

NONOBVIOUSNESS: LIMITATIONS ON EVIDENTIARY SUPPORT

By Joshua McGuire

Assume that a method of telepathy has recently been invented and patented. Does a method for exchanging telephone numbers using telepathy deserve a patent? How about a method for group conferencing through telepathy? Although intuition tells us that the latter ideas are trivial once the underlying technology of telepathy is understood, patent applications based on these ideas are unlikely to be rejected under the current standard of nonobviousness.

To obtain a patent, one must have patentable subject matter that is useful, novel, nonobvious, and adequately described;¹ however, the standard for a nonobvious invention is often difficult to apply. Innovations typically are a unique and creative combination of elements present in separate prior references.² For these innovations to be found nonobvious, there must be no prior “teaching, suggestion, or motivation to combine the references” to produce the claimed invention.³ Unfortunately, what constitutes suggestion, teaching, or motivation in a nonobviousness determination is unclear. Traditionally, suggestion or motivation to combine may be found in either the references themselves or the general knowledge possessed by one of ordinary skill in the art.⁴ Recent Federal Circuit decisions, however, have indicated that suggestion or motivation to combine must be present in the cited prior art references to support a finding of obviousness.⁵ This limitation not only constricts the available evidentiary support of an obviousness finding by excluding the knowledge possessed

1. See 35 U.S.C. §§ 101-03, 112 (2000).

2. See *Reeves Instrument Corp. v. Beckman Instruments, Inc.*, 444 F.2d 263, 270 (9th Cir. 1971) (noting that “the vast majority [of mechanical or electrical devices], if not all, involve the construction of some new device (or machine or combination) from old elements”).

3. See *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998).

4. A third less common source for the motivation to combine is in the nature of the problem. *Id.* at 1355 (“Although the suggestion to combine references may flow from the nature of the problem, the suggestion more often comes from the teachings of the pertinent references, or from the ordinary knowledge of those skilled in the art that certain references are of special importance . . .”).

5. See *In re Lee*, 277 F.3d 1338, 1344 (Fed. Cir. 2000) (holding that “‘specific hint or suggestion in a particular reference’ to support the combination” of references was necessary to avoid legal error in a finding of obviousness); see also *In re Thrift*, 298 F.3d 1357, 1364 (Fed. Cir. 2002).

by a person skilled in the art, it further ignores the reality that the cited references are often only a subset of a larger pool of relevant references.⁶ The larger pool consists of references that are not utilized by examiners because they are not easily accessible, seemingly irrelevant, or the Patent and Trademark Office (“PTO”) simply does not have the resources to review them all.⁷

Consequently, a nonobviousness standard requiring that suggestions or motivation to combine references be in the references themselves, allows seemingly trivial developments to receive patents after advancements in collateral technology enable the new developments,⁸ such as in the telepathy example provided earlier. Despite the novelty of these developments, often based upon significant technological advances, persons skilled in the relevant arts may find the developments obvious. These parasitic incremental developments⁹ are often well known in other contexts, and patentees simply implement them within the context of a new technology. This Note refers to this phenomenon as the collateral-technology problem.¹⁰ If the PTO issues parasitic incremental patents and the courts uphold them, the patents will cause harm to competition and diminish patent quality. Business methods and software are contemporary examples of developments associated with the advancement of collateral technologies; and consequently, both are susceptible to the collateral-technology problem. When patentees merely perform established business methods in conjunction with the Internet, a collateral technology, such developments are often deemed nonobvious, and therefore patentable.¹¹ Adhering to the requirement that an obviousness determination be based on a specific teaching, suggestion, or motivation in the prior art, may potentially exacerbate the collateral-technology problem. The PTO will issue more patents associ-

6. See Julie E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CAL. L. REV. 1, 42-43 (2001).

7. Resources include time, money, and patent examiners.

8. “Collateral technology” is a term used to describe innovations that serve as catalysts for additional developments, which use the original innovation. See *Henkels & McCoy, Inc. v. Elkin*, 455 F.2d 936, 937 (3d Cir. 1972) (holding the invention obvious, in light of changes in market demand and the collateral technology of plastic coatings).

9. The term “parasitic incremental” describes developments that are associated with advancements in collateral technology, but are simply obvious applications of the new technology to other contexts.

10. See Ron Laurie & Robert Beyers, *The Patentability of Internet Business Methods: A Systematic Approach to Evaluating Obviousness*, 4 J. INTERNET LAW 11 (2001), available at http://www.gewf.com/gcc/graycary-c/news--arti/journal/0501_jil.doc_cvt.htm (last visited Mar. 31, 2003) (discussing the collateral technology problem and related issues).

11. See *infra* notes 72-84 and accompanying text.

ated with advances in collateral technology, despite the trivial nature of the inventions, because it is difficult to find prior art references that support a finding of obviousness in newly emerging fields; and courts will uphold the patents, applying the same standard for obviousness as the PTO.¹²

This Note addresses the types of evidentiary support that courts and the PTO may use to substantiate the existence of a suggestion to combine elements found in various references, and the effects of limiting the evidentiary support on developments associated with significant advancements in collateral technologies. Part I describes how the nonobviousness requirement developed, and the current uncertainty regarding what evidentiary support the PTO and courts may use to buttress a finding of obviousness. Part II discusses first, why a bright-line rule requiring the presence of specific suggestions to combine in prior art references is not workable in the new collateral-technology context, due to the absence of prior art; and second, how parasitic incremental patents cause harm to competition and diminish patent quality. Part II suggests that an alternative to the bright-line rule is to rely on the general knowledge of a person of ordinary skill in the art to support a finding of obviousness. Finally, the Note concludes by suggesting that expert affidavits and testimony supplying evidence concerning the general knowledge of a person skilled in the art will alleviate some of the problems associated with the lack of prior art for developments associated with significant advances in technology.

I. BACKGROUND

A. The Development of the Nonobviousness Requirement

Although the patent statutes did not contain any requirements for nonobviousness until 1952,¹³ common law had long before imposed such a requirement on patentable inventions. As early as 1850, in *Hotchkiss v. Greenwood*, the Supreme Court held that a patent claiming a combination of old elements was not valid if its creation only required the “skill . . . possessed by an ordinary mechanic acquainted with the business.”¹⁴

12. Manual of Patent Examining Procedure § 2141 (8th ed. 2001) (“Patent examiners carry the responsibility of making sure that the standard of patentability enunciated by the Supreme Court and by the Congress is applied in each and every case.”).

13. In 1952, Congress codified a nonobviousness requirement. 35 U.S.C. § 103 (2000).

14. 52 U.S. (11 How.) 248, 267 (1850) (finding the mere substitution of superior materials in the manufacture of a doorknob to be “the work of the skilful [sic] mechanic, not that of the inventor”).

Later, *Mast, Foos & Co. v. Strover Manufacturing Co.*¹⁵ created a significant refinement to the standard of inventiveness as applied to a combination of old elements, by establishing a presumption that the hypothetical skilled mechanic was fully aware of all the relevant prior art.¹⁶ The Court stated, “we cannot say that the application of this old device to a use which was only new in the particular machine to which it was applied, was anything more than would have been suggested to an intelligent mechanic, who had before him the patents to which we have called attention.”¹⁷ The Court went on to hold that although it was unlikely that any mechanic familiar with the relevant technology was aware of all the prior devices, it should be presumed that the hypothetical skilled mechanic had perfect knowledge of all of the relevant prior art.¹⁸

In 1952, Congress passed the Patent Act,¹⁹ which codified the common law practice with regard to nonobviousness:

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.²⁰

In 1966, the Supreme Court considered the statutory nonobviousness requirement for the first time, in *Graham v. John Deere Co.*²¹ The Court articulated a general approach to the nonobviousness requirement involving three factual inquiries: “the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved.”²² The Court also noted that secondary considerations, such “as commercial success, long felt but unsolved needs, failure of others, etc.,” may have relevance in a finding of nonobviousness.²³ Even with the guidance of these factors, the Court acknowledged that determining what was

15. 177 U.S. 485 (1900).

16. *Id.* at 493 (finding a patent for a windmill’s modified spur wheel to be invalid for lack of inventiveness because the patented modification had been previously well known in other machinery).

17. *Id.* at 493-94.

18. *Id.* at 494.

19. Pub. L. No. 82-593, 66 Stat. 792 (1952) (codified as amended in scattered sections of 35 U.S.C.).

20. 35 U.S.C. § 103(a) (2000).

21. 383 U.S. 1 (1966).

22. *Id.* at 17.

23. *Id.* at 17-18.

obvious would be difficult;²⁴ conceding that the question of what is obvious is unlikely to produce agreement in many factual circumstances. However, because the difficulties involved are similar to the ones experienced by courts in determinations of negligence or scienter, the Court determined that the nonobviousness inquiry also was amenable to a case-by-case development.²⁵

B. The Uncertainty in the Federal Circuit's Jurisprudence

By the time of the 1952 Patent Act, Congress was in favor of a strong patent system.²⁶ In creating the Federal Circuit, Congress again expressed a desire to stabilize and add uniformity and definiteness to the law of invention.²⁷ However, the Federal Circuit's nonobviousness jurisprudence has become anything but definite. Although the Federal Circuit has considered several times how to apply the nonobviousness standard, it is still unclear what may constitute the basis for suggestion or motivation to combine.

Cases that address what evidentiary support may be used to substantiate a finding of "suggestion to combine prior art references" fall into two categories: cases that require cited references to contain specific statements suggesting or motivating the combination for a finding of obviousness, and cases that do not.²⁸

1. *Cases that Require Cited References to Contain Specific Statements Suggesting Combination*

Some cases have held that references specifically suggesting, teaching, or motivating a combination of known elements in creating the claimed invention, are necessary for a finding of obviousness. *Symbol Technologies, Inc. v. Opticon, Inc.*,²⁹ involving a patent that claimed a hand-held "aim and shoot" bar code reader, is one recent example. The inventor accomplished the "aim and shoot" aspect of the machine by holding the reader's handle, aiming at a bar code using a sight, and squeezing a trigger.³⁰ After the trigger is depressed, a laser beam sweeps laterally across

24. *Id.* at 18.

25. *Id.*

26. The legislative history of § 103 indicates a desire to stabilize and add "uniformity and definiteness" to the law of invention. S. REP. NO. 82-1979, at 6 (1952).

27. *See* H. REP. NO. 97-312 at 20-23 (1981).

28. Note that the two categories do not fall in chronological order, which reflects the Federal Circuit's continued confusion regarding the requirement despite the passage of time. *See infra* notes 29-63 and accompanying text.

29. 935 F.2d 1569 (Fed. Cir. 1991).

30. *Id.* at 1577.

the bar code to read it.³¹ The prior art included a patent for a similar gun-like scanner, but it had to be manually moved across the bar code as it read.³² Other references included bar code readers with scanning heads that had beams that swept across the bar code, but did not have triggers or sights.³³ The court held that the claimed invention was nonobvious because none of the cited prior art references disclosed or suggested the “aim and shoot” feature,³⁴ stating that courts “do not ‘pick and choose among the individual elements of assorted prior art references to recreate the claimed invention,’ but rather, [they] look for ‘some teaching or suggestion in the references to support their use in the particular claimed combination.’”³⁵

The Federal Circuit adhered to this reasoning in *In re Lee*,³⁶ holding that citations to references that suggest or motivate the combination are necessary for a finding of obviousness.³⁷ The invention claimed a method of automatically displaying to a user, through a demonstration program, how to adjust the visual and audio functions of a video display device, such as a monitor.³⁸ The examiner rejected the application as obvious in light of two prior art references: the Nortrup reference, describing a television set that had a menu display for adjustment of visual and audio functions, although not including a demonstration mode, and the Thunder-chopper Handbook, which included a demonstration mode showing how to play a video game, but did not mention the adjustment of visual or au-

31. *Id.* at 1572.

32. *Id.* at 1578.

33. *Id.* at 1577.

34. *Id.* at 1577-78. (“Thus, a person of ordinary skill in the art, having all of the teachings of the considered references before him, would have found no ‘teaching or suggestion in the references’ of the invention claimed,” citing *Smithkline Diagnostics, Inc. v. Helena Lab. Corp.*, 859 F.2d 878, 887 (Fed. Cir. 1988)).

35. *Id.* at 1576 (citing *Smithkline Diagnostics*, 859 F.2d at 887).

36. 277 F.3d 1338 (Fed. Cir. 2002).

37. *See id.* at 1344. A later case, *In re Thrift*, 298 F.3d 1357 (Fed. Cir. 2002), reaffirmed *Lee*, and upheld a finding of obviousness based on the presence of a “motivation to combine” the elements of the invention in the prior art references. *Thrift*’s invention was a browser system that enabled navigation of the Internet through a speech interface. 298 F.3d at 1360. The examiner rejected the application as obvious in light of prior art references, one of which described an invention that allowed one to navigate a network, and another which described a speech interface that served as a navigation tool. *Id.* at 1361-62. The court found that the motivation to combine the reference was present in the text of each reference, noting, “Recently, in [*Lee*], we held that the Board’s reliance on ‘common knowledge and common sense’ did not fulfill the agency’s obligation to cite references to support its conclusions.” *Id.* at 1364 (quoting *Lee*, 277 F.3d at 1344).

38. *Lee*, 277 F.3d at 1340.

dio functions.³⁹ The examiner reasoned that a skilled artisan would have motivation to combine the two references because “the demonstration mode is just a programmable feature which can be used in many different devices for providing automatic introduction by adding the proper programming software.”⁴⁰ In addition, one would be motivated to combine because “the automatic demonstration mode is user friendly and it functions as a tutorial.”⁴¹ The PTO Board of Patent Appeals and Interferences (Board) upheld the examiner’s rejection. However, the court held that the examiner did not adequately explain the source of motivation to combine, criticizing the Board and the patent examiner for not citing to particular references that contained such suggestion or motivation.⁴² The court found that the Board erroneously relied on “common knowledge and common sense” in rejecting Lee’s application,⁴³ and that the examiner’s conclusory statements were based on “subjective belief and unknown authority.”⁴⁴ The court determined that it was legal error for the Board to reject “the need for ‘any specific hint or suggestion in a particular reference’ to support the combination” of the prior art references.⁴⁵

39. *Id.* at 1341.

40. *Id.*

41. *Id.* at 1343 (internal quotations omitted).

42. *Id.* at 1344-45.

43. *Id.* at 1344 (internal quotations omitted).

44. *Id.* at 1343-44.

45. *Id.* at 1344 (quoting *In re Fritch*, 972 F.2d 1260 (Fed. Cir. 1992)). However, *Fritch* held that “the examiner can satisfy the burden of showing obviousness of the combination ‘only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references,’” thereby describing two ways to support a finding of obviousness. *Fritch*, 972 F.2d at 1265. This appears to conflict directly with the *Lee* court’s statement that the need for a specific suggestion in cited references is absolute.

To add to the confusion about whether cited references are necessary, the *Lee* court noted that general knowledge could be used in a finding of obviousness, stating that “when [the examiner and Board] rely on what they assert to be general knowledge to negate patentability, that knowledge must be articulated and placed on the record.” *Lee*, 277 F.3d at 1345. Unfortunately, no standards were set to define what type of articulated statements would be sufficient. The consequences from this lack of definiteness may be seen in *Thrift*, where the court stated that the obviousness finding was upheld because of the examiner’s articulated reasoning. A close inspection of the *Thrift* examiner’s reasoning and the *Lee* examiner’s reasoning does not reveal a significant difference. In their reasonings, both examiners proffered the motivation of increasing user-friendliness. Compare *Thrift*, 98 F.3d at 1362 (“[T]he speech interface to the Web . . . is user friendly.”) with *Lee*, 277 F.3d at 1343 (“[T]he automatic demonstration mode is user friendly.”). Both examiners explained the advantage of the improvements, the only difference being that the examiner in *Thrift* went on to state the obvious fact that a speech

2. *Cases that Do Not Require Cited References to Contain Specific Statements Suggesting Combination*

In a separate line of cases, the Federal Circuit has held that an obviousness finding can be upheld even in the absence of specific references suggesting or motivating one to combine the features found in different prior art. In *In re Nilssen*, the court affirmed a finding of obviousness by the Board, even though the references cited lacked an explicit suggestion to combine.⁴⁶ The claimed invention was a means of disabling an oscillating inverter when the output current from the inverter exceeded a threshold limit.⁴⁷ The court rejected the inventor's argument for a "reality-based" definition of the hypothetical skilled person, who does not have complete knowledge of all relevant prior art, and his proposed nonobviousness rule requiring an express statement, in at least one cited reference, suggesting a combination with another specific reference.⁴⁸ Instead, the court decided that "for the purpose of combining references, those references need not explicitly suggest combining teachings, much less specific references,"⁴⁹ emphasizing that the standard using the hypothetical skilled person with complete knowledge of all the relevant prior art helps create a pragmatic approach to applying the standard of nonobviousness.⁵⁰

More recently, in *Novo Nordisk of North America, Inc. v. Becton Dickinson & Co.*, the Federal Circuit found the claimed invention to be obvious even though there was no documented evidence of motivation to combine the references.⁵¹ The contested patent was an insulin syringe with a narrow needle.⁵² The prior art included a pen-shaped insulin syringe very similar to the patented one, but the reference did not describe the needle size.⁵³ Other references described the needle size, but claimed rotary syringes.⁵⁴ The accused infringer provided expert testimony that it was well known that reduction in needle size lessened the amount of pain, and that such

interface allows easy access to the web because it "reduce[s] manual intervention." *Thrift*, 298 F.3d at 1362. This difference seems trivial, though. How speech recognition provides easier access to the web (by allowing less manual intervention) and how a demonstration mode provides better tutorials (by allowing real-time, graphic illustrations) are inherent in the concepts and should not have to be explained.

46. 851 F.2d 1401, 1403-04 (Fed. Cir. 1988).

47. *See id.* at 1402.

48. *Id.* at 1403.

49. *Id.*

50. *Id.* Unfortunately, the court did not describe this pragmatic approach.

51. 304 F.3d 1216 (Fed. Cir. 2002).

52. *Id.* at 1218.

53. *Id.*

54. *Id.* at 1218-19.

knowledge provides a motivation to combine the references.⁵⁵ The patentee pointed “to the absence of documentary evidence of motivation.”⁵⁶ However, the court stated that the testimonies of the defendant’s expert witnesses “are matters of weight and credibility,”⁵⁷ and held that there was substantial evidence for a jury to conclude that the known correlation between smaller needle size and pain reduction provided the motivation to narrow the needle.⁵⁸

In a concurrence in *In re Oetiker*, Chief Judge Nies recognized the Federal Circuit’s lack of consistency regarding what constitutes evidentiary support for an obviousness finding, and reasoned that the precedent requires a less restrictive interpretation, allowing a finding of obviousness to be based on evidence outside the prior art references.⁵⁹ Citing *In re Nilssen*,⁶⁰ Chief Judge Nies reasoned that it was clearly wrong to require the PTO or the courts to base a finding of obviousness only on specific statements of motivation, teaching, or suggestion in prior art references.⁶¹ He pointed to opinions that made findings of obviousness based on the teachings of the prior art taken as a whole, including the general knowledge injected by a person of ordinary skill in the art reviewing the references.⁶² He concluded that “it is off the mark for litigants to argue, as many do, that an invention cannot be held to have been obvious unless a suggestion to combine prior art teachings is found *in* a specific reference.”⁶³

55. *Id.* at 1219.

56. *Id.*

57. *Id.*

58. *Id.*

59. *In re Oetiker*, 977 F.2d 1443, 1447-48 (Fed. Cir. 1992) (Nies, C.J., concurring) (reversing the examiner’s rejection of a patent for obviousness because there was no suggestion to combine in the prior art references).

60. 851 F.2d 1401 (Fed. Cir. 1988). *In re Nilssen* expressly rejects the need for references to explicitly suggest combining teachings. *Id.* at 1403 (“Our precedent . . . holds that for the purpose of combining references, those references need not explicitly suggest combining teachings, much less specific references.”); see *supra* text accompanying notes 46-50.

61. *Oetiker*, 977 F.2d at 1448.

62. *Id.* Chief Judge Nies illustrated his point with several cases, including *In re Gorman*, 933 F.2d 982, 986 (Fed. Cir. 1991) (“whether the teachings of the prior art, taken as a whole, would have made obvious the claimed invention”); *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991) (“what the combined teachings . . . would have suggested to one of the ordinary skill in the art”); *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051 (Fed. Cir. 1988) (noting that “the prior art as a whole must suggest the desirability . . . of making the combination”), *cert. denied*, 488 U.S. 825 (1988).

63. *Oetiker*, 977 F.2d at 1448 (emphasis original).

II. DISCUSSION

Proponents for a bright-line rule might argue that requiring citations to references that suggest or motivate the combination is necessary to prevent hindsight analysis. However, such a bright-line rule is not feasible in the context of new collateral technologies, especially with respect to business methods and software patents, two areas most likely to produce parasitic incremental patents. Part II.A explains that the primary problem with a bright-line rule is that it presumes availability of prior art references, which does not accord with the reality of the PTO's examination process. Part II.B discusses the potential harms that may be caused by parasitic incremental patents covering trivial applications of old ideas to new technology, most importantly, harms to competition and the public concern over patent quality. Finally, Part II.C proposes an alternative rule relying on the general knowledge possessed by a person of ordinary skill in the relevant art, by using expert testimony, to determine whether a certain combination is obvious.

A. A Bright-Line Rule Erroneously Presumes the Availability of Prior Art

The most significant problem with a bright-line rule requiring documented suggestions in references is that it necessitates the existence and accessibility of those very references. At the beginning of a truly innovative technological advancement, very little prior art related to the technology at issue will exist. Although such innovation is often followed by an explosive exploitation of its application in various fields, it takes time for such developments to be implemented, documented, or patented.

This problem is illustrated, and somewhat exacerbated, in the business method and software context. Business methods and software algorithms were considered unpatentable subject matter until recently;⁶⁴ therefore, little prior art, in the form of patents, has arisen in these two areas.⁶⁵ The non-patent prior art that does exist may not be easily accessible, such as previous iterations of business methods that are not published, but are embedded in company policies and practices.⁶⁶ Likewise, software documentation is often limited to online Frequently Asked Question website pages

64. See *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1374-75 (Fed. Cir. 1998) (finding that software algorithms, when applied in a useful way, are not unpatentable under the mathematical algorithm exception, and that there is no "business method" exception to patentability), *cert denied*, 525 U.S. 1093 (1999).

65. See Rochelle Cooper Dreyfuss, *Are Business Method Patents Bad for Business?*, 16 SANTA CLARA COMPUTER & HIGH TECH. L.J. 263, 269 (2000).

66. *Id.*

and developer specifications.⁶⁷ Until the 1990's, software was traditionally protected by copyright, which has special deposit exemptions for the source code, making even publicly registered software code hard to obtain.⁶⁸

Even if prior art exists and is accessible, locating relevant prior art after advancements in collateral technologies presents an acute problem for patent examiners during the initial review of a patent application. Because the developments at issue are associated with nascent collateral technologies, examiners trained in the relevant new fields are rare. Consequently, examiners, who lack experience with the technology, will have a harder time finding and recognizing prior art, and will issue rejections much less frequently based on their lack of information and experience. The first software patents suffered from just this problem. During the 1980's and for much of the 1990's, examiners reviewing software patent applications were operating outside their field of expertise.⁶⁹ The PTO hired its first examiner with a computer science degree in 1995.⁷⁰ Admittedly,⁷¹ many of the patents issued in that time period should have been rejected.

B. Issuance of Parasitic Incremental Patents Will Cause Great Harm

A bright-line rule combined with a lack of accessible prior art will create an environment ripe for issuance of harmful parasitic incremental patents. Based on incomplete prior art research, and applying a strict, bright-line threshold for nonobviousness favoring patent applicants, the PTO will issue, and courts will uphold, parasitic incremental patents due to the lack of available references containing suggestions for the combinations at issue. In turn, these patents are likely to harm competition and be of inferior quality.

1. Harm to Competition

New collateral technologies are associated with growing fields, which necessarily need patent monopoly rights to incentivize the pioneering, and

67. Cohen & Lemley, *supra* note 6, at 42.

68. See Patent, Trademarks, and Copyrights, 37 CFR § 202.20(c)(2)(vii) (2002).

69. See Scott Thurm, *A Flood of Web Patents Stirs Dispute Over Tactics*, WALL ST. J., Oct. 9, 1998, at B1.

70. Cohen & Lemley, *supra* note 6, at 11.

71. See Declan McCullagh, *Patent Office Swamped – “Hurting Technology”*, ZDNET NEWS, Oct. 16, 2002, available at <http://zdnet.com.com/2100-1106-962182.html> (last visited Nov. 14, 2002) (“‘We were granting 65 or 70 percent of these things,’ patent office chief James Rogan said at an event at the conservative Heritage Foundation. ‘Now the rejection rate is around 65 or 70 percent.’”).

truly original, inventions. On the other hand, parasitic incremental patents protecting trivial inventions can stifle innovation and competition. Amazon's "1-Click" patent⁷² is a familiar example of a seemingly parasitic incremental patent that threatens to carve out a broad chunk of cyberspace technology.⁷³ The patent claims a method and system for ordering items in a network environment, such as the Internet, with a "single action."⁷⁴ This innovation purportedly solved the common problem of users abandoning potential purchases from Internet businesses because of frustration or confusion, induced by the number of actions required to purchase an item.⁷⁵ The district court, in an opinion that was later vacated, issued an injunction barring barnesandnoble.com ("BN") from using a similar online ordering system, which also only required a single action to purchase.⁷⁶ At the preliminary injunction stage, BN argued that Amazon's "1-Click" patent was invalid on the grounds of obviousness, partially basing its defense on its expert's testimony that he had previously developed an online ordering system called the Web Basket, which allowed users to accumulate items into a virtual shopping basket and purchase the items after several confirmation steps.⁷⁷ BN argued that the existence of the Web Basket, combined with the knowledge of one of ordinary skill in the art, rendered Amazon's patent obvious.⁷⁸ Granting the injunction, the district court dismissed BN's obviousness defense, stating that "there is insufficient evidence in the record regarding a teaching, suggestion, or motivation in the prior art that would lead one of ordinary skill . . . to combine the references."⁷⁹ The court labeled the expert's testimony as "conclusory statements that prior art references teach one of ordinary skill in the art the invention."⁸⁰ The district court applied a bright-line rule, finding that BN did

72. U.S. Patent No. 5,960,411 (issued Sept. 28, 1999) [hereinafter the '411 Patent].

73. See *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343 (Fed. Cir. 2001) (finding Amazon.com carried its burden for the preliminary injunction against Barnesandnoble.com by demonstrating the likelihood of success on infringement, but vacating the preliminary injunction and remanding the case for further proceedings based on the substantial questions raised as to the validity of the patent).

74. The '411 Patent, col. 10, ll. 16-36; *Amazon.com*, 239 F.3d at 1347.

75. *Amazon.com*, 239 F.3d at 1347-48.

76. See *id.* at 1350.

77. *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 73 F. Supp. 2d 1228, 1233 (W.D. Wash. 1999) (issuing a preliminary injunction against barnesandnoble.com).

78. See *id.*

79. *Id.*

80. See *Amazon.com*, 239 F.3d at 1364. The district court also found that the expert's testimony that he had never personally thought to modify his Web Basket to perform "1-click" ordering, negated his testimony that there was suggestion for an ordinary skilled artisan to combine the prior art references. *Id.*

not sufficiently challenge the nonobviousness of Amazon's patent,⁸¹ and issued a preliminary injunction against BN preventing it from using its one-action system for ordering.⁸² The district court's application of a bright-line rule to nonobviousness findings permitted Amazon's patent to harm competitors like BN. The preliminary injunction occurred during the Christmas holiday shopping season and likely cost BN sales,⁸³ the expense of modifying its online ordering system to avoid infringement, and negative publicity.⁸⁴ On appeal, the Federal Circuit stated that the district court did not properly address the Web Basket testimony, and ruled that the district court's approach was erroneous as a matter of law.⁸⁵ In so holding, the Federal Circuit did not apply a bright-line rule, but instead found that a reasonable jury could have relied on expert testimony to render Amazon's patent obvious. Unfortunately, the Federal Circuit's ruling could not undo the harm caused by the preliminary injunction.

A bright-line rule results in a lowered standard for nonobviousness because the PTO will issue, and the courts will find, patents nonobvious due to the lack of references containing suggestions for combinations. This will make it especially difficult for small companies to compete against larger companies that usually have better resources, especially in fields vulnerable to the collateral technology problem.⁸⁶ If patents, especially parasitic incremental patents, are issued more freely because of the lowered nonobviousness standard, large companies may amass substantial patent portfolios for offensive attacks on smaller competitors.⁸⁷ Filing a patent application is relatively cheap when compared to the possible value of leveraging a patent against competitors; therefore, it is not unusual for large companies to file for patents on newly developed business practices.

81. *Amazon.com*, 73 F. Supp. 2d at 1242.

82. *Id.* at 1249.

83. This assumption is supported by the advantage ascribed in the patent to Amazon's invention, namely preventing shoppers from abandoning their virtual baskets before the sale is complete. *See supra* note 75 and accompanying text.

84. *See Amazon.com*, 73 F. Supp. 2d at 1249 (holding BN may continue to offer its ordering system if it was modified to avoid infringement).

85. *Id.* at 1363-64. The Federal Circuit ruled that the district court should not have considered what the expert personally realized, but instead the relevant question was whether a hypothetical person skilled in the art would have been motivated to combine the prior art references to produce the claimed invention. *Id.* at 1364.

86. *See supra* notes 8-10 and accompanying text. This phenomenon is particularly important to new collateral technology fields because the existence of small or start-up companies is more pronounced in these fields, due to the innovative and emerging character associated with technological advancements.

87. *See* Robert E. Lyon & Christopher A. Vanderlaan, *Method Madness*, L.A. LAW. 28, Oct. 2000, at 53-54.

As accused infringers, small companies will probably not have the funds to challenge a growing number of parasitic incremental patents asserted against them, and larger companies may force them to either obtain licenses or shut down their businesses entirely. In bitter contrast, when small companies benefit from the lowered nonobviousness standard and obtain parasitic incremental patents, they are less able to capitalize on the patents because larger companies usually have the funds to outspend their smaller rivals in patent litigations, which in turn is an advantage to the larger companies in settlement negotiations.

While the PTO may issue fewer parasitic incremental patents in a particular field as time passes because the prior art field expands, the next advancement in collateral technology will again create the same set of problems, and every new field of technology will suffer the same hindrances to growth caused by the issuance of parasitic incremental patents.

2. *Public Concerns over Patent Quality*

The issuance and upholding of parasitic incremental patents, by the PTO and federal courts, respectively, also will have a negative effect on the integrity of both institutions, as public concerns over patent quality grow. Patents associated with new advances in collateral technologies are especially vulnerable to quality complaints because, without an extensive body of prior art, they tend to reward parasitic incremental innovations.⁸⁸ With a lowered nonobviousness bar, a simple combination of a known method, application, or product, and a new technology, may be rewarded with a patent monopoly.

Business methods and software are prime categories of patents replete with parasitic incremental patents, and unsurprisingly, a subsequent public outcry over patent quality has followed. One critic remarked that “[c]ommon business practices—like bargaining for a hotel room or speeding up a purchase—are automated by software and owners claim a ‘new’ invention. What a sneaky way to do business, taking patent laws to ridiculous extremes.”⁸⁹ A reader of *Forbes* magazine sarcastically commented on Jay Walker’s Priceline patent: “Cool! Jay Walker has apparently patented the ‘business method’ known as the Dutch auction—a method by which the U.S. Treasury sells hundreds of billions of dollars’ worth of securities each year.”⁹⁰

88. See *supra* notes 64-71 and accompanying text.

89. Jesse Berst, *How Patent Attorneys Are Stealing Our Future*, ZDNET ANCHOR DESK, at http://www.zdnet.com/anchordesk/story/story_4364.html (Jan. 18, 2000).

90. Byron L. Winn, *Readers Say*, FORBES, May 31, 1999, at 18.

The PTO has responded to this criticism by instituting a stricter review process for business method applications.⁹¹ Patent examiners must search non-patent literature databases for prior art, and the business method applications are subject to a second level of review after an initial allowance.⁹² This process reduced the rate of business method patent issuance to thirty to thirty-five percent of business method applications, as compared to sixty-five to seventy percent in the past.⁹³ Unfortunately, this rule is specific to business methods, and not the larger category of all incremental parasitic developments.

C. An Alternative to the Bright-Line Rule

An alternative to the bright-line rule, intermittently applied by some courts and the PTO, is to permit findings of obviousness to be based on the general knowledge possessed by a person of ordinary skill in the relevant art. This flexible, case-specific rule finds support in the line of U.S. Supreme Court and Federal Circuit opinions that emphasize the importance of the general knowledge of one skilled in the art, over express suggestions to combine in prior art. One argument against the general-knowledge approach might be that hindsight analysis would render the nonobvious invention obvious. A clear articulation of the reasoning supporting a finding of motivation to combine should address the hindsight-analysis concern.

The Supreme Court's ruling in *Mast* supports the alternative rule. The Court held that the basis for an obviousness finding is whether a hypothetical ordinarily skilled mechanic, who was aware of all of the prior art, would be motivated to combine the relevant prior art.⁹⁴ This emphasis on the prior art as a whole, including the general knowledge of one skilled in the art, contrasts with the bright-line rule requiring statements suggesting the combination to be present in particular references. Also, the *Graham* court articulated three factual inquiries in determining the obviousness (or nonobviousness) of the subject matter.⁹⁵ The difficulty acknowledged by the court in determining each of the three inquiries⁹⁶ provides an appropriate counterpart for the potentially ambiguous determination of whether general knowledge provides suggestions for combination of the refer-

91. See USPTO WHITE PAPER: AUTOMATED FINANCIAL OR MANAGEMENT DATA PROCESSING METHODS, available at <http://www.uspto.gov/web/menu/busmethp/class705.htm#d> (last visited Oct. 16, 2002).

92. See *id.*

93. McCullagh, *supra* note 71.

94. See *Mast, Foos & Co. v. Strover Mfg. Co.*, 177 U.S. 485, 494 (1900).

95. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966).

96. *Id.* at 18.

ences. Had the court intended to apply a bright-line rule, no such difficulty would have been recognized. The nonobviousness inquiry would have ended with whether statements suggesting the combination can be found in references available to the PTO or the court.⁹⁷

An approach taking into account the general knowledge of one of ordinary skill in the art also finds support in a line of Federal Circuit decisions. The court overtly stated in *Nilssen* that “for the purpose of combining references, those references need not explicitly suggest combining teachings, much less specific references.”⁹⁸ The court’s motivation was to avoid a reality-based test, where an ordinary mechanic skilled in the art would not have complete knowledge of the prior art, but instead would only be motivated to combine the references if presented with a specific suggestion in a reference.⁹⁹ However, the court found that using the hypothetical person skilled in the art, who has complete knowledge of the prior art, provided a practical approach to determining obviousness.¹⁰⁰ A bright-line rule requiring specific suggestions would establish the sort of reality-based test that the Supreme Court shied away from, and a test similar to the one avoided by the Federal Circuit in *Nilssen*.¹⁰¹

Support for moving away from a bright-line rule is also found in the Federal Circuit’s acceptance of expert testimony as substantial and objective evidence upon which to find an invention obvious. In *Novo*, the court dismissed the defendant’s argument that the plaintiff expert’s testimony was unsupported by documentation and conclusory.¹⁰² Instead, the court found that there was substantial evidence that general industry knowledge

97. Additionally, the third Graham factor—determining the level of ordinary skill in the pertinent art—implies that the bright-line rule requiring specific suggestions in particular references may not be necessary to a finding of obviousness. *See id.* at 17. What is obvious in high skilled fields may not be obvious in some low skill fields, therefore one can assume that high skilled fields are held to a more rigorous standard in a nonobviousness determination. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 (Fed. Cir. 2001) (“Where the level of skill is high, one may assume a keener appreciation of nuances taught by the prior art.”). If specific suggestions to combine in particular references are required for a finding of obviousness in both high and low skilled fields, then the third Graham factor becomes extraneous because, regardless of the skill level, the lack of a suggestion results in a nonobviousness finding. On the other hand, the factor would seem sensible if specific statements in prior art were not necessarily required for high skill fields, but were required for low skill ones.

98. *In re Nilssen*, 851 F.2d 1401, 1403 (Fed. Cir. 1988).

99. *See supra* notes 48-50 and accompanying text.

100. *Nilssen*, 851 F.2d at 1403.

101. *Id.*

102. *Novo Nordisk of N. Am., Inc. v. Becton Dickinson & Co.*, 304 F.3d 1216, 1219 (Fed. Cir. 2002).

regarding smaller needle size and pain reduction provided the necessary motivation for the combination of pen-shaped syringes and rotary syringes with smaller needles.¹⁰³ *Novo* indicates that expert testimony may provide evidence of a motivation to combine, thereby justifying a finding of obviousness without the presence of specific statements in the references suggesting the combination.

One argument against the use of general knowledge of a person skilled in the art in the nonobviousness inquiry is that hindsight may render the nonobvious obvious. The existence of a motivation to combine prior art references can be more clearly shown when there is a written reference suggesting the combination. A rejection of a patent application or a ruling of patent invalidity based on the text of a prior art reference cannot be doubted on the basis of the inaccuracy of hindsight. By contrast, if the suggestion to combine references is based on expert testimony, there may not be a documented source to rule out the possibility that the expert's opinion reflects hindsight bias.

The *Symbol Technologies* court expressed just this concern over the influence of hindsight.¹⁰⁴ The court emphasized that one should not use hindsight to “pick and choose among the individual elements of assorted prior art references to recreate the claimed invention,” but instead, should look for a suggestion in the references to support the combination of references to produce the claimed invention.¹⁰⁵ The *Lee* court also considered this a valid concern in its nonobviousness ruling, where the court found the examiner's statements, based on “subjective belief and unknown authority,” to be conclusory and inadequate.¹⁰⁶ The court quoted a previous case as stating, “Our case law makes clear that the 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.”¹⁰⁷

A way to ameliorate, if not completely resolve the hindsight problem, is suggested (though not elaborated on) in *Lee*—that courts should require a clear articulation of the reasoning supporting a finding of motivation to combine.¹⁰⁸ A clear articulation should contain at least three elements: (1)

103. *See id.*

104. *Symbol Techs., Inc. v. Opticon, Inc.* 935 F.2d 1569, 1576 (Fed. Cir. 1991).

105. *Id.* at 1576 (citing *Smithkline Diagnostics, Inc. v. Helena Labs. Corp.*, 859 F.2d 878, 887 (Fed. Cir. 1988)).

106. *In re Lee*, 277 F.3d 1338, 1343-44 (Fed. Cir. 2002).

107. *Id.* at 1343 (quoting *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999)) (internal quotations omitted).

108. *Id.* at 1345.

a statement of a specific principle motivating the combination of the references;¹⁰⁹ (2) objective proof that the principle exists;¹¹⁰ and (3) an explanation of how the principle links the references together.¹¹¹ *Novo* provides an example of a specific principle motivating the combination: the reduction in needle size to reduce pain from injections provided the motivation to combine references.¹¹² Examiners or accused infringers could provide objective proof that the principle exists, through independent surveys, testimony or affidavits from those skilled in the art, showing that the principle had been discussed or noted in the past, or other documentation that may not qualify as prior art due to its private nature, such as laboratory notebooks. They should also give an explanation of how the principle links the prior art references together. Although the *Novo* court did not explicitly express why the “pain reduction provided the requisite motivation to narrow the needle,” it would not be difficult to infer an explanation.¹¹³

This articulation of the reasoning provides a basis from which to judge whether the general knowledge possessed by a person of ordinary skill would motivate a combination of the prior art references, or more specifically, whether and how the patentee was motivated by prior art to combine the elements found in the various references. The requirement to establish a specific principle motivating the combination¹¹⁴ would mitigate the hindsight problem associated with the absence of specific statements in particular references by serving as a substitute for *ex ante* proof that can be supported by reasoning and objective evidence, if not by explicit references. The court may then decide on the validity of the reasoning and ob-

109. *In re Rouffet*, 149 F.3d 1350, 1359 (Fed. Cir. 1998) (“even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination”).

110. *See Lee*, 277 F.3d at 1344 (stating that the issue of motivation to combine could “not be resolved on subjective belief and unknown authority”).

111. *See id.* at 1342 (“Not only must an agency’s decreed result be within the scope of its lawful authority, but the process by which it reaches that result must be logical and rational.”).

112. *Novo Nordisk of N. Am., Inc. v. Becton Dickinson & Co.*, 304 F.3d 1216, 1219 (Fed. Cir. 2002).

113. *See id.* For example, pen-shaped syringes were known and other types of syringes with smaller needles were known, so knowledge that a narrow needle reduces pain would motivate a hypothetical skilled artisan to combine the references in order to reduce the pain caused by the claimed pen-shaped syringe invention because needle users are pain adverse.

114. *See supra* note 109 and accompanying text.

jective evidence without the danger of having to accept expert opinions alone.¹¹⁵

III. CONCLUSION

Both Supreme Court and Federal Circuit opinions indicate that specific suggestions to combine references need not be present in particular prior art references for a finding of obviousness. To the contrary, many cases hold that the knowledge of a person ordinarily skilled in the art may provide evidentiary support for a finding of obviousness. The ability to use the general knowledge of a person of ordinary skilled in the art to support an obviousness finding is crucial for preventing the issuance of incremental parasitic patents, which are likely to occur at the beginning stages of a technological advancement, because it can serve to connect the cited references in a verifiable way without the existence of an extensive and readily available pool of prior art.

Expert affidavits and testimony can and should be used in cases involving innovations associated with new technologies to support the existence of a motivation to combine references. Courts can minimize hindsight by requiring a clear articulation of a principle that would suggest the combination of the references, objective evidence that the principle exists, and an explanation of how the principle links the references together to produce the claimed invention.

115. *See Lee*, 277 F.3d at 1345 (noting an absence of articulated reasoning based on authority could lead to the “‘haze of so-called expertise’ acquir[ing] insulation from accountability”).

