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Nonobviousness and the Federal Circuit: An Empirical Analysis of Recent Case Law

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ARTICLES

NONOBVIOUSNESS AND THE FEDERAL CIRCUIT: AN EMPIRICAL ANALYSIS OF RECENT CASE LAW

*Christopher A. Cotropia**

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INTRODUCTION

The nonobviousness requirement plays a critical role in United States patent law. The requirement ensures that patents will be granted for only significant advances over previously existing technology. Nonobviousness reflects "a careful balance between the need to promote innovation and the recognition that imitation and refinement through imitation are both necessary to invention itself and the very lifeblood of a competitive economy."¹ The patent system's health is linked to a properly working nonobviousness doctrine.

Much of the current discussion regarding nonobviousness focuses on the United States Court of Appeals for the Federal Circuit, the court with exclusive jurisdiction over patent appeals.² The court's jurisprudence in this area, and in particular the court's application of a particular part of the nonobviousness doctrine—the "suggestion test," is the target of recent scrutiny. The court's case law is the center of two recent reports, one by the Federal Trade Commission (FTC) and the other by National Research Council (NRC).³ It is also the subject of a currently pending case before the Supreme Court, *KSR*

1 Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 146 (1989).

2 28 U.S.C. § 1295(a) (2000).

3 See COMM. ON INTELLECTUAL PROP. RIGHTS IN THE KNOWLEDGE-BASED ECON., NAT'L RESEARCH COUNCIL, A PATENT SYSTEM FOR THE 21ST CENTURY (Stephen A. Merrill et al. eds., 2004); FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY (2003), available at <http://www.ftc.gov/os/2003/10/innovationrpt.pdf>.

*International Co. v. Teleflex, Inc.*⁴ The general conclusion of the two reports and the briefing in support of certiorari in *KSR* is that the Federal Circuit has improperly relaxed the nonobviousness requirement. The court has made it easier to find a claimed invention nonobvious and, as a result, obtain and enforce an invalid patent. One of the alleged causes of this reduction in the nonobviousness standard is the suggestion test employed by the court.

The problem with the recent reports and the current argumentation before the Supreme Court in *KSR* is that none of the assertions being made are supported by recent empirical data.⁵ The reports and criticism are only based on the “feel” of the case law⁶ or the facts of the *KSR* case alone.⁷ There is a real need for an empirical study that systemically looks at the broader question of whether the Federal Circuit has lowered the nonobviousness requirement and the narrow question of whether the suggestion test is the cause. Such a study would provide valuable data to test the current assertions about the Federal Circuit’s case law and inform decisionmakers, such as the Supreme Court, who are presently considering modifying the nonobviousness doctrine.

4 *Teleflex, Inc. v. KSR Int’l Co.*, 119 F. App’x 282 (Fed. Cir. 2005), *cert. granted*, 126 S. Ct. 2965 (2006).

5 The NRC’s report explicitly notes that no empirical analysis of these claims has been done. See NAT’L RESEARCH COUNCIL, *supra* note 3, at 3 (“The claim that quality has deteriorated in a broad and systematic way could be, but has not been, empirically tested.”).

There are studies, none yet published, that focus on this recent criticism and come to an opposite conclusion. See *generally* Supplemental Brief for the Respondents at 4–6, *KSR Int’l Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. June 6, 2006), 2006 WL 1547496 (collecting recent cases where the Federal Circuit has found patents obvious and used a broad suggestion test and, not surprisingly, coming to the opposite conclusion of most critics); Christopher A. Cotropia, *Patent Law Viewed Through an Evidentiary Lens: The “Suggestion Test” as a Rule of Evidence*, 2006 BYU L. REV. (forthcoming) (focusing on the specific claim that the Federal Circuit employs a strictly narrow suggestion test and concluding that the Federal Circuit employs an evidentiary rule to determine the breadth of evidence allowed to prove a suggestion to combine); Lee Petherbridge & R. Polk Wagner, *The Federal Circuit and Patentability: An Empirical Assessment of the Law of Obviousness*, 85 TEX. L. REV. (forthcoming June 2007), *available at* <http://ssrn.com/abstract=923309> (examining empirically the Federal Circuit’s nonobviousness jurisprudence and finding that the court has not weakened the standards for obtaining patents). Notably, these studies either collect different data than the study reported in this Article or take different looks at the same type of data.

6 See FED. TRADE COMM’N, *supra* note 3, ch. 4, at 12.

7 See Brief for the United States as Amicus Curiae Supporting Petitioner at 12–15, *KSR*, No. 04-1350 (U.S. Aug. 22, 2006), 2006 WL 2453601 (noting that the *KSR* case demonstrates the rigid application of the suggestion test and how it results in an improper finding that the patent is obvious).

This Article provides such an empirical study. The study examines all Federal Circuit cases over a four-year period considering the nonobviousness of a patent claim. Appeals from both patent infringement cases before district courts and pending patent applications and interferences before the United States Patent and Trademark Office (USPTO) are investigated. The study looks at the data in two levels of detail.

First, the study takes a "macro-level" look at the collected data, focusing on only the outcome of each of the nonobviousness claims. Whether the Federal Circuit found the patent claim nonobvious or obvious is recorded. In addition, whether the Federal Circuit affirmed, reversed, or vacated the lower tribunal's decision is considered. The purpose of this macro-level study is to test the broad claim being made in recent criticism—that the Federal Circuit has lowered the nonobviousness requirement.

Second, the study takes a "micro-level" look at the actual reasoning behind the court's findings on the nonobviousness issue. This part of the study examines what prompted a finding of nonobvious, seeing if it was a failure to meet the suggestion test or something else. The micro-level study also focuses on the procedural posture of the case below—whether it was a grant of summary judgment, a grant of a motion for judgment as a matter of law (JMOL), a verdict from a bench trial, or a verdict from a jury trial. The micro-level study attempts to measure the impact of the suggestion test on the nonobviousness analysis.

Based on this study's findings, the Article concludes that recent criticism is not supported by the last four years of Federal Circuit case law. In appeals from patent infringement cases, the macro-level study finds a distribution that slightly favors findings of nonobvious, with 36.27% of the patents being found nonobvious and 28.43% of the patents being found obvious.⁸ In appeals from the USPTO, the macro-level study finds a high percentage of findings of obvious in 85.19% of the patents. These results suggest that the court has not lowered the nonobviousness requirement and may be maintaining a higher nonobviousness requirement in the case of the USPTO. But this conclusion is greatly tempered by the fact that the cases studied may all include litigants and patent applicants that have already taken into account a lowered nonobviousness standard. Thus, any inference into the strength of the nonobviousness requirement from this data is weak at best. The results of the macro-level study, therefore, while

8 The remaining percentage of patents, 35.29%, were vacated by the court. See *infra* Part III.A.1.

providing some insight, cannot provide a solid conclusion one way or the other.

The micro-level study produced more usable results. The suggestion test causes a finding of nonobvious, or a vacation of a finding of obvious, in 32.91% of the patents appealed from patent infringement cases. The suggestion test causes similar findings in appeals from the USPTO in 11.11% of patents appealed. These low percentages stand in sharp contrast to claims that the suggestion test has caused the non-obviousness requirement to lower, particularly in the context of the USPTO. Instead, the suggestion test plays a fairly small role in the court's nonobviousness jurisprudence.

This Article comes to these conclusions in the following manner. First, in Part I, the Article provides a background on the nonobviousness requirement, the suggestion test, and recent criticism. Part II of the Article describes the empirical study, including the parameters used and the study's limitations. Part III of the Article reports the study's findings, starting first with the macro-level study's results and then micro-level study's results. The Article then provides a detailed conclusion, reiterating the more significant findings from the study.

I. BACKGROUND

A. *Basics of the Nonobviousness Requirement*

The nonobviousness⁹ requirement in patent law has been termed "the ultimate condition for patentability."¹⁰ An invention must be more than just new and useful, it must also be of "a significant enough technical advance to merit the award of a patent."¹¹ The nonobviousness requirement also "ask[s] whether an invention likely would emerge in roughly the same time frame—that is, without significant delay—'but for' the prospect of the patent."¹² The requirement ensures that a patent is granted for only those inventions that would have not been created but for the incentive of patent protection.

9 The term "nonobviousness" is used to define the inquiry to determine whether an invention is nonobvious or obvious. For the purposes of this Article, the term nonobviousness does not indicate the ultimate conclusion that a claimed invention is nonobvious, and thus eligible for patent protection.

10 See NONOBVIOUSNESS—THE ULTIMATE CONDITION OF PATENTABILITY (John F. Witherspoon ed., 1980).

11 ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, PATENT LAW AND POLICY 644 (3d ed. 2002).

12 FED. TRADE COMM'N, *supra* note 3, ch. 4, at 6; see also *id.*, ch. 4, at 7–8 (asserting that this "but for" test instituted by the nonobviousness requirement ensures a proper balance between patent protection and competition).

The requirement ensures that patent protection is not given to inventions that have no social benefit because they are of minimal advance over what has already been done and “others would have developed the idea even without the incentive of a patent.”¹³ Providing protection for obvious ideas is socially harmful because it can lead to “a proliferation of economically insignificant patents that are expensive to search and to license.”¹⁴ Protection for obvious advances skews the patent system’s incentive structure—focusing would-be inventors on minor developments as opposed to significant technological advances. These obvious patents provide little benefit to society due to their coverage of insignificant subject matter and clog the inventive pathways to highly beneficial technological advances.

Nonobviousness, therefore, is an important requirement for protection in the United States’ patent system.¹⁵ The doctrine plays a central role in deciding which inventions are patentable, and thus get a limited period of exclusivity, and those that do not. While initially a common law requirement, the test for nonobviousness was codified by the 1952 Patent Act.¹⁶ The statutory test for nonobviousness indicates that:

A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.¹⁷

The Supreme Court, in *Graham v. John Deere Co.*,¹⁸ addressed 35 U.S.C. § 103 and explained the process for determining nonobviousness.¹⁹ The Court noted that § 103 “lends itself to several basic factual inquiries.”²⁰ There factual inquiry included: (1) identifying the “scope and content of the prior art”; (2) determining the “differences between the prior art and the claims”; and (3) ascertaining “the level

13 MERCES & DUFFY, *supra* note 11, at 646; see also Glynn S. Lunney, Jr., *Patent Law, the Federal Circuit, and the Supreme Court: A Quiet Revolution*, 11 SUP. CT. ECON. REV. 1, 50–51 (2004) (“[A]n optimal uniform scheme of protection will provide protection that will leave some desirable innovative products unprofitable.”).

14 MERCES & DUFFY, *supra* note 11, at 647.

15 See Glynn S. Lunney, Jr., *E-Obviousness*, 7 MICH. TELECOMM. & TECH. L. REV. 363, 370 (2001).

16 35 U.S.C. § 103 (2000).

17 *Id.* § 103(a).

18 383 U.S. 1 (1966).

19 *Id.* at 12–17.

20 *Id.* at 17.

of ordinary skill in the pertinent art.”²¹ The Court then indicated that “[a]gainst this background, the obviousness or nonobviousness of the subject matter is determined.”²² Secondary considerations are then considered.²³

The United States Court of Appeals for the Federal Circuit,²⁴ and its predecessor court, the Court of Customs and Patent Appeals, developed a structured approach to making the final determination of non-obvious or obvious—the “suggestion test.”²⁵ Once the three initial inquiries articulated in *Graham* are made, Federal Circuit case law requires a showing that there is some “reason, suggestion, or motivation” that would have led a person of ordinary skill in the art to combine the relevant art teachings to make the patented invention.²⁶ The Federal Circuit has made the suggestion test a required component of any nonobviousness analysis in a patent infringement litigation and part of the *prima facie* case of obvious during patent examination before the USPTO.²⁷ The suggestion test provides an analytical tool to determine when the jump can properly be made from defining the relevant prior art, the skill in the art, and differences between the art and the invention to a conclusion of obvious.²⁸ A finding of obvi-

21 *Id.*

22 *Id.* This quote from the Supreme Court demonstrates how the term “nonobviousness” can also be used to define the ultimate conclusion in a nonobviousness analysis. For the sake of clarity, this Article will attempt to use the term “nonobviousness” to only define the inquiry itself, not the result.

23 *Id.* at 17–18.

24 The Federal Circuit has exclusive jurisdiction over patent appeals. See 28 U.S.C. § 1295(a) (2000). But see *Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826, 831–32 (2002) (removing cases with only patent law counterclaims out of the Federal Circuit’s exclusive jurisdiction).

25 DONALD S. CHISUM, CHISUM ON PATENTS § 5.04[1][e] (2005); see also *In re Fridolph*, 134 F.2d 414, 416 (C.C.P.A. 1943) (“In considering more than one reference . . . the question always is: does such art suggest doing the thing which the [inventor] has done?”).

26 *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573 (Fed. Cir. 1996).

27 *Id.*; *In re Thrift*, 298 F.3d 1357, 1363 (Fed. Cir. 2002).

28 One of the main goals of the suggestion test also is to combat against hindsight bias. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999) (“[T]he best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.”). Hindsight bias is a significant problem in the nonobviousness analysis. See Gregory Mandel, *Patently Non-Obvious: Empirical Demonstration that the Hindsight Bias Renders Patent Decisions Irrational*, 67 OHIO ST. L.J. 1391, 1403–06 (2006) [hereinafter Mandel, *Empirical Demonstration*] (finding empirical data to support the existence of hindsight bias). Professor Mandel’s most recent experimentation with mock jurors found that hindsight bias is so strong that even the sug-

ousness cannot be made unless there is some impetus—that is a suggestion, teaching, or motivation—to make the leap from what is found in the individual pieces of prior art to the invention for which patent protection is sought.

B. Recent Criticism of the Federal Circuit's Nonobviousness Jurisprudence

Much of the current discussion regarding nonobviousness focuses on the Federal Circuit. The court's jurisprudence in this area, and in particular the court's application of the suggestion test, is the target of this recent scrutiny. The court's case law is the center of two recent reports, one by the Federal Trade Commission and the other by the National Research Council.²⁹ It is also the subject of a currently pending case before the Supreme Court, *KSR International Co. v. Teleflex, Inc.*³⁰ The general conclusion of the two reports and the briefing in support of certiorari in *KSR* is that the Federal Circuit has improperly relaxed the nonobviousness requirement.³¹ The court has made it easier to find a claimed invention nonobvious and, as a result, obtain and enforce a patent. One of the alleged causes of this reduction in the nonobviousness standard is the suggestion test employed by the court.

The FTC's 2003 report notes a "perceived . . . trend since the advent of the Federal Circuit toward reducing the size of the step required for patentability—that is, reducing the rigor of the nonobviousness standard."³² As a result, the report concludes that more obvious patents are being issued by the USPTO and held valid by the court.³³ The NRC's 2004 report comes to a similar, yet qualified, conclusion.³⁴ "[T]here might have been some dilution of the application of the non-obviousness standard in biotechnology and some limitations on its proper application to business methods patent applications," and, as a result, patent quality is suffering.³⁵ The peti-

gestion test may be unable to fully mitigate its effects in all cases. See Gregory Mandel, *Patently Non-Obvious II: Experimental Study on the Hindsight Issue Before the Supreme Court in KSR v. Teleflex*, 9 YALE J. OF L. & TECH. 1, 16 (2007) [hereinafter Mandel, *Experimental Study*].

29 See *supra* note 3 and accompanying text.

30 *Teleflex, Inc. v. KSR Int'l Co.*, 119 F. App'x 282 (Fed. Cir. 2005), *cert. granted*, 126 S. Ct. 2965 (2006).

31 See Petition for Writ of Certiorari at 4, 10–11, *KSR Int'l Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Apr. 6, 2005).

32 See FED. TRADE COMM'N, *supra* note 3, ch. 4, at 9.

33 *Id.* at 8–9.

34 See NAT'L RESEARCH COUNCIL, *supra* note 3, at 3.

35 *Id.*

tion for certiorari in *KSR*, and the amici that supported the petition, all come to a similar conclusion—the Federal Circuit relaxed the non-obviousness requirement.³⁶ The United States, which filed a brief in support of certiorari, specifically asserts that the Federal Circuit’s non-obviousness jurisprudence establishes “an inflexible requirement for determining obviousness” that causes patent protection to extend to “non-innovative combinations of familiar elements.”³⁷

These reports and briefs all argue, at least in part, that the Federal Circuit’s suggestion test causes this relaxation of the nonobviousness requirement.³⁸ Because a suggestion must be found to hold a claimed invention obvious, the suggestion test works as a “one-way ratchet.”³⁹ It only acts as an obstacle to an obvious finding and, thus, increases the likelihood of an erroneous nonobvious finding. The Federal Circuit has also limited the suggestion test to suggestions in the prior art, ignoring other, undocumented sources such as ordinary skill.⁴⁰ This increases the difficulty in finding a patent obvious, further lowering the nonobviousness standard.⁴¹ Limiting the scope of viable suggestions makes it extremely difficult to find claims invalid that involve technologies, such as business methods, where there is little memorialized and publicly available knowledge.⁴² Additionally,

36 See Brief of Amici Curiae Cisco Systems Inc., General Motors Corp., Hallmark Cards, Inc., Fortune Brands, Inc., and Electrolux North America in Support of Reversal at 1, *KSR Int’l Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Aug. 22, 2006), 2006 WL 2452365 (noting that the Federal Circuit established “too lax a standard for patentability”); Brief of Intellectual Property Law Professors as Amici Curiae in Support of Petitioner at 9–10, No. 04-1350, *KSR Int’l Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Aug. 22, 2006), 2006 WL 2452369; Brief of Amicus Curiae The Progress & Freedom Foundation in Support of the Petitioner at 8–12, *KSR*, No. 04-1350 (U.S. Aug. 22, 2006), 2006 WL 2452361 (arguing that the Federal Circuit’s case law is biased toward finding a claimed invention nonobvious); Petition for Writ of Certiorari, *supra* note 31, at 24–27 (citing both the FTC and NRC reports for support).

37 Brief of United States as Amicus Curiae at 9, *KSR*, No. 04-1350 (U.S. Aug. 22, 2006), 2006 WL 1455398.

38 See *id.* (indicating that the Federal Circuit “has transformed” the suggestion test into “an inflexible requirement” that “extends patent protection to non-innovative combinations of familiar elements”).

39 FED. TRADE COMM’N, *supra* note 3, ch. 4, at 14 (citing the testimony of former USPTO director Q. Todd Dickinson that the suggestion test operates as a “one-way ratchet: it can help confirm obviousness, but it does not necessarily identify nonobviousness”).

40 See Brief of Intellectual Property Law Professors as Amicus Curiae in Support of Petitioner, *supra* note 36, at 7–9.

41 *Id.*

42 See NAT’L RESEARCH COUNCIL, *supra* note 3, at 88–89 (noting that “[i]n an area like business methods” the “published literature does not fully describe the state of the art”). The NRC’s report further notes that even when business method informa-

obvious information is rarely documented because of its widely known and uninteresting nature. Furthermore, the critics assert that by limiting the scope of possible suggestions to the prior art, the USPTO's ability to properly assess nonobviousness is especially hampered.⁴³ The USPTO cannot rely upon its own scientific expertise and knowledge and must instead expend limited resources searching for suggestions in prior art.⁴⁴ This causes the USPTO to allow patent applications that are, in truth, directed toward obvious inventions. Finally, the factual nature of the suggestion test impinges on the ability of litigants to successfully dismiss invalid patents on summary judgment.⁴⁵ This results in more unnecessary costs on patent players, the judicial system, and society as a whole.⁴⁶

C. *Need for an Empirical Study of Recent Federal Circuit Nonobviousness Case Law*

Unfortunately, the FTC and NRC reports and the briefs in support of the petition for certiorari in *KSR* fail to perform any empirical analysis to see if their conclusions are true—that the Federal Circuit had lowered the nonobviousness requirement and that the suggestion test is the cause.⁴⁷ The reports and criticism cited above are based on the “feel” of the case law⁴⁸ or the facts of the *KSR* case alone.⁴⁹ An empirical study that systemically looks at both the

tion is published, it is mostly likely that “non-obvious information” is published. *Id.* at 90.

43 See Brief of the United States as Amicus Curiae, *supra* note 37, at 17–18; see also Rebecca S. Eisenberg, *Obvious to Whom? Evaluating Inventions from the Perspective of PHOSITA*, 19 BERKELEY TECH. L.J. 885, 888 (2004) (“The resulting analysis excludes from consideration the judgment, intuition, and tacit knowledge of ordinary practitioners in the field that cannot be documented in the written record.”); Arti K. Rai, *Allocating Power over Fact-Finding in the Patent System*, 19 BERKELEY TECH. L.J. 907, 912–17 (2004) (describing the “key problem” of the “Federal Circuit’s failure to recognize that the USPTO can, and should, be allowed to insert its knowledge of the art into the patent examination process.”).

44 See NAT’L RESEARCH COUNCIL, *supra* note 3, at 88–89 (concluding that the USPTO is “severely handicapped”).

45 See Brief of the United States as Amicus Curiae, *supra* note 37, at 17 (stating that “[t]he Federal Circuit’s test nevertheless prevents summary resolution of [nonobviousness]”).

46 See *id.*

47 The NRC’s report admits that no empirical analysis has been done. NAT’L RESEARCH COUNCIL, *supra* note 3, at 3.

48 See FED. TRADE COMM’N, *supra* note 3, ch. 4, at 12.

49 See Brief of the United States as Amicus Curiae, *supra* note 37, at 12–15 (noting that the *KSR* case demonstrates the rigid application of the suggestion test and how it results in an improper finding that the patent is obvious).

broader question of whether the Federal Circuit has lowered the non-obviousness requirement and the narrow question of whether the suggestion test is the cause needs to be done.

Information produced from such an empirical study is particularly useful given the current discussions and the pending *KSR* case before the Supreme Court. A good part of the calls for reform rest on the assumptions that the Federal Circuit has lowered the nonobviousness bar and that the suggestion test is to blame. If these assumptions are baseless, reforms produced from them will be misdirected and inefficient and, as a result, unlikely to improve patent quality. Such reforms may have negative effects. Changes in the area of nonobviousness, an already difficult doctrine to grasp and apply,⁵⁰ will only muddy the doctrine, making nonobviousness determinations uncertain and unclear. In addition, focusing on the Federal Circuit's nonobviousness jurisprudence and, specifically, the suggestion test may simply waste resources and energy that are better directed to other aspects of nonobviousness or other areas of patent law reform. Making sure the problem with the current state of nonobviousness is properly understood is the first step in nonobviousness reform. Understanding the Federal Circuit's recent case law in the area takes this first step.

This call for an empirical assessment is not to say that empirical studies have never been done on nonobviousness. Professor Glynn Lunney studied the Federal Circuit's nonobviousness jurisprudence in a 2001 article.⁵¹ Professor Lunney's study examined the percentage of patents found invalid by the Federal Circuit, and its predecessor court and regional circuits, due to a finding of obviousness in eight different years spread over a fifty-year period.⁵² He found a drop in the percentage of patents found obvious and attributed this drop to the introduction of the Federal Circuit and the doctrinal changes to nonobviousness the court introduced.⁵³ The study provides a great

50 See *Graham v. John Deere Co.*, 383 U.S. 1, 9 (1966) ("Jefferson saw clearly the difficulty in 'drawing a line between the things which are worth to the public the embarrassment of an exclusive patent, and those which are not.'" (quoting Letter from Thomas Jefferson to Issac McPherson (Aug. 13, 1813), in 6 WRITINGS OF THOMAS JEFFERSON 180-81 (H.A. Washington ed., New York, 1857))); Joseph P. Meara, Note, *Just Who is the Person Having Ordinary Skill in the Art? Patent Law's Mysterious Personage*, 77 WASH. L. REV. 267, 272 (2002).

51 Lunney, *supra* note 15, at 370-75.

52 See *id.* (using previous studies to obtain data for the six pre-Federal Circuit data points and collecting data for the final two Federal Circuit data points).

53 See *id.* at 372-80 (citing both the suggestion test and elevation of secondary considerations as the doctrinal changes responsible for the reduction in obvious findings).

point of comparison to what is happening currently, but its last data point is in 1994–1995.⁵⁴ Furthermore, the study looks no further than the Federal Circuit’s final holding on nonobviousness.⁵⁵ For example, there is no investigation as to what the lower court’s disposition was or how the suggestion test was used by the Federal Circuit in the case. The study provides some, but not much, assistance in evaluating the recent claims by the FTC, NRC, and the petitioner and amici in *KSR*, particularly with respect to the effects of the suggestion test. Professors John Allison and Mark Lemley also empirically looked at nonobviousness case law, but included district court opinions in the study.⁵⁶ Furthermore, the study does not focus on the suggestion test’s role in nonobviousness cases. While this study, like Professor Lunney’s, adds tremendous value to the nonobviousness discussion, it does not directly address the current debate.

Recent empirical studies also add to the current discussion. These all have some bearing on recent criticism of the Federal Circuit’s nonobviousness jurisprudence. But none fully address all the issues presented in *KSR* and the FTC and NRC reports. Professor Greg Mandel wrote two articles reporting on his experimentation using mock jurors to determine the effects of hindsight on the nonobviousness analysis.⁵⁷ The first article looked at the hindsight question in general, finding a significant hindsight effect in nonobviousness determinations.⁵⁸ Professor Mandel’s second study focused on the ability of the suggestion test to ameliorate the hindsight bias.⁵⁹ While Professor Mandel’s studies focused on the hindsight bias, he observed that the suggestion test cannot be the cause of erroneous findings of nonobvious because mock jurors found inventions nonobvious with and without the suggestion test.⁶⁰ Sean McEldowney recently pub-

54 *Id.* at 371, 373.

55 *Id.* at 370–71 (describing the study).

56 John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 194–97 (1998).

57 Mandel, *Empirical Demonstration*, *supra* note 28, at 1406–09; Mandel, *Experimental Study*, *supra* note 28, at 11–20.

58 Mandel, *Empirical Demonstration*, *supra* note 28, at 1409–10.

59 See Mandel, *Experimental Study*, *supra* note 28, at 15–20. He found that hindsight bias is so strong that even the suggestion test may be unable to fully mitigate its effects in all cases. *Id.* at 16. He noted that the suggestion test may do more to reduce the effects of hindsight bias in complex technology cases. *Id.* at 33. Recent theoretical and empirical work supports this claim. See Cotropia, *supra* note 5 (manuscript at 64); Sean M. McEldowney, *New Insights on the “Death” of Obviousness: An Empirical Study of District Court Obviousness Opinions*, 2006 STAN. TECH. L. REV. 4, ¶ 41, http://sclr.stanford.edu/STLR/Articles/06_STLR_4/McEldowney-Obviousness.pdf.

60 Mandel, *Experimental Study*, *supra* note 28, at 31–32.

lished a study focusing on nonobviousness at the district court level.⁶¹ McEldowney's findings show a decrease in the 1990s of both district courts reaching the issue of nonobviousness and finding patents obvious.⁶² He found that, while this would appear to suggest that the non-obviousness requirement has lowered, there may be other forces at play.⁶³

Finally, a yet unpublished study by Professors Lee Petherbridge and Polk Wagner comes the closest to fully addressing the questions presented by recent criticism.⁶⁴ Professors Petherbridge and Wagner's study takes a look at Federal Circuit nonobviousness cases over a fifteen-year period, from 1990 through 2005.⁶⁵ While the study takes a look at the claims of a lowering nonobviousness standard and the suggestion test's role, the main thrust of the study is to determine the stability and predictability of the court's nonobviousness doctrine.⁶⁶ In reaching the conclusion that the doctrine is very stable, the study also finds little evidence of a lowered standard or the suggestion test acting as an obstacle to findings of obvious.⁶⁷

This very recent push to empirically study nonobviousness is refreshing. There are still holes that need to be filled. A study is needed that considers all of the recent Federal Circuit opinions that span the period of the FTC and NRC reports and takes a complete look at the impact of the suggestion test. This Article does just that. Furthermore, when looking at the validity of empirical results, there is benefit to overlapping studies. The results from an empirical study becomes stronger if they are validated by another's results. In addition, the more ways nonobviousness is examined, the richer one's understanding of the doctrine becomes.

61 McEldowney, *supra* note 59, ¶ 3.

62 *Id.* ¶ 63.

63 *Id.* ¶ 64–67 (noting that “the Federal Circuit’s doctrinal shifts in obviousness seem more subtle and less damning than some have asserted” and that the regional variation amongst results contradicts the assertion that “the Federal Circuit has effectively objectified obviousness”).

64 See Petherbridge & Wagner, *supra* note 5 (manuscript at 5–20).

65 *Id.* (manuscript at 24–27). Notably, in contrast to the study reported in this Article, Professors Petherbridge and Wagner’s study does not collect data from Rule 36 cases and tallies results based on “analysis” as opposed to patents. *Id.* (manuscript at 29–30, 44 tbl.5).

66 *Id.* (manuscript at 28–43) (noting that the “overall goal of this study is to contribute to a burgeoning body of literature that addresses the effectiveness of the Federal Circuit at meeting the goals mandated by Congress at the time of its creation”).

67 *Id.* (manuscript at 51–53).

II. DESCRIPTION OF THE STUDY

In order to fill the need for more information on the current state of nonobviousness, a study of the Federal Circuit's recent nonobviousness jurisprudence is performed. The basic goal is to capture and code all Federal Circuit decisions on nonobviousness over a defined period. This population creates a data set that hopefully provides a better insight into whether the Federal Circuit has lowered the nonobviousness requirement and what role the suggestion test plays in the doctrine.

A. *Parameters of the Study*

This study contains a defined population of written, final decisions of the Federal Circuit issued over a four-year period, from January 1, 2002 through December 31, 2005.⁶⁸ Only validity decisions are included in the study, not decisions on unenforceability, such as inequitable conduct, prosecution laches, or patent misuse.⁶⁹ The population of this study initially includes only final decisions on validity, not vacations or remands—all decisions where the issue of a patent's validity is still unsettled. The population is then expanded to include those non-final decisions that reach any substantive conclusion on the issue of nonobviousness.⁷⁰ Thus, opinions where a holding of nonobviousness is vacated are included in the study. The population is

68 The study's results on are file with the author and are available at <http://www.cotropia.com/nonobviousnessstudy.html> (last visited Jan. 21, 2007).

The cases were obtained by searching LexisNexis's Federal Circuit database over this four-year period for cases that included the terms "patent" and "infring!" to gather appeals from patent infringement cases and the term "patent" in the "*In re*" cases to gather appeals from the USPTO's determinations regarding applications, reissues, and reexaminations. An additional search was made to capture appeals from decisions by the USPTO in interferences—disputes as to inventorship of a claimed invention. See Thomas P. Noud et al., *Patent Law Issues Affected by the Predictability of Technology in the Field of Invention*, 88 J. PAT. & TRADEMARK OFF. SOC'Y 603, 612 (2006) ("A patent interference is an administrative proceeding that results in an award of priority to one of the parties" who is claiming to be the first to invent.).

69 For example, fifteen patents held unenforceable due to prosecution laches in *Symbol Technologies, Inc. v. Lemelson Medical Education & Research Foundation*, 422 F.3d 1378, 1384–86 (Fed. Cir. 2005), were not included in this study.

70 Specifically excluded from this expanded population are cases where the issue of nonobviousness arose in the setting of preliminary injunctions. Such cases were avoided due to the unique standard under which substantive issues are judged when reviewing preliminary injunctions. See *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1358 (Fed. Cir. 2001) (noting that because of the differing level of review, "[v]alidity challenges during preliminary injunction proceedings can be successful, that is, they may raise substantial questions of invalidity, on evidence that would not suffice to support a judgment of invalidity at trial").

expanded to include these additional opinions so as to capture all of the Federal Circuit's deliberations on the issue of nonobviousness over the four-year period.

The study includes both published and unpublished written opinions. Summary affirmances, "Rule 36" cases,⁷¹ are also included in the population to the extent information regarding the issues decided by the court can be discerned from appellate briefs and the published decisions below.⁷² Only those decisions involving utility patents, as opposed to design or plant patents, are included. In addition, results will be separated based on whether it is an appeal from a patent infringement decision by a United States district court or an affirmed final rejection or interference decision of the USPTO.⁷³

The study is defined in terms of patents, not cases.⁷⁴ Often opinions included decisions on the nonobviousness of more than one patent, and thus one opinion may result in more than one data point. In addition, in those cases where decisions varied with regard to an individual patent's claims—that is, some claims were found nonobvious while others found obvious—each set of validated or invalidated claims are counted as a single patent. Therefore, for some cases, a decision regarding one patent may be defined as two patents for the purpose of the study.

71 Federal Circuit Rule 36 allows judgment of affirmance without opinion when certain conditions exist and an opinion would have no precedential value. See Beth Zeitlin Shaw, Note, *Please Ignore This Case: An Empirical Study of Nonprecedential Opinions in the Federal Circuit*, 12 GEO. MASON L. REV. 1013, 1015 (2004) (noting that Rule 36 allows the court to affirm without opinion when "the court determines an opinion would have no precedential value, and any of five other conditions exist").

72 Whether validity, and more particularly nonobviousness, was at issue in the Rule 36 cases is discernable from the briefing to the court. The only information lacking for such cases is the specific reasoning for the Federal Circuit affirming the lower court's ruling on validity.

The inclusion of Rule 36 cases considering nonobviousness, of which there were twenty-four, is a significant difference between this study and the one performed by Professors Petherbridge and Wagner. See Petherbridge & Wagner, *supra* note 5 (manuscript at 29–30) (noting that their results would change with the addition of Rule 36 opinions to their data set).

73 Decisions from United States International Trade Commission are included with the appeals from United States District Courts. There was, however, only one such decision involving the issue of nonobviousness. See *Honeywell Int'l, Inc. v. Int'l Trade Comm'n*, 341 F.3d 1332, 1338–42 (Fed. Cir. 2003). In addition, USPTO appeals included in the study were those from normal prosecution, reissues, and reexaminations. Appeals from interferences were also included to the extent that the validity of the count was at issue.

74 This is another difference between this study and that performed by Professors Petherbridge and Wagner. See Petherbridge & Wagner, *supra* note 5 (manuscript at 25) (indicating that "their measurement metric is *analyses*").

B. Data Collected

For each patent in the population, the following data was collected from all of the Federal Circuit's opinions:

- (1) case name, citation, and date of issuance;
- (2) whether the patent was held nonobvious or obvious;
- (3) whether the judgment below was from the grant of summary judgment, the grant of a judgment as a matter of law (JMOL), a bench trial, or a jury trial;
- (4) whether the Federal Circuit affirmed, reversed, or vacated the lower tribunal's determination regarding nonobviousness;
- (5) the reason the Federal Circuit affirmed, reversed, or vacated the lower tribunal's nonobviousness determination.⁷⁵

C. Methodology

This is a population study, like those previously conducted by Professors Allison and Lemley⁷⁶ and Christian Chu.⁷⁷ The study generates descriptive statistics to better understand the court's nonobviousness jurisprudence over the last four years. Statistical testing on these descriptive statistics is also performed. This analysis provides further information about the population and the significance of any variations in nonobviousness decisions over the past four years.

This population can be treated as a subset of a "superpopulation," as has been done in previous patent law studies by Professors Allison, Lemley and Chu.⁷⁸ That is, the population of this study can be used to predict the "population of all past and future . . . decisions."⁷⁹ The study can make predictions on the court's nonobviousness jurisprudence of the past and the future. By both focusing on the descriptive statistics the study produced and the inferences from statistical testing on the population studied, a better understanding of the court's nonobviousness jurisprudence will hopefully emerge.

⁷⁵ Because of their summary nature, this information was not available for Rule 36 cases. In those cases, the reason was coded as unknown.

⁷⁶ Allison & Lemley, *supra* note 56, at 201-02.

⁷⁷ Christian A. Chu, *Empirical Analysis of the Federal Circuit's Claim Construction Trends*, 16 BERKELEY TECH. L.J. 1075, 1094-95 (2001).

⁷⁸ Allison & Lemley, *supra* note 56, at 201-02; Chu, *supra* note 77, at 1094.

⁷⁹ Allison & Lemley, *supra* note 56, at 194 n.20.

D. Limitations

As with most empirical studies, this study suffers from a number of limitations. The limitations are divided into two categories—population biases and inherent limitations.⁸⁰

1. Population Biases

A major complaint one may lodge against this study is that the population selected is too narrow. First, a more complete picture of the Federal Circuit's nonobviousness jurisprudence would emerge if all of the court's jurisprudence was included, and thus all nonobviousness cases should be included back to and beyond the court's creation in 1982.⁸¹ It is true, more years would have provided a fuller picture. But, the four-year period selected contains a good number of patents subject to nonobviousness findings—102 patents from district court cases and 72 from the USPTO. Furthermore, while information from the 1980s and 1990s is nice, the focus of the current debate is on the Federal Circuit's recent jurisprudence. It matters little what the court's take on nonobviousness was twenty years ago. The important question is what is the Federal Circuit's attitude toward nonobviousness now, and this study defines its population in a way to best capture and test the current jurisprudence.

Another potential problem with the study is that the population should be expanded to include district court cases, decisions by the USPTO's Board of Patent Appeals and Interferences (the Board), and even reasons allowances by individual USPTO examiners. Looking at all of these determinations of nonobviousness would provide the complete picture of the current state of the doctrine.⁸² In addition, those cases heard by the Federal Circuit, particularly from the USPTO, are a small fraction of the nonobviousness determinations made in the United States on patent applications. Such appeals are

80 Such a division is the same as that identified by Professors Allison and Lemley in their validity study. See *id.* at 202–05.

81 Professors Petherbridge and Wagner attempt to overcome this limitation in their study, including cases from 1990 to 2005. Petherbridge & Wagner, *supra* note 5 (manuscript at 22). However, their study does not expand over the full period of the Federal Circuit's existence and include the case law before the court's creation, hampering its ability to obtain a “complete” picture of nonobviousness. *Id.* Other empirical studies have attempted to do just that, but either do not include recent data or focus only on district court cases. See, e.g., Lunney, *supra* note 15, at 370–75 (focusing on eight time periods with 1994–1995 being the most recent); McEldowney, *supra* note 59, at ¶¶ 22–28 (focusing on district court opinions).

82 A recent study by McEldowney, mentioned earlier, examines district court cases. See McEldowney, *supra* note 59, at ¶¶ 22–28.

also self-selecting, influenced by decisions by litigators and patent examiners, all of which arguably pollute the integrity of the data collected from these cases.

These are all valid points, and a more complete study, particularly one that focuses on nonobviousness decisions made inside the USPTO, would provide an especially valuable insight into how the doctrine is really used in the patent system. But this study focuses on what recent reports, the *KSR* case, and most patent players focus on—recent decisions by the Federal Circuit. Reported and published decisions, particularly those by an appellate court, both directly and indirectly shape both one's understanding and expectations of the law.⁸³ The nature of the common law and stare decisis requires lower tribunals to pay attention to and follow the precedent of appellate courts.⁸⁴ Furthermore, published decisions by an appellate court are some of the only views would-be litigants have as to how their disputes may be decided, and thus inform their actions under the law.⁸⁵ This is all particularly true in the case of patent law and the Federal Circuit, where the Federal Circuit has exclusive jurisdiction over all patent appeals⁸⁶ and has been referred to, on more than one occasion, as the "Supreme Court of patent law."⁸⁷ Put simply, this study focuses on the Federal Circuit for the same reason recent criticism, the Supreme Court in *KSR*, and patent players are focused on the Federal Circuit—the court's opinions set the tone for patent law in the United States.

83 Michael Heise, *The Importance of Being Empirical*, 26 PEPP. L. REV. 807, 826 (1999) ("An important function of written published judicial opinions is to shape future litigants' expectations and predictions about what might happen if their case should proceed to trial. Moreover, these expectations and predictions in turn influence the nuanced decisional analyses about whether to even initiate, let alone litigate, potential legal claims.").

84 See Pintip Hompluem Dunn, Note, *How Judges Overrule: Speech Act Theory and the Doctrine of Stare Decisis*, 113 YALE L.J. 493, 498 (2003) (noting that "in the common law . . . the only texts that judges can reference are the texts of earlier judicial opinions").

85 See Ahmed E. Taha, *Publish or Perish? Evidence of How Judges Allocate Their Time*, 6 AM. L. & ECON. REV. 1, 2 (2004) (concluding that "the small percentage of judges' decisions that are published are responsible for changes in law and for most observers' perceptions of the federal court system"); *id.* at 7 ([P]ublished decisions are more likely to be read and cited by the legal community.").

86 28 U.S.C. § 1295(a) (2000). The court's exclusivity in the area has been eroded. See, e.g., Christopher A. Cotropia, "Arising Under" Jurisdiction and Uniformity in Patent Law, 9 MICH. TELECOMM. & TECH. L. REV. 253 (2003) (discussing the effect of the Supreme Court's decision in *Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826 (2002)).

87 Donald S. Chisum, *The Supreme Court and Patent Law: Does Shallow Reasoning Lead to Thin Law?*, 3 MARQ. INTELL. PROP. L. REV. 1, 2 (1999).

2. Inherent Limitations

There are other limitations to this study that are not directly attributable to the population selected. The first limitation is the study's inability to determine the "correct" result in each of the non-obviousness decisions collected. A complete study that wanted to see if the Federal Circuit truly lowered the nonobviousness requirement would collect nonobviousness decisions and compare their results to the correct result under a proper standard for a given set of facts. A lowered requirement would result in a significantly lower number of findings of obviousness in reported decisions as compared to the correct decision for those cases.

Put frankly, such an inquiry on a large scale does not appear possible. Nonobviousness is a very fact-intensive inquiry that depends on the technologies involved and the skill level of those of ordinary skill in the art.⁸⁸ The doctrine's "intensely fact-dependent nature . . . makes it difficult to determine whether a decision . . . is incorrect."⁸⁹ This is not to say that it is impossible to arrive at a correct nonobviousness decision. It just means that in order to empirically test the correctness of each Federal Circuit decision, one would need an incredible level of expertise in various technologies and a tremendous amount of time.

Another limitation to this study pertains to its predictive power, or lack thereof. As noted by Professors Allison and Lemley in their validity study, "even the best predictive efforts in this area encounter fundamental limitations imposed by the fact that law and the litigation process change over time."⁹⁰ This study can describe, and attempt to predict, what happened over the four years of collected data. The information it provides outside that four-year period, particularly going forward, should be taken with caution. Things can, and do, change. However, this study is making the same predictions recent reports and arguments before the Supreme Court in *KSR* are making—indicating what the Federal Circuit has done and that this will be what it continues to do in the future.⁹¹

In the end, this study's main goal is to provide a clearer picture of the recent case law that was. The Article will make inferences as to

88 *See In re Kahn*, 441 F.3d 977, 987–88 (Fed. Cir. 2006).

89 *Meara*, *supra* note 50, at 280; *see also* *Graham v. John Deere Co.*, 383 U.S. 1, 18 (1966) (noting that "[w]hat is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context").

90 Allison & Lemley, *supra* note 56, at 205.

91 *See supra* Part I.B.

what this case law means for what will be. But, these inferences will, in the end, be simply that—inferences.

III. RESULTS OF THE STUDY

Using the population and data set defined in Part II, this Article tests the current assertion that the Federal Circuit reduced the nonobviousness requirement and that the suggestion test is the cause of this reduction. This assertion is tested in two ways. First, a macro-level view of the Federal Circuit's recent nonobviousness jurisprudence is taken. All of the opinions over the study's four-year period that include any determination on the issue of nonobviousness are examined. The macro-level study takes note of the Federal Circuit's final decision for each patent—findings of either nonobvious or obvious—and whether the decision affirms, reverses, or vacates the lower tribunal's decision. The study makes the assumption that if the Federal Circuit has lowered the nonobviousness bar, one would expect more findings of nonobvious than obvious and, similarly, significantly more affirmances of nonobvious than obvious.⁹² Put another way, the court's behavior would evidence a bias towards lower court and USPTO decisions of finding a patent claim nonobvious.

Then a micro-level study is performed, where, instead of merely looking at outcomes for each patent, the reasoning of the decisions on nonobviousness over the study's four-year period is explored.⁹³ Specifically, the importance of the suggestion test to nonobviousness determinations is examined. In cases where the Federal Circuit finds the claimed invention nonobvious, or reverses or vacates a finding of obvious, the decision is read to see if the suggestion test prompted this outcome. The study tries to capture how outcome determinative the suggestion test is in nonobviousness findings. The suggestion test's impact on nonobviousness determinations on summary judgment is also investigated.

Both the macro- and micro-level studies are described and analyzed in turn, focusing first on appeals from patent infringement cases and then on appeals from the USPTO.

⁹² The validity of this assumption will be discussed in detail below. *See infra* notes 108–11 and accompanying text.

⁹³ The “micro-level” study basically performs content analysis of the opinions in the database, looking at the specific analysis on each patent at issue. Professors Petherbridge and Wagner pioneered the use of the technique in patent law. *See* R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105 (2004).

A. *Does the Federal Circuit Employ a Low Nonobviousness Requirement?
Results From the Macro-Level Study*

This macro-look at the Federal Circuit's nonobviousness jurisprudence attempts to inform the discussion on whether the Federal Circuit has relaxed the nonobviousness requirement in the following manner. First, the affirmance, reversal, and vacation rates over the past four years for appeals from findings of nonobvious are compared to those from findings of obvious. If the court has lowered the bar, one would expect a statistically significant difference between the way the Federal Circuit handles nonobvious findings as compared to obvious findings. The Federal Circuit would favor, and thus affirm more often, findings of nonobvious and disfavor, and thus reverse or vacate more often, findings of obvious.⁹⁴ In addition, the lowering of the nonobviousness bar would also present itself in the aggregation of the holdings by the court in these cases—with findings of nonobvious outnumbering findings of obvious.⁹⁵

1. Appeals from Patent Infringement Cases

In appeals from patent infringement cases, there were 199 patents that were the subject of a final judgment regarding their validity. Of these 199 final validity decisions, sixty-seven were final determinations on the issue of nonobviousness. Added to these sixty-seven final determinations were fifteen patents whose finding of nonobvious was vacated and twenty patents whose findings of obvious were vacated. With these added to the population, there were a total of 102 patents that were subjected to some determination on the issue of nonobviousness over the study's four-year period. Of these 102 patents:

(1) 47.05% (forty-eight) were the subject of a lower court finding of nonobvious while 52.94% (fifty-four) were the subject of a lower court finding of obvious;⁹⁶

94 Notably, this comparison and statistical test of this comparison was not performed by Professors Petherbridge and Wagner. Their study simply reported the aggregate of affirmances, reversals, and vacations because their goal was to determine doctrinal stability, not the level of the nonobviousness standard. Petherbridge & Wagner, *supra* note 5 (manuscript at 31–33).

95 Again, the various limitations to this assumption—a difference in nonobvious and obvious holdings indicates the level of the nonobviousness standard—will be discussed in detail below. See *infra* notes 108–11 and accompanying text.

96 The almost even spread between lower court decisions finding a patent claim nonobvious and those finding a patent claim obvious falls right in line with Professors Priest and Klein's model. George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1, 9–17 (1984) (defining what has come to be known as the fifty-percent rule). It also comes close to the observed overall validity rate by

(2) 62.5% (thirty) of the nonobvious determinations were affirmed by the Federal Circuit, while 6.25% (three) were reversed and 31.25% (fifteen) were vacated; and

(3) 48.15% (twenty-six) of the obvious determinations were affirmed by the Federal Circuit, while 12.96% (seven) were reversed and 38.89% (twenty-one) were vacated.

Looking at the descriptive data, there appears to be a slight bias favoring lower court nonobvious findings. The affirmance rate is higher, and the reversal and vacation rate is lower as compared to appeals from obvious findings. However, the question is whether this difference is statistically significant. In order to determine whether it is, a Fisher's Exact Test is performed on the data.⁹⁷

Professors Allison and Lemley. See Allison & Lemley, *supra* note 56, at 205–06 (observing, from a set of 300 final validity decisions, 162 (54%) patents found valid compared to 138 (46%) patents found invalid).

Of even further interest is comparing the even split observed in these recent district court cases to the more lopsided distribution Professors Allison and Lemley observed with regards to nonobviousness. While a fifty-fifty split was observed over this study's four-year period, from 2002 to 2005, Professors Allison and Lemley observed more findings of nonobvious, with 160 patents (63.7%) being found nonobvious and 58 patents (36.3%) being found obvious between 1989 to 1996. *Id.* at 209. This suggests that at the district court level the likelihood of an obvious challenge being successful has increased in recent years, at least as compared to the early to mid-1990s.

97 A Fisher's Exact Test is chosen over the Pearson's Chi-Squared Test to measure statistical significance because of the small population size and, sometimes, highly unbalanced tables, produced by this study. B.S. EVERITT, *THE ANALYSIS OF CONTINGENCY TABLES* 7, 15–16 (2d. ed 1992); GEORGE W. SNEDECOR & WILLIAM G. COCHRAN, *STATISTICAL METHODS* 126–27 (8th ed. 1989) (explaining that the Fisher's Exact Test is favored over the Chi-Squared Test for smaller expected frequencies).

Fisher's Exact Test requires a 2x2 table, and thus this study will use a 2x2 table, with the nonobvious and obvious findings by the lower court defining the two rows and the affirmance and reversal and vacation grouped together defining the two columns. Reversal and vacation were grouped to accommodate the 2x2 table requirement. This grouping does not disturb the validity of the results for two reasons. First, both indicate that the Federal Circuit negatively viewed the lower court's conclusion. While one treatment, reversal, clearly goes to the substance of the determination, vacation also indicates at least a slight view towards the substance of the nonobviousness determination. Admittedly, the Federal Circuit could easily be vacating on purely procedural grounds—there is still a genuine issue of material fact—when the court may still substantively favor the lower court's outcome. See *LG Elecs., Inc. v. Bizcom Elecs., Inc.*, 453 F.3d 1364, 1380–81 (Fed. Cir. 2006). But, a vacation is still a negative treatment of the decision below and, if the court has lowered the nonobviousness standard, it would likely vacate more findings of obvious and less findings of nonobvious.

The results of the Fisher's Exact Test produced a p-value of 0.1668,⁹⁸ indicating that the results did not show a significant difference between the Federal Circuit's handling of a lower court's finding of nonobvious as compared to a finding of obvious.⁹⁹ Such a finding suggests that there is no evidence of an inherent bias in the Federal Circuit's nonobviousness jurisprudence that favors a finding of non-obvious or obvious.¹⁰⁰ The nonobviousness requirement cannot be significantly low because if it was, presumably the distribution would be statistically significant and tilt towards affirmance of findings of nonobvious. This result is interesting because it fails to support the presently held belief that the court's jurisprudence favors finding patent claims nonobvious.

A similar finding is made when looking at the ultimate holdings in nonobviousness cases over the study's four-year period. During this time period, the Federal Circuit held thirty-seven patents nonobvious, twenty-nine patents obvious, and vacated the lower court's holding for thirty-six patents. Figure 1, below, depicts this breakdown graphically.

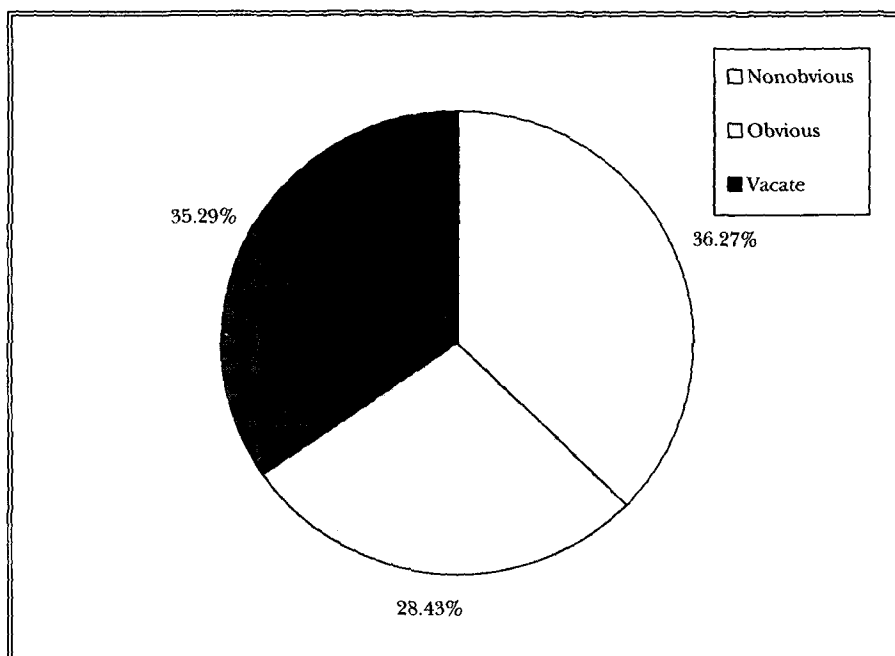
98 This is the two-tail p-value. Another test for statistical significance, the Pearson's Chi-Squared Test, produced a p-value of 0.2102 for the same 2x2 matrix, confirming the results of the Fisher's Exact Test—there is no statistically significant relationship between the lower court's finding on nonobviousness and the Federal Circuit's affirmance or reversal or vacation of the finding. See generally MICHAEL O. FINKELSTEIN & BRUCE LEVIN, *STATISTICS FOR LAWYERS* 157–62 (2d ed. 2001) (describing the Pearson's Chi-Squared Test).

This finding was also confirmed when the negative treatments of the lower court's findings was represented individually, defining a 2x3 matrix with the reversals and vacations separated. The p-value using the Chi-Squared Test produced a p-value of 0.2808, indicating no significant difference.

99 For the distribution to be statistically significant, a p-value must be less than .05. See DAVID FREEDMAN ET AL., *STATISTICS* 484 (3d ed. 1998). A p-value less than .01 is considered highly statistically significant. *Id.*

100 The distribution is, instead, random, possibly mimicking the fifty-percent rule that prompted close cases to go to trial and ultimately be appealed to the Federal Circuit. See *infra* notes 104–07 and accompanying text.

FIGURE 1. FEDERAL CIRCUIT'S HOLDINGS ON NONOBVIOUSNESS IN APPEALS FROM PATENT INFRINGEMENT DECISIONS



The percentage of patents found nonobvious is only slightly higher than those found obvious—36.27% compared to 28.43%. Ignoring the vacations, there is close to an even split between findings of nonobvious and obvious—56.06% compared to 43.93%. This frequency fails to support the claim that the nonobviousness requirement has lowered significantly.

What makes this lack of a strong bias particularly remarkable is the presumption of validity issued patents enjoy.¹⁰¹ A patent must be found invalid not by just a preponderance of the evidence, but by clear and convincing evidence.¹⁰² Scholars and the FTC Report point to this heightened standard as one of the main reasons invalid patents are found valid by courts.¹⁰³ A finding of nonobvious is therefore

101 See 35 U.S.C. § 282 (2000); *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 424 F.3d 1374, 1378 (Fed. Cir. 2005).

102 *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1549 (Fed. Cir. 1983) (noting that overcoming the presumption requires a showing of facts provided by clear and convincing evidence).

103 See FED. TRADE COMM'N, *supra* note 3, at 8–10 (recommending legislation to reduce the standard to preponderance of the evidence); Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 Nw. U. L. Rev. 1495, 1497 (2001) (arguing that by abolishing the strong presumption of validity, courts could make a more thorough validity determination).

heavily presumed, making an obvious finding by the Federal Circuit inherently less likely regardless of the actual nonobviousness standard employed. Because of this presumption, even a neutral nonobviousness standard should produce a greater percentage of patents being held nonobvious. The results of this study only mildly mimic the presumption, with the split between valid and invalid closer to almost fifty-fifty, suggesting that if any bias exists, it is a bias towards finding patents obvious, not nonobvious as most critics suggest.

However, the conclusion that these results, an almost even distribution between nonobvious and obvious findings, mean that the nonobviousness standard has not been lowered must be qualified. By looking at case outcomes, the study may simply be witnessing close cases all centered around a low nonobviousness standard. Thus, the study may say nothing about the level of the Federal Circuit's nonobviousness requirement.

As Professors George Priest and Benjamin Klein observed, litigants will only go to trial if the facts present a close case.¹⁰⁴ If the case is not close, rational parties will settle.¹⁰⁵ Since only close cases go to trial, the predicted success rate for such cases is fifty percent for the plaintiff and fifty percent for the defendant.¹⁰⁶ This would indicate that the cases that form the bases for this study are cases where the issue of nonobviousness is close, suggesting that the Federal Circuit's findings should break down the middle, with as many findings of non-obvious as obvious. The study comes close to confirming this postulation.¹⁰⁷

When evaluating whether to go to trial or not, litigants will likely take into account such things as the current nonobviousness standard and the presumption of validity. The only cases that reach the courts are those that are, taking into account all of the prevailing legal standards, coin-flips for the given set of facts. Put another way, the current legal standards, including the level of the nonobviousness requirement, is subsumed in this decision calculus and thus does not necessarily show up in the reported cases studied. If the nonobviousness bar is low, then only those cases where it is a close call around that low bar will be taken to trial and end up at the Federal Circuit. In such an environment, the final results of this macro-level study can say nothing about where the nonobviousness bar sits.

104 See Priest & Klein, *supra* note 96, at 9–17.

105 *Id.* at 17.

106 *Id.*

107 The district court results further confirm the fifty-percent rule on the issue of nonobviousness. See *supra* notes 98–100 and accompanying text.

But this line of reasoning does not fully discount the significance of the macro-level studies results. First, for this line of reasoning to hold and a low nonobviousness standard to exist, all of the patents in the study must hover around this lower nonobviousness standard and are, as a result, invalid under the “correct” standard. Even the strongest critics of the Federal Circuit would be unlikely to make this claim. All of the patents involved in this study are not “bad” patents.¹⁰⁸ Second, this critique rests on the assumption that litigants have a good understanding of exactly where the nonobviousness bar sits. That is, that their behavior follows Professors Priest and Klein’s theory to the letter.¹⁰⁹ It has been observed that, in practice, the fifty-percent rule does not hold true.¹¹⁰ Finally, if the Federal Circuit had lowered the nonobviousness bar, and these results simply record litigants’ understanding of this lowering, the Federal Circuit would have to communicate the lowering in some way. Finding more patents nonobvious as opposed to obvious would be the likely vehicle through which to send this message. As the results indicate, the message the Federal Circuit has sent is that it is an even playing field, with patents as likely to be found nonobvious as obvious.

Thus, a truly lowered bar or real bias towards finding patents nonobvious would likely result in a greater number of findings of non-obvious than obvious. This is not the case. The court’s jurisprudence appears to have not significantly pushed the doctrine towards one particular finding or another. The ultimate conclusion, that the nonobviousness requirement has not been lowered, cannot be conclusively made based on the results of this macro-level study. But, the study, at the very least, gives no indication that the opposite is true, as critics argue—that the Federal Circuit has lowered the requirement.

This all being said, it is surprising, given the current discourse, that an even distribution between findings of nonobvious and obvious was observed.¹¹¹ Hopefully, the micro-level study¹¹² will provide a bet-

108 See, e.g., *Alza Corp. v. Mylan Labs, Inc.*, 391 F.3d 1365, 1367 (Fed. Cir. 2004) (involving a patent on the transdermal administration of the narcotic drug fentanyl); *Atmel Corp. v. Silicon Storage Tech., Inc.*, 76 F. App’x 298, 300 (Fed. Cir. 2003) (considering a patent on a programmable semiconductor memory chip).

109 See Leandra Lederman, *Which Cases Go to Trial?: An Empirical Study of Predictors of Failure to Settle*, 49 CASE W. RES. L. REV. 315, 322–23 (1999) (noting that Priest and Klein’s model “predicts that the close cases will be tried”).

110 See David Kessler et al., *Explaining Deviations from the Fifty-Percent Rule: A Multimodel Approach to the Selection of Cases for Litigation*, 25 J. LEGAL STUD. 233, 248–249 (1996).

111 Professors Petherbridge and Wagner make a similar observation, albeit in passing. See Petherbridge & Wagner, *supra* note 5 (manuscript at 41–42) (finding a higher frequency of obvious findings (57.8%) as compared to nonobvious findings

ter insight as to whether the bar has been lowered by focusing on the alleged cause of this lowering—the suggestion test.

2. Appeals from the USPTO

In appeals from the Board of the USPTO, there were seventy-two applications and issued patents that were the subject of a final determination regarding patentability or validity. Of these seventy-two appealed patents and patent applications, fifty involved final determinations on the issue of nonobviousness. Added to these fifty final determinations, there were four patent applications whose findings of obviousness were vacated and remanded. With these decisions added to the population, there were a total of fifty-four patents and patent applications that were subjected to some determination on the issue of nonobviousness over the four-year period of the study. Of these fifty-four patents and patent applications:

(1) all, 100% (one), of the nonobvious determinations were affirmed by the Federal Circuit; and

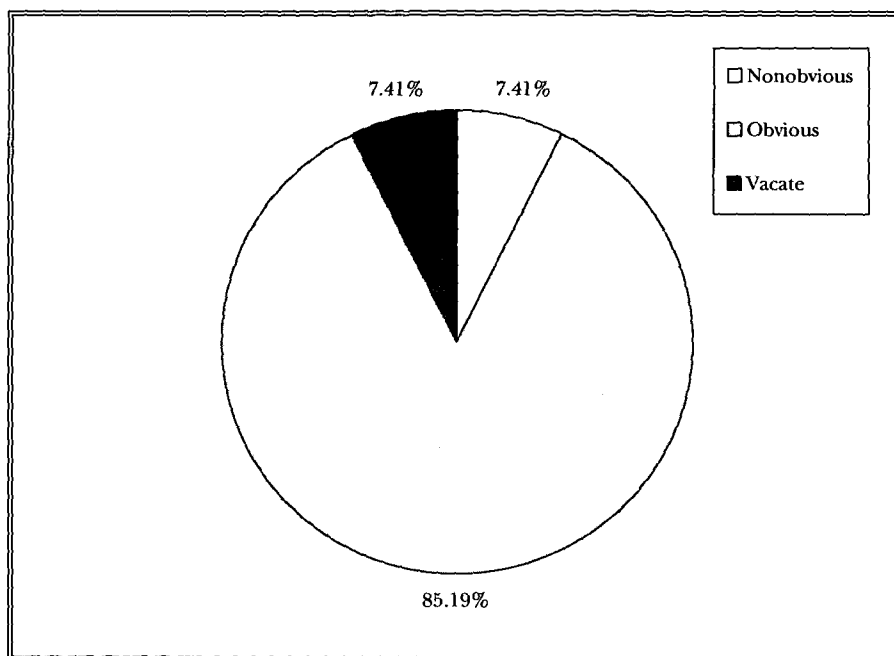
(2) 86.79% (forty-six) of the obvious determinations were affirmed by the Federal Circuit, while 5.66% (three) were reversed and 7.55% (four) were vacated.

These data indicate that the Federal Circuit has not lowered the nonobviousness bar with respect to the USPTO over the four-year period. The high affirmance rate of findings of nonobvious is particularly telling. The descriptive statistics show that the Federal Circuit's nonobviousness jurisprudence represents little to no obstacle to affirming findings of obvious by the USPTO. When looking at the outcome in all of the nonobviousness cases appealed from the USPTO, the percentage of patent, or patent applications, found obvious by the Federal Circuit is extremely high. Figure 2, below, depicts the final tally:

(42.4%)). The difference between this study's findings and Petherbridge and Wagner's may be explained by the period of time over which the samples were collected or the inclusion of Rule 36 cases in this study. Regardless of the reason, Professor Petherbridge and Wagner's finding of an almost even split validates this study's results.

112 See *infra* Part III.B.1.

FIGURE 2. FEDERAL CIRCUIT'S HOLDINGS ON
NONOBVIOUSNESS IN APPEALS FROM THE USPTO



Of further interest, the high rate of affirmance of obvious findings (86.79%) stands in stark contrast to the similar statistic in the patent infringement case setting (48.15%). This indicates that the Federal Circuit is even more likely to find a claim obvious in an appeal from the USPTO than a district court. The statistical significance of this difference is testable by performing a Fisher's Exact Test on the handling of appeals from findings of obvious by district courts and the USPTO. The result is a p-value of .0000266, indicating a highly statistically significant difference. USPTO obvious findings are more likely to be affirmed than similar findings by district courts.

This difference can arguably be explained by the differing standards of review and the varying presumptions between the two types of appeals. First, appeals from the USPTO are reviewed under the Administrative Procedure Act's standard of review.¹¹³ The ultimate nonobviousness determination is a question of law, and thus reviewed *de novo* by the Federal Circuit.¹¹⁴ But the underlying factual determinations are reviewed for substantial evidence, a more deferential standard than those applied to summary judgments or JMOLs by district

113 See *Dickinson v. Zurko*, 527 U.S. 150, 164–65 (1999).

114 See *In re Dembiczak*, 175 F.3d 994, 998 (Fed. Cir. 1999).

courts.¹¹⁵ This greater deference applied to all USPTO's fact findings could explain the higher rate of affirmance of obvious determinations. To add to this, most of the appeals from the USPTO involve patent applications, as opposed to already issued patents, that are not subject to the same strong presumption of validity as in district court.¹¹⁶ Finding a patent application invalid is thus much easier than finding an issued patent invalid, making it easier for the Federal Circuit to agree with a USPTO's conclusion of obvious.

However, the FTC and NRC reports and the briefing in support of certiorari in *KSR* argue that Federal Circuit jurisprudence has made it particularly more difficult for the USPTO to find patent applications obvious.¹¹⁷ If this assertion was true, one would expect a higher degree of reversal of USPTO findings by the Federal Circuit. Or, at the very least, that this lowering of the nonobviousness bar would counteract the standard of review's and lack of a presumption's push towards affirming a USPTO finding of obvious. This is clearly not the case, with 86.79% of the USPTO's findings of obvious being affirmed. The current thinking that the USPTO cannot, under the current law, properly find a patent application invalid does not appear to be supported.¹¹⁸

But, as with the district court results, these results may provide little insight into whether the Federal Circuit has lowered the nonobviousness requirement. First, appeals from the USPTO do not tell the full story. The alleged disparate impact of the Federal Circuit's jurisprudence, particularly *In re Song-Su Lee*,¹¹⁹ may still be observed at the Board level, or the individual examination level. That is, the USPTO's hands may truly be tied by the Federal Circuit's jurisprudence and the result is the issuance of obvious patents that are never reviewed by the Federal Circuit.¹²⁰ The number of patent applications from the

115 Compare *In re Gartside*, 203 F.3d 1305, 1313–16 (Fed. Cir. 2000) (establishing the substantial evidence standard of review for appeals of facts from the USPTO), with *Hilgraeve Corp. v. McAfee Assocs., Inc.*, 224 F.3d 1349, 1352 (Fed. Cir. 2000) (noting that summary judgments are reviewed de novo).

116 See *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1365 (Fed. Cir. 2004) ("The general presumption of patent validity does not pertain to patent applications before they issue.").

117 See *supra* notes 32–46 and accompanying text.

118 Professors Petherbridge and Wagner come to a similar conclusion, but in a different manner, looking at the rate of reversal of USPTO decisions. Petherbridge & Wagner, *supra* note 5 (manuscript at 37–38).

119 277 F.3d 1338, 1342 (Fed. Cir. 2002) (requiring the USPTO to provide concrete evidence to support its conclusion of obvious).

120 The Board, or other parts of the USPTO, does not have the power to appeal the issuance of a patent. Only an aggrieved inventor whose patent application has

USPTO the Federal Circuit sees, and finds invalid, may be dwarfed by the number of patent applications "improperly" granted by the USPTO because of the Federal Circuit's case law.

The USPTO may also be operating under the lower standard, and thus the cases coming up to the Federal Circuit have already taken the standard into account. This masks the ability for the study to tease out, from final holdings, the level of the nonobviousness standard. The inability of the USPTO to appeal close cases also hampers the study's ability to provide any insight into the court's jurisprudence.

But, in light of this high affirmance rate, patent applicants would only go through the cost of appealing in those cases where they think they have a good chance of winning.¹²¹ Patent applicants would be appealing stronger and stronger cases of nonobvious, testing the height, or strength, of the standard. And even under this scenario, the affirmance rate stays high, creating a viable inference that the Federal Circuit is keeping the nonobviousness standard stiff, at least in the context of the USPTO.

The high affirmance rate would, in turn, have the opposite effect on the USPTO. The study shows that the USPTO sees a high affirmance rate of its findings of obvious. This sends a message to the Board and individual examiners that such findings of patent claims as obvious are supported, and that the support is strong. The USPTO is just as likely to push in the other direction, feeling more and more comfortable finding the close case obvious. Both of these reactions would create a pool of appealed cases from the USPTO that are testing how high the nonobviousness standard can get, not how low.

The very high affirmance rate in response, thus, tells more than the results from district court cases. These results bring the assertion that the nonobviousness standard has been lowered into greater question. It also contradicts the specific assertion made by critics—that the Federal Circuit's jurisprudence is particularly harmful to the USPTO. These data indicate that the USPTO, at least at the Federal Circuit level, does not have a particularly difficult time successfully proving a patent claim obvious. In addition, these findings may become more telling when combined with the micro-level study that tests whether the bar has been lowered by the suggestion test.

been rejected may appeal the rejection to the Federal Circuit. See 35 U.S.C. § 141 (Supp. III 2003).

121 The average cost of appealing a patent application to the Board in 2005 was \$8,495. See AM. INTELLECTUAL PROP. LAW ASS'N, REPORT OF THE ECONOMIC SURVEY, at I-98 (2005). While this cost may seem small, it may almost double the cost of patent prosecution in some cases. See *id.* at I-95 (noting that the average cost of filing a patent application is \$11,218).

B. Does the Federal Circuit's "Suggestion Test" Lower the Nonobviousness Requirement? Results From the Micro-Level Study

In addition to testing whether there is a general bias towards nonobvious findings or a lowering of the bar in the Federal Circuit's nonobviousness case law, the study also investigates the impact of the court's suggestion test. Two specific claims regarding the suggestion test are investigated. First, this "micro-level"¹²² part of the study tests whether the suggestion test causes most, if not all, nonobvious findings. Put another way, it examines whether the suggestion test actually operates as a one-way ratchet in most nonobviousness cases. Second, this part of the study examines whether the suggestion test hinders the ability for nonobviousness determinations to be made on summary judgment.

In order to gain information on whether the Federal Circuit actually uses the suggestion test, this micro-level part of the study first focuses on cases in which the Federal Circuit either affirmed a finding of nonobvious or reversed or vacated a finding of obvious over the four-year period. The study focuses on these opinions because they are the only cases where the suggestion test could have prompted a finding favoring a conclusion of nonobvious. The study will then consider the procedural mechanism through which the findings on nonobviousness were made by the tribunal below—summary judgment, JMOL, jury trial, or bench trial—and how the Federal Circuit handled the lower court's decision. As with the macro-level study, appeals from patent infringement cases are considered first, then appeals from the USPTO.¹²³

122 This part of the study is identified as "micro-level" because more data is taken than just the outcome for each individual patent. The specific reasoning of the decision causing that particular outcome is examined and recorded. This low-level look at a court's decisions—one termed "micro-level" but also known as content analysis—has been done before in the patent context and in other areas of law. See, e.g., Petherbridge & Wagner, *supra* note 5 (manuscript at 5–20); Mark A. Hall & Ronald F. Wright, *Systematic Content Analysis of Judicial Opinions*, (Wake Forest Univ. Legal Studies Paper No. 913336, 2006), available at <http://ssrn.com/abstract=913336> (advocating the use of a content-based method of evaluating caselaw).

123 However, for this part of the study, appeals from the USPTO will be ignored when looking into the suggestion test's impact on summary judgment because there is no directly equivalent mechanism in the USPTO. All USPTO decisions that get to the Federal Circuit have gone through full adjudication.

1. The Suggestion Test as the Cause of Nonobvious Findings

a. Appeals in Patent Infringement Cases

In the study's population of patent infringement cases, there were thirty patents for which the Federal Circuit affirmed a finding of nonobvious, seven patents where a finding of obvious was reversed, and twenty-one patents where a finding of obvious was vacated. In total, there were fifty-eight patents for which the Federal Circuit either ultimately found the patent claims nonobvious or vacated a finding of obvious. This universe of opinions includes the only instances in which the suggestion test could have prompted a conclusion of non-obvious or denied a conclusion of obvious.¹²⁴

The opinions concerning these patents were examined to determine the reasoning employed by the Federal Circuit to support its final holding.¹²⁵ The reasoning was coded based on the part of the nonobviousness analysis upon which the court relied to come to its conclusion. The codes included:

- (1) failure to meet the suggestion test;
- (2) secondary considerations rebutted a *prima facie* case of obvious;
- (3) elements of the claimed invention were not in the prior art;
- (4) claim interpretation was incorrect;
- (5) other reason;¹²⁶ or
- (6) unknown.¹²⁷

After looking at these data, another code was created for instances where both the litigants failed to meet the suggestion test

124 There are twenty-nine other patents where the suggestion test clearly did not cause a finding of nonobvious. These include twenty-six affirmances of a finding of obvious and three reversals of a finding of nonobvious. These twenty-nine patents are instances where the suggestion test did not act as a one-way ratchet and force a finding of nonobvious. More will be discussed about these additional findings below. See *infra* text accompanying notes 131–32.

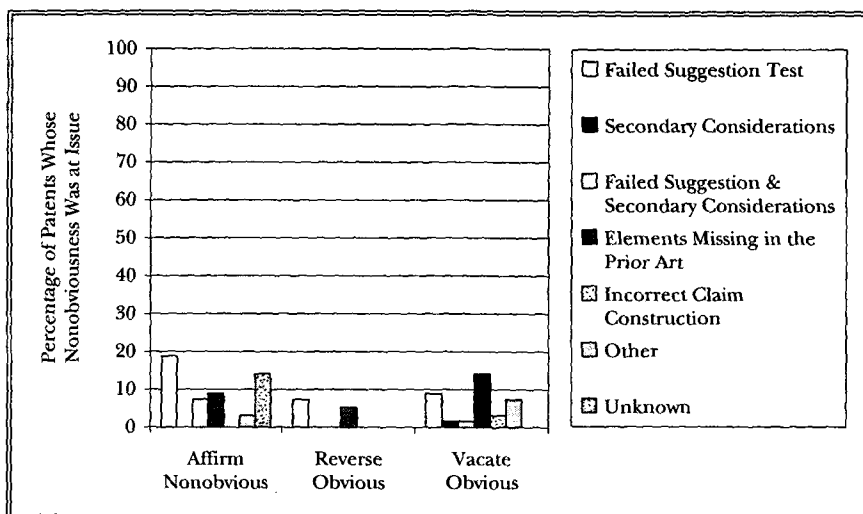
125 Professors Petherbridge and Wagner, while looking at the result of the use of the suggestion test, do not investigate its specific usage in findings favoring nonobviousness. Petherbridge & Wagner, *supra* note 5 (manuscript at 43–49). Obtaining and analyzing this additional data gives a fuller and more useful picture of the Federal Circuit current nonobviousness doctrine.

126 In most instances, the “other reasons” were procedural. See, e.g., *Catalina Lighting, Inc. v. Lamps Plus, Inc.*, 295 F.3d 1277, 1288 (Fed. Cir. 2002) (affirming a holding of nonobvious because the defendant failed to preserve the right to appeal the nonobviousness issue).

127 The unknowns included all of the Rule 36 opinions where a finding of nonobvious was affirmed, but the conclusory nature of the ruling shed no light as to why the court affirmed the holding.

and secondary considerations rebutted a *prima facie* case.¹²⁸ The results of this coding are represented graphically below in Figure 3.¹²⁹

FIGURE 3. REASON FOR FEDERAL CIRCUIT'S DECISION



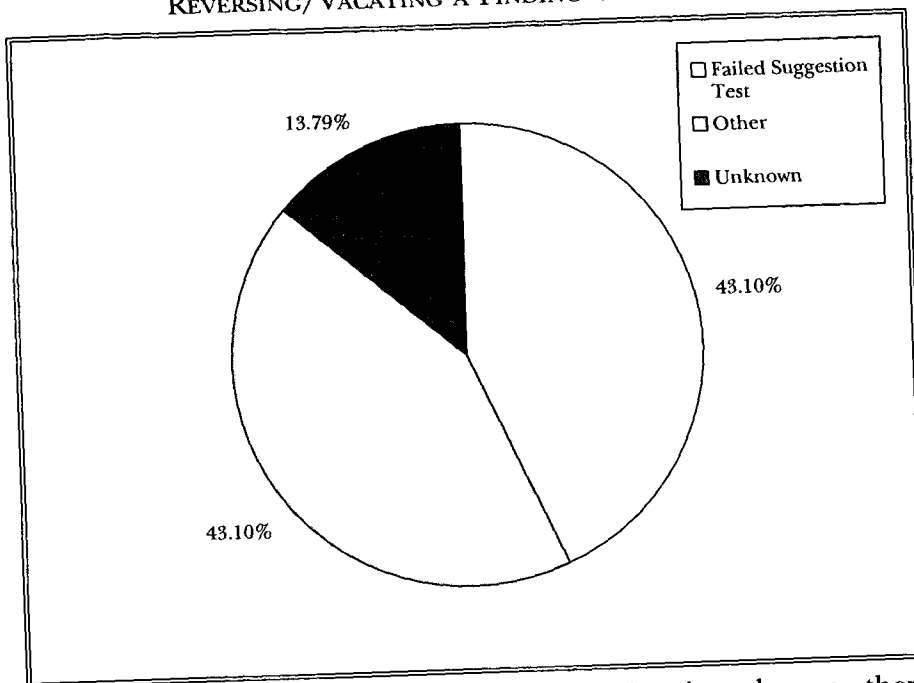
The descriptive statistics can be further categorized to gain a better handle on the extent to which the suggestion test causes a finding, or possible finding, of nonobvious. All of those findings based, at least in part, on a failure to meet the suggestion test are combined,¹³⁰ and all other findings, other than those whose reasoning is unknown, are combined. The results of this combination are depicted below, in Figure 4.

128 This is, most likely, an example of “piling on” by the court. See, e.g., *PIN/NIP, Inc. v. Patte Chem. Co.*, 304 F.3d 1235, 1245–47 (Fed. Cir. 2002).

129 The results in Figure 3 are normalized to the complete universe of patent appeals from district courts where nonobviousness was at issue. Thus, the results are depicted as percentages of this complete population—102 patents.

130 There were instances, as shown in Figure 3, where the Federal Circuit found the suggestion test not met and found the presence of secondary considerations that the patent claim was nonobvious.

FIGURE 4. REASON FOR AFFIRMING A FINDING OF NONOBVIOUS OR REVERSING/VACATING A FINDING OF OBVIOUS



Disregarding the findings whose reasoning is unknown, there exists an even split between those cases where the suggestion test prompts a nonobvious-oriented finding and those cases where something else prompts such a finding. The suggestion test, it would therefore seem, plays a major role in the Federal Circuit's nonobviousness jurisprudence.

The suggestion test does not, however, play as great of a role as critics suggest. In almost as many situations a patent is found nonobvious because an element of the claimed invention is not found in the prior art, a part of the nonobviousness inquiry expressly established in *Graham*.¹³¹ The suggestion test is a one-way ratchet by definition—it must be met to find a claim obvious. But it does not act as one in at least 43.1% of those cases where the court found the claim nonobvious or vacated a finding of obvious. The results show that the suggestion test is a big factor in nonobvious findings, but it is not an overwhelming factor.

To put the suggestion test's impact in complete perspective, those cases where a lack of suggestion is found can be compared to both cases where there is another basis to support a finding of nonobvious and those cases where the court actually finds the claim obvious.

131 *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).

This additional category, cases where the Federal Circuit finds the claim obvious, is another instance where the suggestion test did not force a finding of nonobvious. With these additional findings, twenty-six affirmances of obvious findings and three reversals of nonobvious findings, the role of the suggestion test in modern Federal Circuit jurisprudence becomes smaller.

The suggestion test, therefore, prompted a finding of nonobvious, or vacation of a finding of obvious, for twenty-five patents compared to fifty-four patents where the suggestion test clearly played no role. Over the past four years, for every one patent where the suggestion test dictated the decision, two patents were not influenced by the test. The suggestion test does not influence the final nonobviousness decision in nearly the number of cases suggested by recent criticism.

This finding becomes even more interesting when combined with the almost even frequency of ultimate findings of nonobvious and obvious discussed in Part III.A.1 There, the results were discounted because litigants could have been operating under the lowered non-obviousness bar, bringing cases that assumed a lower standard would be applied. Critics assert that this lower standard is created by the suggestion test, but the results of the micro-level study indicate that the suggestion test does not play as large of a role. Litigants, reading the Federal Circuit case law over this four year period, would not come away with the impression that the suggestion test drives the decision in most nonobviousness cases. If the suggestion test is the alleged cause of the lowered nonobviousness requirement, the Federal Circuit's case law is not adequately sending that message to patent players. These results, therefore, call into question the discounting of the results in Part III.A.1 It possibly revives the initial inference from the almost even split in nonobvious to obvious outcomes—that the non-obviousness requirement has not been lowered.

One final observation of interest needs to be made. This part of the study also uncovered the miniscule role secondary considerations play in the Federal Circuit nonobviousness jurisprudence. In only one instance were secondary considerations by themselves the reason for a holding, and it was only to vacate a lower court's holding of obvious.¹³² In the four other patents where secondary considerations were used to support the court's decision, the court also relied upon a

¹³² See *Display Techs., Inc. v. Paul Flum Ideas, Inc.*, 282 F.3d 1340, 1347 (Fed. Cir. 2002).

failure to meet the suggestion test to support its conclusion.¹³³ These results confirm those of Professor Mandel, who also concluded that secondary considerations play a very insignificant role in nonobviousness jurisprudence.¹³⁴ This finding is of interest because it brings into question some of the criticism of the Federal Circuit's jurisprudence centered on secondary considerations.¹³⁵

b. Appeals from the USPTO

The study turned up fewer relevant data points to perform the same inquiry as done above—looking at the suggestion test's effect on affirmances of nonobvious findings and reversals and vacations of obvious findings by the USPTO. There were only eight such patents that fell into these categories and in five of them failing the suggestion test was the reason for the court's conclusion. Three of the patents were found nonobvious or remanded on other grounds.

The lack of data is not surprising given that mainly findings of obvious are appealed from the USPTO and the affirmance rate of such findings by the Federal Circuit is very high.¹³⁶ The high affirmance of obvious findings by the USPTO indicates that the suggestion test represents even less of an obstacle in USPTO cases. The Federal Circuit allowed the suggestion test to be met and patents held obvious for forty-six patents on appeal from the USPTO. Thus, in total, the suggestion test did not force a finding of nonobvious in forty-nine (90.74%) of the fifty-four patents appealed from the USPTO.

However, the whole story does not show up in the population studied. As previously mentioned, there are very limited instances in which the court will see appeals from the issuance of patents.¹³⁷ A high number of situations could, and most likely do, exist where the suggestion test prompted a finding of nonobvious and resulted in the allowance of a patent application. This study, because of the parameters chosen, does not have the ability to take into account the complete usage of the suggestion test at the USPTO level.

133 See *Knoll Pharm. Co. v. Teva Pharms. USA, Inc.*, 367 F.3d 1381, 1384–85 (Fed. Cir. 2004); *Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.*, 344 F.3d 1186, 1196–1197 (Fed. Cir. 2003); *PIN/NIP, Inc. v. Platte Chem. Co.*, 304 F.3d 1235, 1247–48 (Fed. Cir. 2002); *Neupak, Inc. v. Ideal Mfg. & Sales Corp.*, 41 F. App'x. 435, 439–40 (Fed. Cir. 2002).

134 See Mandel, *Empirical Demonstration*, *supra* note 28, at 1422–25.

135 See FED. TRADE COMM'N, *supra* note 3, at ch. 4, at 15–19 (asserting that the Federal Circuit's implementation of the secondary consideration of "commercial success" improperly lowers the nonobviousness requirement).

136 See *supra* Part III.A.2.

137 See 35 U.S.C. § 141 (Supp. III 2003).

This being said, the Federal Circuit's attitude toward, and usage of, the suggestion test sets the tone for the USPTO's usage of the test. Like district courts, the USPTO is guided by Federal Circuit case law. The Federal Circuit, through its high affirmance rate and agreement in most cases that the suggestion test is met, signals to the USPTO that patent applications can be found obvious and that those findings will be supported. The suggestion test definitely plays a role in the USPTO's nonobviousness analysis. But, based on the results of this study, it does not automatically result in a conclusion of nonobvious in most cases. These findings, when combined with those in Part III.A.2 of the study, indicate that the nonobviousness requirement has not been lowered with respect to the USPTO and that the suggestion test may not restrict the USPTO as much as critics indicate.

2. The Suggestion Test as a Barrier to Summary Judgment

The Federal Circuit's suggestion test is also criticized as being an obstacle to summary judgment on nonobviousness. Attempts to resolve issues of nonobviousness on summary judgment are thwarted by the need to determine whether a suggestion is present or not.¹³⁸ The argument is that since the suggestion test is a factual inquiry,¹³⁹ it will always present a genuine issue of material fact requiring a trial to resolve. This micro-level part of the study is continued to test this assertion.

Since this inquiry focuses on summary judgment, only appeals from patent infringement cases are examined.¹⁴⁰ All 102 patents where the issue of nonobviousness was on appeal are included, with initial attention to how the nonobviousness issue was disposed of by the trial court and how the Federal Circuit handled this disposition on appeal. There were four types of dispositions observed in the population. Two were decisions as a matter of law—summary judgments and JMOLs—and two were factual findings—bench trial verdicts and jury verdicts.¹⁴¹ The descriptive statistics are as follows:

¹³⁸ See *supra* notes 45–46 and accompanying text.

¹³⁹ See *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 665 (Fed. Cir. 2000). “‘Determining whether there is a suggestion or motivation to modify a prior art reference is one aspect of determining the scope and content of the prior art, a fact question subsidiary to the ultimate conclusion of obviousness.’” *Id.* (quoting *SIBIA Neurosciences, Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349, 1356 (Fed. Cir. 2000)).

¹⁴⁰ There is no equivalent to summary judgment in patent examination by the USPTO. See, e.g., LAWRENCE M. SUNG & JEFF E. SCHWARTZ, *PATENT LAW HANDBOOK* § 11:1 (2005–2006 ed.).

¹⁴¹ Both of these latter categories—bench trials and jury verdicts—included denials by the district court of requests for judgments as a matter of law.

(1) the Federal Circuit affirmed 39.02% (sixteen) of the appealed summary judgments, while it reversed 0% (zero) of them and vacated 60.98% (twenty-five) of them;

(2) the Federal Circuit affirmed 0% (zero) of the appealed JMOLs, while it reversed 55.56% (five) of them and vacated 44.44% (four) of them;

(3) the Federal Circuit affirmed 70.83% (seventeen) of the appealed bench trial verdicts, while it reversed 12.5% (three) of them and vacated 16.67% (four) of them; and

(4) the Federal Circuit affirmed 82.14% (twenty-three) of the appealed jury verdicts, while it reversed 7.14% (two) of them and vacated 10.71% (three) of them.

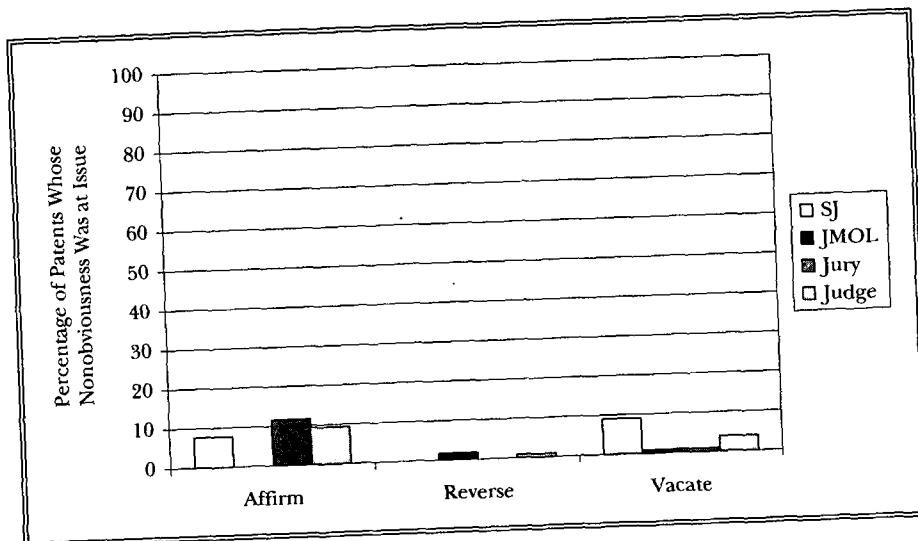
Looking at the descriptive statistics alone, a clear difference in the court's handling of judgments becomes noticeable. Determinations made outside the full fact finding setting—either by summary judgment or as a JMOL—are heavily vacated or reversed. In contrast, the affirmance rate for judgments that result from full fact finding—either by trial before a jury or before a judge—is very high.

Statistical testing supports this casual observation. A Fisher Exact Test results in a p-value of 0.0000086, indicating the differences are highly statistically significant.¹⁴² This relationship holds true when analyzing the court's disposition of only cases where the lower court found the patent claim nonobvious and only cases where the lower court found the patent claim obvious.

The data for only those appeals from decisions finding the patent nonobvious are reproduced below:

142 To increase the validity of the test, statistics were combined in a logical fashion to create a 2x2 table. The two judgments as a matter of law—summary judgment and JMOL—were combined as were the two factfinding based judgments—bench trial and jury trial verdicts. Furthermore, affirmances were viewed as positive treatments of the lower court's judgment and reversals and vacations were grouped together and considered negative treatments of the lower court's judgment.

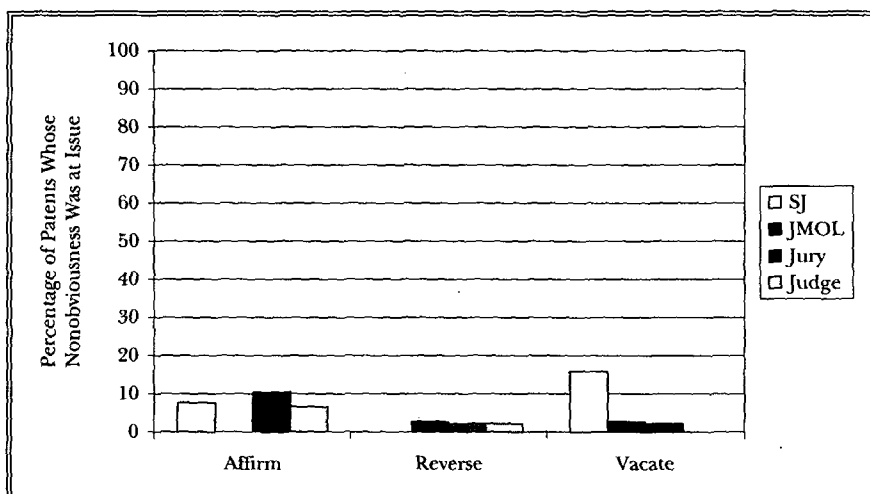
FIGURE 5. HOLDING FOR APPEALS FROM A FINDING OF NONOBVIOUS IN PATENT INFRINGEMENT DECISIONS



Just focusing on appeals from findings of nonobvious, there is still a significant statistical relationship between outcome and the type of lower court judgment. A Fisher's Exact Test produces a p-value of 0.01434. The Federal Circuit is more likely to affirm a factual finding of the lower court as opposed to a legal one, even when the finding at issue is one of nonobvious.

A similar result is found when looking at only lower court judgments of obvious. The data from the study are reproduced below:

FIGURE 6. HOLDING FOR APPEALS FROM A FINDING OF OBVIOUS IN PATENT INFRINGEMENT DECISIONS



A Fisher's Exact Test produces a p-value of 0.00083, indicating a highly statistically significant relationship between the type of judgment and the Federal Circuit's affirmance or reversal or vacation of a finding of obvious.

Another observation of import can be made from these data. The Federal Circuit decisions evidence the same bias in favor of bench trial and jury trial verdicts for both findings of nonobvious and obvious. Such a result is not surprising given the differing standard of review applied to these types of judgments. A grant of summary judgment is reviewed *de novo*,¹⁴³ and a grant of JMOL is reviewed under the same standard the district court applied—whether no substantial evidence supported the jury's verdict.¹⁴⁴ Both of these standards give the Federal Circuit great leeway in reversing or vacating the lower court's judgment. Factual findings made as the result of a bench trial are reviewed for clear error¹⁴⁵ and those made as a result of jury verdict are reviewed for substantial evidence.¹⁴⁶ These standards are more deferential to the lower court's finding and thus restrict the scope of the Federal Circuit's review.

143 See *Augustine Med., Inc. v. Progressive Dynamics, Inc.*, 194 F.3d 1367, 1370 (Fed. Cir. 1999).

144 See *SIBIA Neurosciences*, 225 F.3d at 1354.

145 See *Golden Blount, Inc. v. Robert H. Peterson Co.*, 365 F.3d 1054, 1058 (Fed. Cir. 2004).

146 See *TI Group Auto. Sys. (N. Am.), Inc. v. VDO N. Am., L.L.C.*, 375 F.3d 1126, 1133 (Fed. Cir. 2004).

This result further supports an earlier conclusion in Part III.A.1, that the Federal Circuit is not biased towards a finding of nonobvious or obvious. If a bias, or a lowering of the nonobviousness requirement, did exist, then this bias would result in affirmances of such findings regardless of how, procedurally, the lower courts made them. A bias towards one or the other would have disturbed the general relationship between type of judgment and affirmance or reversal or vacation. It did not.

But these results beg the question as to the suggestion test's impact on these findings. Is the reason for such a high vacation of summary judgment determinations the existence of the suggestion test? A closer look at the cases where a summary judgment was on appeal is taken.

Sixteen of the forty-one summary judgments on appeal were affirmed by the Federal Circuit, eight of which were affirmances of summary judgments of nonobvious and the other eight affirmances of summary judgments of obvious. For these sixteen, the suggestion test was clearly not an obstacle to summary judgment considering the summary judgments in those cases were both granted by the lower court and allowed to stand. The question becomes how the suggestion test operated in the other twenty-five cases where the Federal Circuit vacated the summary judgment below.

Codings similar to those used in Part III.B.1 are used, looking to see if the vacation was due to a factual issue regarding the suggestion test or some other grounds. The results are as follows:

(1) 28.0% (seven) of the twenty-five vacated summary judgments were vacated because of factual issues related to the suggestion test;

(2) 28.0% (seven) of the twenty-five vacated summary judgments were vacated because of factual issues related to the contents of the prior art;

(3) 28.0% (seven) of the twenty-five vacated summary judgments were vacated because of erroneous claim constructions; and

(4) 16.0% (four) of the twenty-five vacated summary judgments were vacated because of some other reason.¹⁴⁷

The suggestion test denied summary judgment on the issue of nonobviousness in a little over a quarter of the Federal Circuit's vacations during the study's four-year period. Lack of a claim element in the prior art, or an erroneous claim interpretation, played an equal

¹⁴⁷ These other reasons, in most instances, were basic legal errors. See, e.g., *TorPharm, Inc. v. Ranbaxy Pharms., Inc.*, 336 F.3d 1322, 1331–32 (Fed. Cir. 2003) (concluding that nothing in the prosecution history could overcome the statutory mandate to assess a patent claim's nonobviousness in litigation).

role in vacating nonobviousness determinations as the suggestion test. The suggestion test was a factor, but no more so than other reasons the court used to vacate summary judgments.

When looked at in the context of the complete universe of forty-one summary judgments that were appealed, the suggestion test is seen as playing a very small role in preventing summary judgment. The suggestion test was a barrier to summary judgment in only 17.07% of all patents subject to summary judgment in the study. These findings do not support the assertion that the suggestion test is a major obstacle to summary judgment on the issue of nonobviousness. It plays no more, and perhaps less, of a role than other parts of the nonobviousness analysis or other parts of the patent litigation process.

This micro-level study does not, however, include all summary judgments on the issue of nonobviousness over the four-year period. Summary judgments may have been denied at the district court level due to the suggestion test and simply not appealed. The factual nature of the suggestion test may also stand as an obstacle to clearer evaluations of threats of litigation or offers to license.

But, again, the study indicates that the Federal Circuit did not systematically use the suggestion test as a barrier to summary judgment over the four-year period. True, in some instances, such as *KSR*, the suggestion test was used to vacate a summary judgment on nonobviousness. But this was one of only seven instances. These data points, by themselves, do not define an overwhelming trend. And they certainly do not signal one to patent players. The real barrier to summary judgment in nonobviousness cases may be the nature of summary judgment itself and, perhaps, the Federal Circuit's general view toward the procedural device.

CONCLUSION

The study provides much needed insight into the Federal Circuit's nonobviousness jurisprudence. In turn, it informs the discourse on nonobviousness reform and the pending *KSR* case. Both the macro-level and micro-level studies provide some interesting findings. Some of those findings from the macro-level study are as follows:

(1) The almost even distribution between findings of nonobvious (36.27%) and obvious (28.43%) in appeals from patent infringement cases; and

(2) The high percentage of findings of obvious (85.19%) in appeals from the USPTO.

Neither of these results directly addresses whether the Federal Circuit has lowered the nonobviousness requirement. As discussed, however, they do create at least a weak inference that the standard has not been relaxed, particularly in the USPTO setting. If the bar had been lowered, one would expect a higher number of nonobvious findings. Furthermore, of relevance to recent claims, these findings clearly do not give support to recent assertions—that the bar has been lowered.

Some of the more interesting findings from the micro-level study are:

(1) the small role the suggestion test plays in nonobviousness determinations, leading to a finding of nonobvious, or denying a finding of obvious, in 24.5% of the patents appealed from patent infringement cases and 9.26% of patent appealed from the USPTO; and

(2) the small role the suggestion test plays in vacations of summary judgment on nonobviousness, leading to a denial in 17.07% of the patents appealed.

These findings have a direct bearing on the reason most believe the nonobviousness standard has decreased—the suggestion test. The study's results indicate that the suggestion test only forces a finding of nonobvious in one-third of patent infringement appeals and one-tenth of appeals from the USPTO. If the bar has decreased, another factor is to blame. In addition, while the Federal Circuit does vacate a good number of summary judgments on nonobviousness (60.98%), the suggestion test can only account for less than one-third of those vacations. Assertions that the existence of the suggestion test forces a trial on nonobviousness are not supported.

All of these findings should, at the very least, give pause to recent calls to modify or do away with the suggestion test and the Federal Circuit's recent nonobviousness jurisprudence. This is particularly true when they are combined with the recent findings of Professors Petherbridge and Wagner and Professor Mandel.¹⁴⁸ It does not appear that the court is tilted one way or the other. Nor does the suggestion test seem to be playing as large of a role in the jurisprudence as thought. This is not to say that the suggestion test and the Federal Circuit should be ignored. Instead, the study suggests that those wishing to reform nonobviousness should expand those parts of, and players in, the patent process subject to investigation and possible change.

148 Mandel, *Experimental Study*, *supra* note 28, at 11–20; Petherbridge & Wagner, *supra* note 5 (manuscript at 5–20).

