 15.05[2]-[3].

320. 4 CHISUM, *supra* note 49, § 15.05[2]-[3].

321. *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1560 (Fed. Cir. 1995) (Nies, J., dissenting), *cert. granted*, 116 S. Ct. 1014 (1996).

322. "[T]he purpose of the doctrine [is not] to cure errors curable by reissue" *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1542 (Fed. Cir. 1987) (Newman, J., dissenting).

323. *Hilton Davis*, 62 F.3d at 1560 (Nies, J., dissenting). Professors Adelman and Francione suggest liberalizing the reissue process in order to remove the incentive to bypass reissue in favor of the doctrine of equivalents. Adelman & Francione, *supra* note 103, at 715-21.

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

325. Adelman & Francione, *supra* note 103, at 682.

326. See *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991); *supra* notes 78-92 and accompanying text.

cy analysis. The doctrine under *Hilton Davis* provides little notice, however, as to what actions that analysis will scrutinize.³²⁷

Juries in Equivalency Analysis

"Where history and precedent provide no clear answers, functional considerations also play their part in the choice between judge and jury"³²⁸ The inability to predict the possible outcome of litigation "is exacerbated when juries, whose members usually lack both technological and legal training, are applying the doctrine of equivalents."³²⁹ Historically, patent cases have employed juries sporadically,³³⁰ and not until recently did a panel of laypersons work in the patentee's favor.³³¹ The creation of the Federal Circuit reversed the antipatentee atmosphere,³³² and, today, the tide has turned against the defendant such that "the deck . . . is stacked in favor of the patentee"³³³ In addition to having the Federal Circuit's support,³³⁴ the patentee now has the added advantage of potential juror miscomprehension and favorable juror bias.

Juries and the Comprehension of Technology

"Explaining to jurors is one thing. Whether they understand is an entirely different matter."³³⁵ Courts have long recognized the difficulties inherent in determining theft of a patented "prin-

327. See Collins, *supra* note 208, at 7.

328. *Markman*, 116 S. Ct. at 1395 (discussing claim construction).

[W]hen an issue falls somewhere between a pristine legal standard and a simple historical fact, the fact/law distinction at times has turned on a determination that, as a matter of the sound administration of justice, one judicial actor is better positioned than another to decide the issue in question.

Id. (quoting *Miller v. Fenton*, 474 U.S. 104, 114 (1985)).

329. Adelman & Francione, *supra* note 103, at 682 n.34.

330. *Abolition*, *supra* note 31, at 84, 93-94.

331. *Id.* at 84.

332. See *supra* notes 269-78 and accompanying text.

333. *Abolition*, *supra* note 31, at 84.

334. See PAUL GOLDSTEIN, COPYRIGHT, PATENT, TRADEMARK AND RELATED STATE DOCTRINES 365 (3d ed. rev. 1993).

335. *Abolition*, *supra* note 31, at 96.

ciple.³³⁶ Much debate has surrounded the application of the "complexity exception" to patent cases, albeit with no resolution of the issue.³³⁷ Stemming from a footnote in a 1970 Supreme Court case,³³⁸ the complexity argument posits that complex matters will confound laypersons. Allowing jurors to decide issues that lie beyond their full understanding thus violates due process under the Fifth Amendment.³³⁹

Whether patent cases actually involve matters too complex for juries is unsettled.³⁴⁰ The preponderance of support currently favors those who argue that no reason exists to believe that a trial judge, who only rarely presides over a patent case, is any

336. *Gray v. James*, 10 F. Cas. 1015, 1016 (C.C.D. Pa. 1817) (No. 5718).

337. See *SRI Int'l v. Matsushita Elec. Corp.* 775 F.2d 1107, 1127-31 (Fed. Cir. 1985) (Markey, C.J., offering additional views); *id.* at 1132 (Davis, J., concurring in the result); *Abolition*, *supra* note 31, at 84-85; Tom Arnold, *Alternative Dispute Resolution in Intellectual Property Cases*, in *PATENT LITIGATION 1992*, at 667, 673-74 (PLI Patents, Copyrights, Trademarks, & Literary Property Course Handbook Series No. G-350, 1992); Joe S. Cecil et al., *Citizen Comprehension of Difficult Issues: Lessons from Civil Jury Trials*, 40 AM. U. L. REV. 727, 752-56 (1991) (exploring case studies of jury comprehension in complex trials); Stephen B. Judlowe & Lee A. Goldberg, *Jury Trials*, in *PATENT LITIGATION 1994*, at 173, 173-94 (PLI Patents, Copyrights, Trademarks, & Literary Property Course Handbook Series No. G-397, 1994); Edmund J. Sease, *Ten Commandments of a Defendant's Patent Case*, in *PATENT LITIGATION 1993*, at 603, 606-07 (PLI Patents, Copyrights, Trademarks, & Literary Property Course Handbook Series No. G-375, 1993); *The Eleventh Annual Judicial Conference of the United States Court of Appeals for the Federal Circuit*, 153 F.R.D. 177, 236-52 (1993) [hereinafter *Conference*].

338. *Ross v. Bernhard*, 396 U.S. 531, 538 n.10 (1970).

339. See *Devlin*, *supra* note 311, at 1594-605. The concern in patent cases is not one of intelligence or ignorance, but one of comprehension or misunderstanding. Mark Twain's quip that "the jury system puts a ban upon intelligence and honesty, and a premium upon ignorance, stupidity and perjury," 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, 64 (1988) (quoting MARK TWAIN, *ROUGHING IT* 349 (Hamlin Hill ed., Penguin Books 1981) (1872)), loses its comedic value when cases turn on a jury's inadequate understanding of the subject matter.

340. See *Abolition*, *supra* note 31, at 84-85; *Conference*, *supra* note 337, at 236-52. In 1989, the ABA conducted a study of jury comprehension in complex cases. Cecil et al., *supra* note 337, at 750 n.146, 752-53. The study involved four cases: one each on sexual harassment, antitrust, insurance fraud, and trade secrets. *Id.* at 752. Three of the four alternate juries reached different verdicts than the real juries. *Id.* at 753. The study's accuracy and applicability are questionable, however, because it only surveyed 50 jurors, John E. Kidd, *Jury Trials and Mock Jury Trials*, in *PATENT LITIGATION 1991*, at 137, 156 (PLI Patents, Copyrights, Trademarks, & Literary Property Course Handbook Series No. 321, 1991), and the study involved no patent cases.

better equipped to handle the complex issues than a panel of jurors.³⁴¹ Yet, a pervasive feeling of unease in giving patent cases over to juries persists.³⁴² Opponents of juries maintain with conviction that even sporadic review of patent cases affords judges the advantage of at least some familiarity with the issues and analysis involved.³⁴³ Though speaking to the issue of claim construction, the Supreme Court in *Markman* echoed its *Graver Tank* characterization of the judge as a storehouse of knowledge: "The judge, from his training and discipline, is more likely to give a proper interpretation to such instruments [patents] than a jury; and he is, therefore, more likely to be right, in performing such a duty, than a jury can be expected to be."³⁴⁴ That logic readily carries over to equivalency analysis.

Proponents of juries as fact finders in doctrine of equivalents cases insist that performing a function/way/result analysis involves the same level of juror competence and discretion as gauging ordinary negligence.³⁴⁵ The fact remains, however, that "[t]he doctrine of equivalents requires judges and juries with no technical training to determine whether parts of complex technology are equivalent to complex patent claims."³⁴⁶ Faced with this task, jurors often employ a device-to-device comparison rather than an element-by-element comparison.³⁴⁷ In other words, juries are more apt to "eyeball" the devices than to compare accurately the claim elements of the patented device to the elements present on the accused device.

The debate over the complexity exception continues with no clear resolution in sight.³⁴⁸ *Markman* does provide some in-

341. See, e.g., *Conference*, *supra* note 337, at 250-52.

342. See, e.g., Arnold, *supra* note 337, at 673-74.

343. In addition to better dealing with complexity, judges are better trained, can better control the pace of a trial, and can better absorb facts outside the courtroom. Adelman, *supra* note 53, at 1004. In contrast, the inherent delays and lack of expertise of juries render them inefficient. *Id.* at 1004-05 & nn.100-01.

344. *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1395 (1996) (quoting *Parker v. Hulme*, 18 F. Cas. 1138, 1140 (C.C.E.D. Pa. 1849) (No. 10,740)).

345. See, e.g., ABA Brief, *supra* note 10, at 379-80.

346. Ronald E. Larson, *Balancing the Competing Policies Underlying the Doctrine of Equivalents in Patent Law*, 21 AIPLA Q.J. 1, 6 (1993).

347. Sease, *supra* note 337, at 608. See *supra* text accompanying note 115 for Professor Chisum's explanation of the proper comparison.

348. See *supra* note 340 and accompanying text.

sight, however. The Court relied, in part, on the increased technical nature of modern claims in its restriction of the jury from the issue of claim construction and, in so doing, provided a vague glimpse of what may mature into a complexity exception.³⁴⁹ If a resolution ever emerges, however, that resolution will likely be that complexity alone will not suffice to remove juries from patent cases. Something more is necessary to illustrate the inappropriateness of juries in determining the ultimate issue of infringement in doctrine of equivalents trials.

Jury Bias

That something more is jury bias. The issue of jury bias in patent cases is often overlooked. This variable, however, impacts the determination of both complex and simple issues and is just as dangerous to the notion of equity as complexity.³⁵⁰

True or not, many and probably most patent litigators . . . believe that the natural bias of a jury these days is in favor of the patentee. Show the jury that beribboned patent document, and establish that the defendant is doing something pretty close to what is patented, and the question becomes not validity or infringement but simply how much?³⁵¹

The above statement illustrates the danger that bias may present in any patent litigation. Moreover, it addresses several aspects of the bias problem specific to doctrine of equivalents: (1) the natural bias of the jury toward the patentee, (2) the persuasive effect of the patent grant alone on the jury, and (3) the tendency of the jury to bypass the crucial question of substantiability.

Generally pro-patent,³⁵² juries hold the PTO in high

349. See *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1395 (1996) (quoting William R. Woodward, *Definiteness and Particularity in Patent Claims*, 46 MICH. L. REV. 755, 765 (1948)).

350. "In addition to the complexity factor, which is technically oriented, . . . juries are much more susceptible than our judges to being influenced by irrelevant issues." *Abolition*, *supra* note 31, at 87-88.

351. Harmon, *supra* note 275, at 582.

352. Sease, *supra* note 337, at 608.

regard.³⁵³ Although they often misunderstand the prosecution process,³⁵⁴ juries assume that an invention undergoes the highest level of scrutiny before a patent issues.³⁵⁵ Unfortunately, this is not always the case. The PTO does make mistakes, and often the patents-in-suit lack the degree of integrity that jurors attribute to them.³⁵⁶

Similarly, juries also tend to idealize inventors.³⁵⁷ Before the jury is a plaintiff who, in using her talent, skills, and effort to invent something, has received the recognition of the United States of America. Such a person may inspire awe and therefore bias jurors in her favor.³⁵⁸ When the plaintiff presents the official grant, bearing red ribbon, gold seal, and the Commissioner's signature, the defendant must face not only the legal presumption of validity but also the jurors' preexisting, personal belief in that validity.

When one couples these initial biases with misunderstandings of the function/way/result analysis,³⁵⁹ misunderstandings of permissible and impermissible copying,³⁶⁰ and misunderstandings of the complex issues at bar,³⁶¹ one can hardly consider a jury's infringement determination to be an equitable resolution. Even if a juror attempts to remain impartial, a misunderstanding of the material may tempt the juror, by default, to rely upon the notion that, of the two devices, the patentee's must be better. After all, the government has at least validated that invention and honored the patentee for her contribution to technological progress. The combination of bias and complexity presents unfair obstacles to the defendant, if it does not ulti-

353. *Id.*

354. Judlowe & Goldberg, *supra* note 337, at 176.

355. Cannella & Kelly, *supra* note 269, at 741-42.

356. *See id.*

357. *Id.* at 742; see Timothy L. Swabb, *Federal Circuit Cannot Stop Runaway Jury Awards in Patent Suits: Companies Should Insure Themselves Against This Risk*, 3 MEALEY'S LITIGATION REPORTS: INTELLECTUAL PROPERTY 20 (1995) ("Jurors readily believe that competitors unfairly use patents owned by others.")

358. The plaintiff often enhances the bias by presenting the inventor as a single inventor against a large corporate defendant, conjuring images of David versus Goliath. *See* Cannella & Kelly, *supra* note 269, at 742.

359. *See* Sease, *supra* note 337, at 608-09.

360. *See id.* at 609.

361. Larson, *supra* note 346, at 6.

mately strip him of his entire case.

A More Appropriate Assignment of Duties

Although some commentators advocate the total removal of juries from patent cases,³⁶² such a wholesale removal, proper or not, could deepen the rift already present in the patent community. Instead, as Judges Plager and Lourie suggested in *Hilton Davis*, the judge and jury in doctrine of equivalents cases should share responsibility for equivalency analysis.³⁶³ Employing the salient aspects of Judges Plager's and Lourie's suggestions, such a compromise of duties would effectively prevent a compromise in the doctrine. The judge should remain responsible for determining the scope of equivalency for the claims, as well as for determining whether the amount of difference between the devices mandates application of the doctrine of equivalents.³⁶⁴ Placing discretion in the judge's hands comports with *Graver Tank's* desire for a determination by one familiar with the subject³⁶⁵ and preserves the doctrine's role as the exception rather than the rule of patent infringement analysis.³⁶⁶

In order to facilitate the effectiveness of the judges' determinations, the Federal Circuit should provide trial judges with proper guidance regarding insubstantiality.³⁶⁷ If insubstantial differences exist, the jury should then find whether intent is present and, if so, its nature and degree. The jury should also

362. See, e.g., *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1543 (Fed. Cir. 1995) (Plager, J., dissenting), *cert. granted*, 116 S. Ct. 1014 (1996); *id.* at 1549 (Lourie, J., dissenting); *Conference*, *supra* note 337, at 236-50.

363. See *supra* notes 189-95 and accompanying text.

364. Although the ABA did not take a position on the use of juries, it recognized the trial judge's discretion in applying the doctrine. See ABA Brief, *supra* note 10, at 379.

365. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 610 (1950).

366. See *supra* notes 88-92, 221-26, 252-60 and accompanying text.

367. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1543-44 (Fed. Cir. 1995) (Plager, J., dissenting), *cert. granted*, 116 S. Ct. 1014 (1996). Judge Nies has suggested that the principles underlying nonobviousness (the requirement that an invention, even though novel, must not be an obvious or expected advance to one skilled in the art, see 35 U.S.C. § 103 (1994)) could supply an adequate test for determining "insubstantial change[.]" See *Roton Barrier, Inc. v. Stanley Works*, 79 F.3d 1112, 1128 (Fed. Cir. 1996) (Nies, J., offering additional views) (quoting *Hilton Davis*, 62 F.3d at 1519).

find any other applicable factors.³⁶⁸ The judge should then weigh the substantiality of differences against intent and the other factors in order to make the final determination regarding infringement.³⁶⁹

The jury's role as a *fact finder* is critical.³⁷⁰ In a situation where damages are sought under the doctrine of equivalents, the jury must find the questions of fact common to both the legal issue (general literal infringement) and the equitable issue (doctrine of equivalents).³⁷¹ Many of the facts helpful to the equivalency analysis are available to the jury in the literal analysis stage. After literal analysis, the jury may find other facts, if necessary. Having found the applicable facts, the jury's duty would be complete.³⁷² Regardless of the type of remedy sought, the judge may then weigh those facts against the degree of insubstantiality in an equitable manner.³⁷³

The issue of using juries in equivalency analysis persists largely as a function of history. The doctrine of equivalents involves questions of fact in addition to questions of law, and it repeatedly has gone to juries uncontested. In light of the para-

368. See *supra* notes 197-200 and accompanying text.

369. The Federal Circuit has recognized the use of a similar apportionment of duties in the context of inequitable conduct. See *Baxter Healthcare Corp. v. Spectramed, Inc.*, 49 F.3d 1575, 1584 (Fed. Cir.), *cert. denied*, 116 S. Ct. 272 (1995); *General Electro Music Corp. v. Samick Music Corp.*, 19 F.3d 1405, 1408 (Fed. Cir. 1994); LEONARD B. SAND ET AL., MODERN FEDERAL JURY INSTRUCTIONS, § 86.03 (1996). Ordinarily, resolution of the facts underlying a determination of inequitable conduct is a task for the judge alone. *Baxter Healthcare*, 49 F.3d at 1584. The parties, however, may consent to resolution of the facts by a jury, and in such a case, the judge will weigh the jury's findings in order to make an equitable decision. *Id.*; *General Electro Music*, 19 F.3d at 1408.

370. "As a general matter, the right to a trial by jury in federal courts means the right to have the *facts in evidence determined* by the unanimous verdict of an impartial panel" HON. EDWARD J. DEVITT & CHARLES B. BLACKMAR, 1 FEDERAL JURY PRACTICE AND INSTRUCTIONS § 1.01 (2d ed. 1970) (emphasis added) (citations omitted).

371. See 1 DOBBS, *supra* note 165, § 2.1[3], at 65-66.

372. Cf. 1 DEVITT & BLACKMAR, *supra* note 370, § 1.01 (emphasizing the jury's role as fact finder). The *Markman* decision emphasizes the limits on jury involvement in patent cases. See *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384 (1996).

373. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1543-44 (Fed. Cir. 1995), *cert. granted*, 116 S. Ct. 1014 (1996) (Plager, J., dissenting); *id.* at 1549-50 (Lourie, J., dissenting).

bolic history of juries in patent cases in general, however, one cannot conclude that juries must be a part of equivalency analysis. The *Chauffeurs* test also fails to command convincingly a primary role for juries in equivalency analysis. More importantly, given the historical lack of confidence in equivalency analysis and recent favoritism toward patentees, the Federal Circuit—indeed, the Supreme Court—must address more responsibly the issue of juries in doctrine of equivalents cases if the Federal Circuit's characterization of "equity" is to have force. Assigning duties in the manner detailed above accounts for both the nature of the doctrine of equivalents and the characteristics of juries in patent cases.

CONCLUSION

Even though many commentators view *Hilton Davis* as returning the doctrine of equivalents to its roots as a tool of equity,³⁷⁴ the doctrine, as articulated in *Hilton Davis*, actually operates against fairness. Although the decision certainly harkened back to the early days of doctrine, it failed to account for certain overriding themes of those early equivalency cases. Once invoked only as the exception, courts now almost automatically apply the doctrine in the absence of literal infringement.³⁷⁵ In the modern pro-patent litigation environment the doctrine of equivalents has allowed patentees to take advantage of inade-

374. See, e.g., Hoffman & Oliver, *supra* note 29.

375. See Adelman & Francione, *supra* note 103, at 699; cf. Petition for a Writ of Certiorari, Warner-Jenkinson Co., at 17 n.17, *Hilton Davis* (No. 95-728) (quoting C.A. Brief for Amicus Curiae American Intellectual Property Law Ass'n at 5-6) ("[S]ome patentees have more frequently alleged infringement of their patents . . . which are increasingly beyond the literal scope of the patent claims—assertions which could be alleged only under the doctrine of equivalents."). Note also the incentives created regarding claim drafting. Although the decision in *Markman* might compel more precise claim drafting, Machonkin, *supra* note 9, at 203 n.119, the decision in *Hilton Davis* negates that compulsion by removing the judge's discretion in applying the doctrine of equivalents. Indeed, claim drafters look to the doctrine of equivalents for refuge should their claims lack the necessary precision. Without the doctrine of equivalents, "[m]ore than 1.5 million presently unexpired patents written with the expectation of protection against infringement through the Doctrine of Equivalents would be thrown into question and significantly devalued." Respondent's Brief in Opposition at 15, *Hilton Davis* (No. 95-728) (emphasis added). Such an expectation fails to encourage precision in claim drafting.

quate notice, as well as juror miscomprehension and bias. Although the Federal Circuit has taken some measures to restrict certain aspects of the doctrine,³⁷⁶ these measures have proven insufficient.³⁷⁷

An effective approach to the doctrine of equivalents would modify both the test and the roles of the judge and jury to reflect better the goals of the patent system. Application of the doctrine should include not only function/way/result analysis but also consideration of the defendant's intent and other relevant factors. Requiring proof of both insubstantiality and intent maintains the purpose of the doctrine in preventing piracy. Furthermore, responsibility for determining infringement under the doctrine of equivalents, if not given to the judge alone, should be shared by the judge and jury in a manner that preserves the historical role of the jury as fact finder and the necessary role of the judge as weigher of equities.

Such a structure maintains the spirit motivating the doctrine of equivalents, not as an equitable issue once tried to a chancellor in eighteenth-century England, but as an equitable issue of modern fairness.

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376. See, e.g., *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931 (Fed. Cir. 1987), *cert. denied*, 485 U.S. 1009 (1988).

377. Some commentators have suggested that the Federal Circuit should go further and remove juries from doctrine of equivalents cases altogether. See, e.g., *Hilton Davis*, 62 F.3d at 1543 (Plager, J., dissenting); *id.* at 1549 (Lourie, J., dissenting); *Abolition*, *supra* note 31, at 85-88; *Conference*, *supra* note 337, at 240-50. Although such a measure would account for the bias problem and much of the complexity problem, it would not account for the "traditional" role of juries in infringement actions. Others have suggested modifying the test. See, e.g., Roger Barrett, *Discretionary Use of the Patent Doctrine of Equivalents in Patent Law: Going Beyond the Triple Identity Test of Graver Tank*, 17 U. HAW. L. REV. 513 (1995); Andrei Iancu, *A Two-Track Approach to the Doctrine of Equivalents in Patent Law: Responding to Hilton Davis*, 35 JURIMETRICS J. 325, 339-47 (1995). These approaches, however, ignore the problems associated with juries.