
NOTES

TO AGREE, OR NOT TO AGREE: THAT IS THE QUESTION WHEN EVALUATING THE BEST MODE PREFERENCES OF JOINT INVENTORS AFTER *PANNU V. IOLAB CORP.*

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I. INTRODUCTION

One of the many requirements for patentability¹ is that the inventor

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1. The United States Patent and Trademark Office (“PTO”) evaluates all patent applications to determine whether they meet the five general requirements for patentability. ROBERT P. MERGES, PETER S. MENELL & MARK A. LEMLEY, *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE* 124 (4th ed. 2006). The first requirement is that the invention fit into “one of the general categories of patentable subject matter,” *id.*, which are outlined in 35 U.S.C. § 101. *See* 35 U.S.C. § 101 (2000) (granting patentability for any “new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof”); MERGES ET AL., *supra*, at 124, 132. Section 101 also sets forth the second requirement, utility, by requiring that the invention be “useful.” 35 U.S.C. § 101; MERGES ET AL., *supra*, at 124. The third requirement is novelty, a very complex standard set out in 35 U.S.C. § 102, which ensures that the inventor was really the first to invent the invention being claimed. *See* 35 U.S.C. § 102(a), (e), (g) (2000); MERGES ET AL., *supra*, at 124. The novelty standard also ensures that neither the inventor nor any third parties have made the invention unpatentable by triggering one of the statutory bars, such as placing the invention in public use or on sale more than one year prior to filing for a patent. *See* 35 U.S.C. § 102(b)–(d); MERGES ET AL., *supra*, at 124, 185–86. The fourth requirement is nonobviousness, or whether the inventor has contributed a technical advancement over the prior art that is significant enough to deserve a patent. *See* 35 U.S.C. § 103 (2000); MERGES ET

must disclose the “best mode” of the invention.² This requirement is set out in the first paragraph of 35 U.S.C. § 112, which states that the patent’s specification³ “shall set forth the best mode contemplated by the inventor of carrying out his invention.”⁴ Based on the statutory language, the test for whether the best mode has been properly disclosed has a subjective element—whether or not the inventor believed that there was a best way to practice the invention at the time the patent application was filed.⁵ If the inventor believed that a certain method of practicing the invention was better than other methods, the inventor had to disclose that mode.⁶ If the inventor did not have a preferred method of practicing the invention, then there was no best mode to be disclosed.⁷

At first, the test seems fairly straightforward. An inventor either had a preferred mode at the time of filing, or the inventor did not. The test becomes far more complicated, however, when the involvement of more than one inventor requires the consideration of multiple opinions. For example, what happens if there are two inventors and they disagree as to what is the best mode? Whose view controls and which mode or modes must be disclosed? In a case of joint inventorship where each inventor works on different parts of an invention, what happens when an inventor who did not work on a certain part prefers a best mode for that part, and that preference is not shared by the person who actually invented it? If a joint inventor is accidentally omitted from a patent, and the omitted inventor had a best mode preference that was not disclosed at the time of the application’s filing, should the patent be invalidated for failure to disclose that mode when the omitted inventor is added to the patent later? These are all questions that are critical to best mode analysis, as patent infringers currently are able to use the best mode requirement as a weapon

AL., *supra*, at 124. The fifth element is disclosure and enablement, which requires the patentee to provide a description in the patent’s specification that is thorough enough to allow a person with ordinary skill in the art to make and use the invention. *See* 35 U.S.C. § 112 (2000); MERGES ET AL., *supra*, at 124–25. This Note focuses on the best mode requirement, which is one of the elements of the specification outlined in the first paragraph of § 112.

2. 35 U.S.C. § 112.

3. The specification is one of the most important components of a patent, along with the claims. For a list of other components and their descriptions, along with a sample patent, see ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 14–26 (3d ed. 2002).

4. 35 U.S.C. § 112.

5. *See id.*; *Chemcast Corp. v. Arco Indus. Corp.*, 913 F.2d 923, 927–28 (Fed. Cir. 1990).

6. *E.g.*, JANICE M. MUELLER, *AN INTRODUCTION TO PATENT LAW* 76 (2003).

7. *E.g.*, 3 DONALD S. CHISUM, *CHISUM ON PATENTS: A TREATISE ON THE LAW OF PATENTABILITY, VALIDITY AND INFRINGEMENT* § 7.05[1][c][i][B] (2005).

to invalidate patents in litigation.⁸ And in order to answer these questions effectively, it is increasingly important to understand how the ease of establishing joint inventorship under the current statutory framework⁹ affects best mode analysis. Unfortunately, the Federal Circuit neglected to consider the impact of liberalized joint inventorship principles in *Pannu v. Iolab Corp.*, where, in a footnote in dicta near the end of the opinion, the court appeared to set a standard that required any joint inventor who has a best mode preference for any claim to disclose it.¹⁰

This Note addresses these issues and proposes new standards that should be applied in evaluating best mode when there is more than one inventor. Part II discusses the current standards for best mode analysis and the requirements for joint inventorship. Part III discusses the best mode problems that arise when there is more than one inventor and analyzes the case law and scholarly literature that has previously addressed these issues, focusing primarily on *Pannu* as the most recent mention of the topic in the Federal Circuit. Finally, Part IV explains why current case law does not adequately address the needs of joint inventors or patent holders and proposes new standards to clarify the best mode inquiry for multiple inventors.

II. THE BASICS: BEST MODE AND JOINT INVENTORSHIP STANDARDS

A. BEST MODE

The United States is unique among the major patent systems in requiring a best mode disclosure.¹¹ Several courts and commentators have stated that the purpose of the best mode requirement is to fulfill the quid

8. See, e.g., James R. Barney & Dale L. Carlson, “Uncorrectability” as an Affirmative Defense Against Patent Infringement: Managing the Burden of Proof, 8 FED. CIR. B.J. 23, 32–33 (1999); Steven B. Walmsley, *Best Mode: A Plea to Repair or Sacrifice this Broken Requirement of United States Patent Law*, 9 MICH. TELECOMM. & TECH. L. REV. 125, 159 (2002).

9. See *infra* Part II.B.

10. See *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 n.5 (Fed. Cir. 1998); *infra* Part III.B.

11. See, e.g., Donald S. Chisum, *Best Mode Concealment and Inequitable Conduct in Patent Procurement: A Nutshell, a Review of Recent Federal Circuit Cases and a Plea for Modest Reform*, 13 SANTA CLARA COMPUTER & HIGH TECH. L.J. 277, 279 (1997). The major patent systems are generally considered to be in the United States, Europe, and Japan, which hold the majority of the world’s patents. See, e.g., Dale L. Carlson, Katarzyna Przychodzen & Petra Scamborova, *Patent Linchpin for the 21st Century?—Best Mode Revisited*, 45 IDEA 267, 281 (2005). There are, however, a number of primarily developing countries whose patent law contains a best mode requirement. *Id.* at 284.

pro quo theory of patents: the government gives the inventor a limited monopoly on the invention in exchange for full public disclosure.¹² The Federal Circuit has stated that the best mode requirement is “intended to ensure that a patent applicant plays ‘fair and square’ with the patent system,” so that the “*quid pro quo* of the patent grant [is] satisfied,” and that “[o]ne must not receive the right to exclude others unless at the time of filing he has provided an adequate disclosure of the best mode known to him of carrying out his invention.”¹³ Another purpose of the best mode requirement is to encourage disclosures of preferred embodiments that are not necessary for practicing the invention but are potentially valuable as trade secrets and would not otherwise be disclosed to the public.¹⁴

1. The *Chemcast* Test

Best mode is one of the three requirements for the patent’s specification outlined in the first paragraph of 35 U.S.C. § 112.¹⁵ Failure to disclose a best mode will result in the invalidation of all claims related to the withheld mode of the invention, which could result in the invalidation of all the claims in the patent, giving it immense destructive potential.¹⁶ The Federal Circuit has established a two-part inquiry to determine whether the best mode requirement has been satisfied in a given patent:

The first is whether, at the time the inventor filed his patent application, he knew of a mode of practicing his claimed invention that he considered to be better than any other. This part of the inquiry is wholly subjective, and resolves whether the inventor must disclose any facts in addition to those sufficient for enablement. If the inventor in fact contemplated such a preferred mode, the second part of the analysis compares what he knew with what he disclosed—is the disclosure adequate to enable one skilled in the art to practice the best mode or, in other words, has the inventor “concealed” his preferred mode from the “public”? Assessing the *adequacy* of the disclosure, as opposed to its *necessity*, is largely an

12. E.g., Kenneth R. Adamo, *What’s Better, What’s Best—The Best Mode Requirement in US Patent Practice*, 73 J. PAT. & TRADEMARK OFF. SOC’Y 811, 813 (1991) [hereinafter Adamo, *What’s Better, What’s Best*]. See also *In re Gay*, 309 F.2d 769, 772 (C.C.P.A. 1962) (“Manifestly, the sole purpose of [the best mode] requirement is to restrain inventors from applying for patents while at the same time concealing from the public preferred embodiments of their inventions which they have in fact conceived.”).

13. *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1209–10 (Fed. Cir. 1991).

14. See 3 CHISUM, *supra* note 7, § 7.05[1][a].

15. The other two requirements are that the patent must contain an adequate written description and must enable a person having ordinary skill in the art to make and use the invention. 35 U.S.C. § 112 (2000).

16. E.g., Adamo, *What’s Better, What’s Best*, *supra* note 12, at 811–12, 840.

objective inquiry that depends upon the scope of the claimed invention and the level of skill in the art.¹⁷

The first part of the inquiry, the subjective analysis, concerns only the inventor’s knowledge of any better mode of practicing the invention at the time the patent application was filed.¹⁸ It is irrelevant whether that mode was actually the best method,¹⁹ or even whether the inventor was the one who discovered the best mode,²⁰ as long as the inventor knew about the method and believed it was the best.²¹ This does not mean that every invention will have a best mode. If the inventor did not subjectively prefer any one mode to others at the time of filing, then there is no best mode to disclose and therefore no violation for failure to do so.²²

The critical date for the subjective inquiry is when the patent application was filed.²³ An inventor who discovers a better mode one day after filing the patent application is exempt from disclosing that embodiment as a best mode.²⁴ However, the unlucky inventor who discovers a better mode after preparing an application, but before filing it, will violate the requirement if the application is not updated to include the preferred method before it is filed.²⁵ Similarly, the Federal Circuit has ruled that the inventor does not need to update the best mode requirement

17. See, e.g., *Chemcast Corp. v. Arco Indus. Corp.*, 913 F.2d 923, 927–28 (Fed. Cir. 1990). The Federal Circuit has adopted various formulations of this test in more recent cases, but the basic contours of the subjective and objective prongs remain the same. See, e.g., *High Concrete Structures, Inc. v. New Enter. Stone & Lime Co.*, 377 F.3d 1379, 1382 (Fed. Cir. 2004) (“Invalidation for failure to set forth the best mode requires (1) the inventor knew of a better mode than was disclosed, and (2) the inventor concealed that better mode.”); *Bayer AG v. Schein Pharms., Inc.*, 301 F.3d 1306, 1320 (Fed. Cir. 2002) (“Compliance with best mode is a question of fact composed of two subsidiary factual inquiries. . . . The first prong . . . is highly subjective and . . . [the second] inquiry is objective” (internal citations omitted)); *Eli Lilly & Co. v. Barr Labs., Inc.*, 251 F.3d 955, 963 (Fed. Cir. 2001) (stating that the fact finder must determine “[f]irst, . . . whether, at the time of filing the application, the inventor possessed a best mode for practicing the invention,” and “[s]econd, if the inventor possessed a best mode, . . . whether the written description disclosed the best mode such that one reasonably skilled in the art could practice it”).

18. *Chemcast*, 913 F.2d at 927–28.

19. See, e.g., *Benger Labs. Ltd. v. R. K. Laros Co.*, 209 F. Supp. 639, 644 (E.D. Pa. 1962) (“Even if there is a better method, his failure to disclose it will not invalidate his patent if he does not know of it or if he does not appreciate that it is the best method.”), *aff’d*, 317 F.2d 455 (3d Cir. 1963); 3 CHISUM, *supra* note 7, § 7.05[1]; Adamo, *What’s Better, What’s Best*, *supra* note 12, at 815.

20. See, e.g., 3 CHISUM, *supra* note 7, § 7.05[1] (citing *Benger Labs.*, 209 F. Supp. at 644).

21. See, e.g., *Chemcast*, 913 F.2d at 927–28.

22. E.g., 3 CHISUM, *supra* note 7, § 7.05[1][c][i][B].

23. E.g., *Chemcast*, 913 F.2d at 927–28; Adamo, *What’s Better, What’s Best*, *supra* note 12, at 813.

24. E.g., 3 CHISUM, *supra* note 7, § 7.05[2][a].

25. E.g., *id.*

when filing a continuation application that does not disclose any new matter.²⁶ A best mode violation is strictly measured at the time of filing and cannot be cured by amending the application afterwards.²⁷ One author has suggested that this stringent deadline creates a “trap for the unwary and a temptation to the unscrupulous,”²⁸ because potentially harsh consequences befall unwitting inventors who fail to disclose improvements discovered before filing, and because the subjective nature of the requirement encourages inventors to lie about their preferences and when they discovered improvements.

Another key component of the subjective inquiry is that it is limited to the inventor’s knowledge.²⁹ In *Glaxo Inc. v. Novopharm Ltd.*, the Federal Circuit held that the knowledge of assignees or fellow employees could not be imputed to the inventor for the purposes of finding a best mode violation, even when the inventor was intentionally isolated and prevented from learning about a better embodiment of the invention.³⁰ In this case, the inventor had developed a chemical compound that Glaxo eventually marketed as the antiulcer drug Zantac.³¹ Because preparation of the compound in its pure form was not commercially efficient, scientists working in another department at Glaxo developed a special azeotroping process to produce the compound in a granulated form, making it easier to measure and dispense for pharmaceutical use.³² When Glaxo sought to patent the compound, the company’s patent agent warned it that the azeotroping process probably should be disclosed as the best mode for making the compound if the patent included claims for pharmaceutical compositions.³³ Despite this advice, Glaxo elected to keep the azeotroping process a secret.³⁴

When Glaxo later sued Novopharm for patent infringement, Novopharm alleged that Glaxo had failed to satisfy the best mode requirement because it had not disclosed the azeotroping process.³⁵ Novopharm produced evidence at trial that Glaxo officials and Glaxo’s

26. See *Transco Prods. Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 557–59 (Fed. Cir. 1994) (“[T]he date for evaluating a best mode disclosure in a continuing application is the date of the earlier application with respect to common subject matter.”).

27. E.g., MUELLER, *supra* note 6, at 67–68.

28. 3 CHISUM, *supra* note 7, § 7.05[2][a].

29. See, e.g., MUELLER, *supra* note 6, at 78.

30. *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1051–52 (Fed. Cir. 1995).

31. See *id.* at 1045.

32. *Id.* at 1046.

33. *Id.*

34. See *id.*

35. *Id.* at 1049.

patent agent knew about the azeotroping process and considered it to be the best mode, and argued that this knowledge should be imputed to the inventor,³⁶ who claimed he was unaware of the azeotroping process.³⁷ Novopharm further alleged that Glaxo had deliberately screened the inventor from obtaining any knowledge about the azeotroping process in order to ensure that the inventor would not be aware of it as a best mode.³⁸ The court found that the statutory language of 35 U.S.C. § 112 was clear in requiring the best mode to depend on the knowledge of the inventor,³⁹ stating it was irrelevant whether the inventor was “deliberately walled off.”⁴⁰ It further stated that “the practical reality is that inventors in most every corporate scenario cannot know all of the technology in which their employers are engaged,” and “whether intentionally or not, inventors will be effectively isolated from research no matter how relevant it is to the field in which they are working.”⁴¹

The second part of the best mode inquiry is objective.⁴² If the inventor had a preferred embodiment, the patent must provide an enabling disclosure of that mode so that a person skilled in the art could make and use it without undue experimentation.⁴³ The disclosure of the best mode, however, does not have to be explicitly identified or labeled in any way.⁴⁴ The Federal Circuit has found that it is sufficient to disclose the best mode indiscriminately among other embodiments of the invention, even if those other embodiments are significantly worse in quality than the preferred

36. *Id.*

37. *Id.* at 1050–51.

38. *Id.* at 1051.

39. *Id.* at 1049–50.

40. *Id.* at 1051.

41. *Id.* at 1051–52. A vigorous dissent argued that this amounted to a “bless[ing of] corporate shell games resulting from organizational gerrymandering and willful ignorance,” and that the majority ignored the policy of best mode disclosure to the public in exchange for limited monopoly rights in the invention. *Id.* at 1053 (Mayer, J., dissenting).

42. *Chemcast Corp. v. Arco Indus. Corp.*, 913 F.2d 923, 928 (Fed. Cir. 1990); MUELLER, *supra* note 6, at 79. Although the second prong of the *Chemcast* best mode test is critical in determining whether there has been a best mode violation, this Note will focus almost exclusively on the first inquiry, as the issues surrounding whether joint inventors agree on a best mode embodiment are part of the subjective analysis.

43. MUELLER, *supra* note 6, at 79. This standard is similar to the general tests for enablement. *See id.*

44. MUELLER, *supra* note 6, at 80; Adamo, *What’s Better, What’s Best*, *supra* note 12, at 817.

embodiment.⁴⁵ The scope of the disclosure requirement for best mode, such as the level of detail, must be considered in light of the ordinary skill in the art and what information would be understood by a person of such ordinary skill, whether or not it is explicitly disclosed.⁴⁶ Even so, the patent specification is neither a “product specification” nor a “blueprint for mass production,” thus it need not disclose the details that would specify exactly how to manufacture the invention.⁴⁷

2. Scope of the Best Mode Requirement

Another important part of the best mode analysis involves the scope of the best mode disclosure obligation.⁴⁸ This inquiry essentially asks how far beyond the scope of the claims in a patent does the best mode disclosure reach?⁴⁹ In other words, is the obligation to disclose the best mode limited to the best mode of the claims themselves, or does it also extend to the best mode of subject matter that is related to the claimed invention but not claimed itself?⁵⁰ It is clear that best mode preferences must be disclosed for all claimed elements of an invention; however, the case law is less clear on whether the requirement extends to related but unclaimed elements.⁵¹

For example, an early case addressing this issue, *Dana Corp. v. IPC Ltd.*, suggested that the inventor had to disclose the best mode for any unclaimed elements that were *necessary* to carry out the claimed invention.⁵² In *Dana*, the court invalidated a patent on best mode grounds when the inventor did not disclose a fluoride surface treatment that was necessary to ensure the satisfactory performance of a claimed seal, even though the surface treatment was not claimed and arguably would have been known by a person skilled in the art.⁵³ In a more recent case, *Eli Lilly & Co. v. Barr Laboratories, Inc.*, the Federal Circuit asserted that “an

45. *Randomex, Inc. v. Scopus Corp.*, 849 F.2d 585, 589 (Fed. Cir. 1988) (noting that the Board of Patent Appeals and Interferences has stated that “[t]here is no requirement in 35 U.S.C. 112 that an applicant point out which of his embodiments he considers his best mode” and concluding that “[t]he indiscriminate disclosure in this instance of the preferred cleaning fluid along with one other possible cleaning fluid satisfies the best mode requirement” (internal citation omitted)); Adamo, *What’s Better, What’s Best*, *supra* note 12, at 817.

46. *E.g.*, ALAN L. DURHAM, *PATENT LAW ESSENTIALS: A CONCISE GUIDE* 81–84 (2d ed. 2004).

47. *Id.* at 82.

48. *See* MUELLER, *supra* note 6, at 80.

49. *Id.* at 80–81.

50. *See id.* at 81.

51. *See id.*

52. *See* *Dana Corp. v. IPC Ltd. P’ship*, 860 F.2d 415, 418–19 (Fed. Cir. 1988); MUELLER, *supra* note 6, at 81.

53. *Dana*, 860 F.2d at 418–20.

inventor need not disclose a mode for obtaining unclaimed subject matter unless the subject matter is *novel and essential* for carrying out the best mode of the invention.”⁵⁴ In this case, the patent disclosed the preferred starting material needed to produce the claimed compound, but did not reveal the proprietary cost-effective method of synthesizing it.⁵⁵ The court found that disclosing the synthesis method was unnecessary because the unclaimed starting material was not novel, and the record indicated it was commercially available at the time the application was filed.⁵⁶

In *Bayer AG v. Schein Pharmaceuticals, Inc.*, the Federal Circuit summarized its previous holdings on this issue to stand for the proposition that “the best mode of making or using the invention need be disclosed if it *materially affects* the properties of the claimed invention itself.”⁵⁷ Although this standard still leaves many questions about what best mode preferences must be disclosed, it at least encompasses some of the previous holdings on the subject. In *Dana*, for instance, the unclaimed surface treatment still had to be disclosed because it “had a material effect on the properties of the claimed invention,” namely, the seal leaked without it.⁵⁸ Similarly, in *Eli Lilly*, the method for synthesizing the starting material did not need to be disclosed because the process of making it affected neither the quality of the starting material nor the quality of the claimed compound itself.⁵⁹

B. JOINT INVENTORSHIP

In order to design a fair and effective standard for best mode analysis when multiple inventors are involved, it is important to understand how joint inventorship is established. An inventor is any person “who participate[s] in the mental act of *conceiving* [an] invention.”⁶⁰ If more

54. *Eli Lilly & Co. v. Barr Labs., Inc.*, 251 F.3d 955, 963 (Fed. Cir. 2001) (emphasis added); MUELLER, *supra* note 6, at 81 (quoting the same).

55. *Eli Lilly*, 251 F.3d at 964; MUELLER, *supra* note 6, at 81.

56. *Eli Lilly*, 251 F.3d at 964–65; MUELLER, *supra* note 6, at 81–82.

57. *Bayer AG v. Schein Pharms., Inc.*, 301 F.3d 1306, 1319–20 (Fed. Cir. 2002) (emphasis added); MUELLER, *supra* note 6, at 82 n.72 (quoting the same).

58. *Bayer*, 301 F.3d at 1317 (discussing *Dana*, 860 F.2d at 418–20).

59. *Id.* at 1322 (discussing *Eli Lilly*, 251 F.3d at 964–65).

60. DURHAM, *supra* note 46, at 43. Conception refers to the moment when the inventor has formed a definite and complete idea of the invention in his or her mind. *Id.* at 96; MUELLER, *supra* note 6, at 120 n.103. The inventor must do more than recognize a problem; a solution to the problem must be worked out in sufficient detail within the inventor’s mind to enable a person having ordinary skill in the art to practice the invention without excessive research or undue experimentation. DURHAM, *supra* note 46, at 96–97.

than one person works on an invention, everyone who contributes to a patentable idea may be named as a joint inventor.⁶¹ The criteria for joint inventorship are set out in 35 U.S.C. § 116:

When an invention is made by two or more persons jointly, they . . . may apply for a patent jointly even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent.⁶²

While the standard set out in § 116 is very liberal in what constitutes joint inventorship, there are a few limitations. A person who “merely assist[s] the actual inventor after conception of the claimed invention” does not qualify as a joint inventor.⁶³ Similarly, someone who “simply provides the inventor with well-known principles or explains the state of the art without ever having ‘a firm and definite idea’” of the invention as a whole is not a joint inventor.⁶⁴ Although § 116 states that joint inventors do not have to physically work together or even work at the same time, some degree of collaboration is required; joint inventorship cannot be established if inventors have no contact and are unaware of each other’s work.⁶⁵ Furthermore, joint inventorship is not established when “one of ordinary skill in the art . . . simply reduced the inventor’s idea to practice . . . even if the specification discloses that embodiment to satisfy the best mode requirement.”⁶⁶

Despite these limitations, § 116 establishes a very low floor of

61. See 35 U.S.C. § 116 (2000); DURHAM, *supra* note 46, at 43.

62. 35 U.S.C. § 116. Several authors have proposed various reforms for the numerous problems associated with the current joint inventorship standard, particularly its capacity for unfairness when inventors make unequal contributions to the patent but each receives complete ownership rights. See *infra* notes 72–76. See also Joshua Matt, Note, *Searching for an Efficacious Joint Inventorship Standard*, 44 B.C. L. REV. 245 (2002) (summarizing the problems with the current joint inventorship standard and discussing a number of solutions). These reforms are beyond the scope of this Note, which focuses narrowly on the relationship between joint inventorship and best mode in terms of how to analyze the subjective preferences of multiple inventors.

63. *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998).

64. *Id.*

65. See *Kimberly-Clark Corp. v. Procter & Gamble Distrib. Co.*, 973 F.2d 911, 916 (Fed. Cir. 1992); DURHAM, *supra* note 46, at 45.

66. *Ethicon*, 135 F.3d at 1460. Reduction to practice can be actual or constructive. MUELLER, *supra* note 6, at 127. Actual reduction to practice generally requires that a physical embodiment of the invention has been built and tested to work for its intended purpose. *Id.* See also DURHAM, *supra* note 46, at 44 (emphasizing the requirement that one contribute to the conception of an invention in order to be considered an inventor). Filing a patent application satisfying the disclosure requirements of 35 U.S.C. § 112 is sufficient to show constructive reduction to practice for the claimed invention. MUELLER, *supra* note 6, at 127.

inventive contribution needed to show joint inventorship.⁶⁷ A joint inventor does not have to contribute to every claim or make an equal contribution when compared to the other joint inventors.⁶⁸ Because of the ease in establishing joint inventorship, uncertainty often arises in collaborative research in trying to determine who should be named as a joint inventor when it is unclear what each party has contributed, or whether each party has contributed an amount significant enough to be considered an inventor.⁶⁹ This poses a particular problem in modern industrial settings, where multiple individuals or teams of researchers may contribute in various ways to the overall development of a product.⁷⁰

For example, in a patent with fifty claims, where A contributed to forty-nine of the claims and B contributed to one claim, A and B are properly named as joint inventors under § 116.⁷¹ This example’s seeming unfairness is exacerbated by the fact that “in the context of joint inventorship, each co-inventor presumptively owns a pro rata undivided interest in the entire patent, no matter what their respective contributions.”⁷² In other words, by contributing to one claim, inventor B now has full rights in the entire patent, including the other forty-nine claims

67. See 35 U.S.C. § 116; MUELLER, *supra* note 6, at 122.

68. See 35 U.S.C. § 116; DURHAM, *supra* note 46, at 45; MUELLER, *supra* note 6, at 122. The contribution of a joint inventor, however, cannot be “so minor as to be ‘insignificant.’” DURHAM, *supra* note 46, at 45 n.13 (quoting *Acromed Corp. v. Sofamor Danek Group, Inc.*, 253 F.3d 1371, 1379 (Fed. Cir. 2001)).

69. See, e.g., DURHAM, *supra* note 46, at 43–45. Prior to the 1984 amendments to § 116, a joint inventor was required to contribute to every claim of the patent under the applicable case law. See *Ethicon*, 135 F.3d at 1469 (Newman, J., dissenting).

70. The legislative history of § 116 suggests, somewhat ironically, that Congress amended the rules for the very purpose of making it easier to establish joint inventorship in order to accommodate the modern needs of team-oriented research in academic and corporate settings. See Patent Law Amendments Act of 1984, Pub. L. No. 98-622, sec. 105, § 116, 98 Stat. 3383 (codified as amended at 35 U.S.C. § 116 (2000)), reprinted in 1984 U.S.C.C.A.N. 5827, 5834. See also Matt, *supra* note 62, at 254–58 (discussing the legislative history and framework of § 116 within the needs of modern collaborative research).

71. See *Ethicon*, 135 F.3d at 1460 (“A contribution to one claim is enough.”); MUELLER, *supra* note 6, at 122.

72. *Ethicon*, 135 F.3d at 1465 (internal footnote omitted). Ownership of a patent is a separate concept from inventorship. See DURHAM, *supra* note 46, at 46. Although patents are initially owned by the inventors in an undivided pro rata form, these ownership rights are commonly given to another party through a process called assignment. *Id.* This frequently occurs in the course of employment contracts, where scientists and engineers often assign their ownership rights to the company or institution that employs them. *Id.* at 46–47. While the concept of assignment is very important, as the assignee is typically the one who prosecutes and enforces the patent, see *id.*, this Note discusses ownership issues largely in terms of the inventors as the initial owners for purposes of clarity.

contributed by inventor A.⁷³ These rights include the negative right to exclude others from making, using, selling, offering to sell, or importing the patented invention into the United States during the patent term,⁷⁴ and the right to authorize such activity unilaterally by granting a license without the consent of the other owners.⁷⁵ Another implication of crucial importance in litigation is that all co-owners of a patent must voluntarily consent to be joined as plaintiffs in an infringement suit, such that if one co-owner refuses to join, the other inventors may be blocked from suing an infringer.⁷⁶

The potential problems of joint inventorship are compounded by 35 U.S.C. § 256, which allows a patent to be amended to include the name of any omitted inventor without penalty, as long as there was no deceptive intent on the part of the omitted inventor.⁷⁷ The unfortunate consequences of joint inventorship were seen in *Ethicon, Inc. v. United States Surgical Corp.*, where a doctor named Yoon had invented an improved version of a surgical trocar and had asked an electronics technician named Choi to assist him with various projects, including the trocar.⁷⁸ The two collaborated for approximately eighteen months, during which Choi was not paid.⁷⁹ Dr. Yoon filed for a patent on the trocar that contained fifty-five claims, and granted an exclusive license on it to Ethicon.⁸⁰

Later, Ethicon sued U.S. Surgical for infringing the patent.⁸¹ U.S. Surgical discovered that Choi had worked on part of the invention and

73. See *Ethicon*, 135 F.3d at 1466.

74. 35 U.S.C. § 154(a)(1) (2000). See also MUELLER, *supra* note 6, at 14–16 (discussing negative rights to exclude that are associated with patent ownership).

75. See 35 U.S.C. § 262 (2000).

76. See *Ethicon*, 135 F.3d at 1468. The Federal Circuit noted two exceptions to this rule. *Id.* at 1468 n.9. The first is when a patent owner grants an exclusive license, the owner must allow the licensee to sue in his or her name. *Id.* The second occurs when a co-owner, through contract or other agreement, waives the right to refuse to join in a suit. In such an instance, the dissenting co-owner may be forced by other co-owners to join in suits against infringers. *Id.* But see *id.* at 1472 (Newman, J., dissenting) (arguing that joinder of an uncooperative patent owner may be compelled under Federal Rule of Civil Procedure 19).

77. 35 U.S.C. § 256 (2000). Prior to the enactment of § 256, any error in inventorship such as the misjoinder of a noninventing party, or nonjoinder of a joint inventor, could result in the invalidation of the entire patent as a matter of law under 35 U.S.C. § 102(f) (2000). Barney & Carlson, *supra* note 8, at 23. Because misjoinder and nonjoinder were “incurable defects in an issued patent,” any infringer who could prove such a flaw existed had an “absolute defense against patent infringement” regardless of the cause of the error. *Id.* Section 256 was intended to alleviate these harsh consequences by allowing correction of inventorship where there was no deceptive intent involved. *Id.*

78. *Ethicon*, 135 F.3d at 1459.

79. *Id.*

80. *Id.*

81. *Id.*

moved to have him added as a joint inventor under § 256.⁸² The court agreed, finding that Choi contributed to two out of the fifty-five claims in the patent.⁸³ The court noted that because co-owners own undivided interests in the patent, Dr. Yoon “must now effectively share with Choi ownership of all the claims, even those which he invented by himself.”⁸⁴ To add further insult to injury, Choi was able to dismiss the lawsuit and prevent Ethicon, and thereby Dr. Yoon, from recovering damages for the infringement because he refused to consent to join the suit against U.S. Surgical.⁸⁵

III. WHERE BEST MODE AND JOINT INVENTORSHIP COLLIDE: THE EVOLUTION OF SUBJECTIVE BEST MODE ANALYSIS FOR JOINT INVENTORS AND PROBLEMS THAT ARISE IN EVALUATING BEST MODE PREFERENCES WHEN MORE THAN ONE INVENTOR’S OPINION IS INVOLVED

The language of 35 U.S.C. § 112 requires that the court look at the “best mode contemplated by the inventor of carrying out his invention.”⁸⁶ The Federal Circuit has interpreted this language to require a subjective inquiry into what the inventor knew or believed was the best mode of the invention at the time the patent application was filed.⁸⁷ This test is very straightforward to apply when there is only one inventor, as only one person’s beliefs must be analyzed.⁸⁸ In situations where more than one

82. *Id.*

83. *Id.* at 1459, 1462–64.

84. *Id.* at 1465–66.

85. *Id.* at 1468. A vigorous dissent by Judge Newman argued that concepts of patent ownership based on the joint inventorship standard prior to the 1984 amendments to 35 U.S.C. § 116 should not be applied as a “reasonable consequence of the change in the law of naming inventors.” *Id.* at 1469 (Newman, J., dissenting). Prior to 1984, the law required that joint inventors jointly conceive and contribute to the entire invention, and this was the basis for the principle of joint ownership where each joint inventor “justly and legally” became “an equal owner of the idea and of any patent thereon.” *Id.* at 1469–70. According to Judge Newman, Choi “would not pass the pre-1984 test of joint inventor[ship],” but “was nonetheless awarded full property rights in the entire invention and patent, as if he had been a true joint inventor of all the claims.” *Id.* at 1472. Judge Newman dissented on this “error,” asserting that “[n]o theory of the law of property supports such a distortion of ownership rights.” *Id.* Judge Newman also argued that Dr. Yoon should have been allowed to proceed with the suit because Choi could have been added as an involuntary party in accordance with Federal Rule of Civil Procedure 19. *Id.* Judge Newman’s views have been supported in the literature. *See, e.g., MERGES & DUFFY, supra* note 3, at 1289–90. For an excellent discussion of how infringers are using technical strategies related to joint inventorship rules to overcome patent rights, see Barney & Carlson, *supra* note 8.

86. 35 U.S.C. § 112 (2000).

87. *See, e.g., supra* text accompanying notes 17–29.

88. *See supra* text accompanying notes 17–29.

inventor contributes to a patented invention,⁸⁹ however, it becomes critical to define whose opinion should be accorded the most weight when analyzing the subjective prong of the best mode test.

A. CASE LAW BEFORE *PANNU v. IOLAB CORP.*

Prior to the *Pannu* decision, courts dealing with the issue of best mode preferences among multiple inventors generally held that the inventors must agree that a particular embodiment was the best in order for it to be considered the best mode of the invention.⁹⁰ One of the earliest opinions that discussed this issue was *Union Carbide Corp. v. Dow Chemical Co.*⁹¹ In this case, three inventors working for Union Carbide developed a process for producing a certain kind of chemical and filed for a patent in December 1957.⁹² In May 1957, two of the original three inventors felt that a certain kind of “promoted catalyst” was more effective in running the reaction than the original “unpromoted resin catalyst” disclosed in the patent.⁹³ The third inventor, however, had left the project in 1952, and believed that the unpromoted catalyst was still the best mode.⁹⁴ The record also showed that he could not recall whether he even knew of the promoted catalyst at the time the application was filed.⁹⁵ Dow, the accused infringer, argued that the patent violated the best mode requirement because it did not disclose the promoted catalyst.⁹⁶ The court disagreed and found that “the

89. See 35 U.S.C. § 116 (2000).

90. See *infra* Part III.A. At least one treatise, however, has stated that *Graco, Inc. v. Binks Manufacturing Co.*, 60 F.3d 785 (Fed. Cir. 1995), stands for the proposition that “the best mode contemplated by any inventor must be disclosed,” and that “[p]resumably, this would require the disclosure of multiple modes if the inventors do not agree on the best mode.” 1 INTELLECTUAL PROPERTY COUNSELING & LITIGATION § 2.01[2][c] (Lester Horwitz & Ethan Horwitz eds., 2006). In *Graco*, two inventors jointly developed a pump. See *Graco*, 60 F.3d at 787. Prior to filing a patent application for the joint invention, one of the inventors independently invented an “improved seal and clamping mechanism,” which improved the function of the jointly designed pump, but was not disclosed in the pump’s patent application. *Id.* at 787–89. The *Graco* court did not directly address the issue of whether joint inventors must agree on a preferred embodiment for it to be considered the best mode, and it is not clear from the opinion whether the other inventor agreed that the new seal was the best mode. See *id.* at 789–90. At best, the court simply states that the improvement must be disclosed if it “was the best mode contemplated by an inventor for practicing the invention at the time of filing that application.” *Id.* at 789 (emphasis added). Because *Graco* does not squarely address the issue, however, this Note considers *Pannu v. Iolab Corp.*, 155 F.3d 1344 (Fed. Cir. 1998), to be the main Federal Circuit case applicable to this issue of law and discusses it in depth in Part III.B, *infra*.

91. *Union Carbide Corp. v. Dow Chem. Co.*, No. 75-G-79, 1981 U.S. Dist. LEXIS 17790 (S.D. Tex. July 8, 1981), *aff’d*, 682 F.2d 1136 (5th Cir. 1982).

92. *Id.* at *5.

93. *Id.* at *34.

94. *Id.* at *37.

95. *Id.*

96. See *id.* at *33–34.

three inventors did not contemplate that the ‘best mode’ of carrying out the invention was to conduct the reaction with a promoted catalyst.”⁹⁷ It further noted that at the time the application was filed, “there was an active in house controversy over which of the two methods was superior,” and refused to find a best mode violation where there was no evidence that the three inventors agreed that the promoted catalyst was the best mode.⁹⁸

Similarly, in *Pittway Corp. v. Maple Chase Co.*, two inventors had developed a smoke detector that used electrical circuitry to control the horn.⁹⁹ After the patent application was written, but before it was filed, one of the inventors identified a problem with the circuitry.¹⁰⁰ The horn’s circuitry had a small but continuous amount of electrical current flowing through it when it was in the off position, which the inventor believed corroded the horn contacts and ultimately resulted in the premature failure of the horn.¹⁰¹ The inventor redesigned the circuitry to correct this problem in September 1976, but the patent application showing the original circuitry was filed in January 1977 with no mention of the new design.¹⁰² At trial, the accused infringers alleged that the patent violated the best mode requirement because it did not disclose the new circuitry, which was ultimately incorporated into the commercial embodiment of the smoke detector.¹⁰³ The other inventor, however, stated that he did not believe that the redesigned circuitry represented the best mode of the invention at all because the original design, unlike the modified design, provided an “audible trouble signal if the battery [was] removed” to remind the owner to replace it.¹⁰⁴

The court stated that whether a best mode violation had occurred turned on the following legal question: “in order to give rise to a best mode disclosure requirement, must joint inventors agree that a particular embodiment of an application’s claimed invention is the preferred embodiment?”¹⁰⁵ The court answered in the affirmative, citing *Union Carbide* as support for the proposition that joint inventors must agree on a

97. *Id.* at *37.

98. *Id.* at *65.

99. *Pittway Corp. v. Maple Chase Co.*, No. 91 C 3582, 1992 U.S. Dist. LEXIS 19237, at *1–2 (N.D. Ill. Dec. 16, 1992).

100. *Id.*

101. *Id.* at *2.

102. *Id.*

103. *Id.* at *4.

104. *Id.* at *9.

105. *Id.* at *10.

preferred embodiment in order for it to be considered the best mode.¹⁰⁶ The court further stated that “common sense” favored this theory:

Before a particular embodiment of an invention can be considered the “best mode” for practicing it, it must be decided what particular embodiment is best. The inventor *or inventors* make that decision. If co-inventors do not agree about whether a particular embodiment is best, *we do not believe* that a court should resolve the dispute by finding the *failure to disclose an embodiment preferred by one co-inventor constitutes a violation of the best mode requirement*.¹⁰⁷

Likewise, in *Hay & Forage Industries v. New Holland North America, Inc.*, three inventors worked jointly on an invention until 1989, when one of the inventors retired.¹⁰⁸ The other two inventors continued working on the invention and subsequently discovered an improvement, which was disclosed as the best mode in a patent application filed in 1992.¹⁰⁹ As allowed by statute, the retired inventor did not review or sign the patent application until approximately six weeks after it was filed.¹¹⁰ Thus, at the time the patent application was filed, the retired inventor was not aware of the improvement; he was only aware of the best mode embodiment the inventors had worked on before he retired.¹¹¹ Once he did review and sign the application, however, he agreed that the improvement “far surpassed the embodiment [he had] worked on before retiring.”¹¹²

Nevertheless, the accused infringer argued that the patent should be invalidated because it failed to disclose the best mode known to the retired

106. *Id.* (citing *Union Carbide Corp. v. Dow Chem. Co.*, No. 75-G-79, 1981 U.S. Dist. LEXIS 17790, at *65–66 (S.D. Tex. July 8, 1981), *aff'd*, 682 F.2d 1136 (5th Cir. 1982)). The court further noted that other than *Union Carbide*, “[t]he parties have not cited and the Court has not located any other cases touching on this question.” *Id.*

107. *Id.* at *11 (emphasis added). Pittway also brought a related case against another infringer involving the same patent and the same issue of whether the co-inventors had to agree on the best mode of the circuit design. *Pittway Corp. v. Fyrnetics, Inc.*, 9 F.3d 977, **1 (Fed. Cir. 1993) (unpublished table decision). The district court, relying on *Union Carbide* and the opinion in *Pittway Corp. v. Maple Chase Co.*, denied a summary judgment motion on the best mode issue. *See id.* It stated that joint inventors as an entity determine the best mode, but noted that in cases where the inventors disagree, it might be necessary to disclose both modes. *Id.* The district court decided, however, that it did not have to reach this question because there was at least a genuine issue of fact as to what the inventive entity considered to be the best mode, and the court certified an interlocutory appeal on the inventor agreement issue. *Id.* Unfortunately, the Federal Circuit denied the appeal due to a PTO reexamination of Pittway’s patent, so it never specifically addressed the issue. *See id.* at **1–2.

108. *Hay & Forage Indus. v. New Holland N. Am., Inc.*, 25 F. Supp. 2d 1180, 1192 (D. Kan. 1998).

109. *Id.*

110. *Id.*

111. *Id.*

112. *Id.*

inventor at the time the patent application was actually filed.¹¹³ The court stated that this argument "border[ed] on the frivolous"¹¹⁴ and suffered from a "blatant lack of merit."¹¹⁵ It found that such a "rigid, formalistic application" of the best mode test "would be a disservice to the spirit and purpose of the best mode requirement."¹¹⁶ The court found it could not conclude that there had been a best mode violation because the retired inventor was unaware of the improvement at the time of filing, and once he became aware of it, he "wholeheartedly agreed that the disclosed embodiment was better."¹¹⁷

Even the Board of Patent Appeals and Interferences felt that joint inventors had to agree on a best mode.¹¹⁸ In *Reitz v. Inoue*, an interference proceeding, the Board stated that "the appropriate inquiry is directed to what the *inventors themselves* (Inoue and Suzuki) contemplated as the best mode of carrying out *their* invention."¹¹⁹ Some commentators also concluded that joint inventors had to agree on a preferred embodiment for it to be considered the best mode of the invention. One commentator cited *Pittway* for the proposition that "[w]hen co-inventors disagree about whether a particular mode is best, there is no best mode violation even if the patent does not disclose all modes that the inventors individually prefer."¹²⁰ Another author issued the following guideline for practitioners facing best mode issues: "[i]f there are multiple inventors, each inventor must subjectively believe the same method or form of product is the best mode or preferred embodiment for a disclosure obligation to occur."¹²¹ Thus, prior to the *Pannu* decision, several courts and practitioners believed that there had to be agreement among inventors to give rise to a best mode disclosure requirement.

113. *Id.*

114. *Id.*

115. *Id.* at 1192 n.5.

116. *Id.* at 1193.

117. *Id.*

118. *See* *Reitz v. Inoue*, No. 102644, 1995 Pat. App. LEXIS 6, at *13-14 (B.P.A.I. May 3, 1995).

119. *Id.* (emphasis added).

120. Gerald Sobel, *Developments in Patent Law at the Federal Circuit*, in TECHNOLOGY LICENSING AND LITIGATION 1998, at 437, 481 (PLI Patents, Copyrights, Trademarks, & Literary Prop., Course Handbook Series No. G-514, 1998).

121. Adamo, *What's Better, What's Best*, *supra* note 12, at 840; Kenneth R. Adamo, *The Best Mode Requirement in United States Patent Practice in 1993*, 12 J. MARSHALL J. COMPUTER & INFO. L. 353, 392 (1993) [hereinafter Adamo, *Best Mode Requirement*].

B. *PANNU V. IOLAB CORP.* AND ITS PROGENY

The *Pannu* case illustrates some of the severe and often unfair consequences that can result from the collision of the best mode requirement, joint inventorship standards, and the ability to add an omitted joint inventor during litigation. In this case, Dr. Pannu had invented an improved type of intraocular lens that reduced snagging, and filed for a patent in April 1980.¹²² In October of that year, Pannu offered to license his invention to Dr. Link, a lens manufacturer, who suggested to Pannu that the lens could be made from a single piece of plastic.¹²³ In 1981, Pannu filed a continuation-in-part application for his lens, disclosing and claiming a single-piece body, and named himself as sole inventor.¹²⁴ The patent was issued in 1987.¹²⁵ Two years later, Pannu offered to license his invention to Link a second time, but Link claimed he was surprised that Pannu was listed as the sole inventor on the patent, considering that Link's single-piece technology was an important feature.¹²⁶

In 1993 Pannu sued another company, Iolab, for infringing the 1987 patent.¹²⁷ At trial, Iolab claimed that the patent was invalid because it did not name Link as an inventor and because it failed to disclose the best mode.¹²⁸ The district court granted Pannu's motion for judgment as a matter of law on the inventorship issue, reasoning that the patent could not be invalidated for improper inventorship because it could be amended under 35 U.S.C. § 256.¹²⁹ It sent the best mode issue to the jury, which found no violation based on the premise that Pannu was the sole inventor.¹³⁰ Iolab appealed, arguing that the inventorship issue should have gone to the jury.¹³¹ It further asserted that even if the patent could be corrected under § 256 to include Link as a joint inventor, the patent would be invalid for failure to disclose Link's preferred best mode of making the single-piece lenses.¹³²

The Federal Circuit agreed with Iolab that the district court erred by not submitting the inventorship issue to the jury because there was

122. *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1346 (Fed. Cir. 1998).

123. *Id.*

124. *Id.*

125. *Id.*

126. *Id.*

127. *Id.* at 1347.

128. *Id.*

129. *Id.*

130. *Id.* at 1347, 1351 n.5.

131. *Id.* at 1348.

132. *Id.*

sufficient evidence in the record for a reasonable jury to find that Link may have been a co-inventor.¹³³ The court remanded the case to the district court, stating that Link’s inventorship must be determined. If Link was found to be a co-inventor, the court determined that Pannu should be allowed to invoke § 256 to add Link to the patent and preserve its validity.¹³⁴ As for Iolab’s claim that the patent was invalid because it failed to state Link’s best mode preference as a joint inventor, the court made the following ambiguous statements in a footnote:

If the patent is corrected under section 256, Iolab may of course reassert its defense based on the theory that the *proper inventive entity* failed to disclose *its best mode*. This is because the jury’s finding on the best mode issue was predicated on Pannu being the sole inventor. Best mode issues *can* arise if *any inventor* fails to disclose the best mode known to *him or her*.¹³⁵

There are a number of serious problems with this language. Foremost, it is dicta. The main issue in *Pannu* was whether Link should have been named as a co-inventor of the patent.¹³⁶ At most, the best mode issue was collateral to the inventorship issue on appeal because it was dependent on the resolution of whether or not Link was a co-inventor.¹³⁷ In fact, the Federal Circuit did not discuss Iolab’s best mode claim anywhere in the opinion outside of this footnote. Even within the footnote, the court simply reopened the issue for review on remand. As a result, this language does not represent any clear holding on best mode.

Furthermore, even if the language in the footnote were considered a holding on best mode, it is ambiguous and contradictory. The Federal Circuit appears to have set two different and inconsistent standards with this language. First, it referred to the “proper inventive entity” failing to disclose “its best mode,” which implies that all the inventors as a whole should make a joint decision on best mode.¹³⁸ This reading is consistent with the opinions of the earlier courts that faced this issue and found that joint inventors had to agree on a best mode.¹³⁹

133. *Id.* at 1351.

134. *Id.*

135. *Id.* at 1351 n.5 (emphasis added).

136. *See supra* text accompanying notes 127–34.

137. *See Pannu*, 153 F.3d at 1351 n.5.

138. *See id.*

139. *See supra* Part III.A.

In the last sentence, however, the court stated that best mode issues “can arise if any inventor fails to disclose the best mode known to him or her.”¹⁴⁰ This statement is largely ambiguous, and lends itself to at least two plausible interpretations. One interpretation is to focus on the court’s use of the words “*can* arise” as opposed to *will* or *do* arise. This statement suggests that the preferences of an individual inventor are not always dispositive in the best mode inquiry, but may be considered by the court, such as in situations where the other inventors do not have any best mode preferences.

A second interpretation is that each inventor must disclose any individual best mode preferences, regardless of whether the other inventors agree with the preference or even know about it.¹⁴¹ Although the Federal Circuit was not bound by any of the district court rulings on the inventor agreement issue that preceded this case, this second interpretation means that the *Pannu* court effectively disregarded that entire line of cases without so much as a reference to their opinions. In fact, the broadness of the language and its placement in dicta in a footnote without support or explanation suggest that the Federal Circuit may not have thoroughly appreciated the potential harm this vague language would create. Unfortunately, this is the reading of the *Pannu* standard adopted by several subsequent district courts.¹⁴²

One district court recognized some of these harms when it reexamined *Pannu* on remand.¹⁴³ After a full presentation of the evidence on inventorship in front of the jury, it issued another judgment as a matter of

140. *Pannu*, 155 F.3d at 1351 n.5.

141. This reading may even be contrary to the language of 35 U.S.C. § 112, which requires disclosure of “*the* best mode contemplated by *the* inventor of carrying out *his* invention.” 35 U.S.C. § 112 (2000) (emphasis added). While it is possible to interpret this language as requiring one best mode disclosure for each inventor, it is more intuitive to interpret it as requiring one best mode preference for the inventive entity as a whole. Section 112’s language, taken literally, contemplates a single inventor on a patent, but 35 U.S.C. § 116 clearly authorizes joint inventorship. *Id.* § 116. Therefore, a better reading of § 112 would require disclosure of “the best mode contemplated by the [inventive entity] of carrying out [its] invention” or “the best mode contemplated by the inventor[s] of carrying out [their] invention.” These interpretations would also be more consistent with the *Pannu* court’s first statement, “the proper *inventive entity* failed to disclose *its* best mode.” *Pannu*, 155 F.3d at 1351 n.5 (emphasis added).

142. See *infra* text accompanying notes 143–59.

143. See *Pannu v. Iolab Corp. (Pannu II)*, 96 F. Supp. 2d 1359 (S.D. Fla. 2000).

law in favor of Pannu being the sole inventor.¹⁴⁴ The court found that the “claim of co-inventorship, raised first as a bargaining tool in negotiations for a license and asserted in this litigation with a similar motive, has resulted in enormous costs to the plaintiff and waste of judicial resources.”¹⁴⁵ It further acknowledged that:

It would be grossly inequitable, at this late date, to permit Dr. Link to be named a joint inventor of the '525 patent. The consequences to Dr. Pannu, if Dr. Link has not waived his right to be a joint inventor, could include the invalidation of Dr. Pannu's patent if a jury found that the best mode contemplated by Dr. Link was not disclosed in the patent. Further, assuming that the patent is not invalidated, but Dr. Link is named a joint inventor, then he would become an equitable owner of the patent and could, by simply refusing to join Dr. Pannu as a plaintiff in subsequent litigation, deny Pannu the ability in the future to enforce the patent against infringers.¹⁴⁶

Other recent cases that have addressed the issue of multiple inventors have also cited *Pannu* for the proposition that any best mode known to an inventor must be disclosed. In *LNP Engineering Plastics, Inc. v. Miller Waste Mills, Inc.*, the accused infringers argued that a patent was invalid for failing to disclose three alleged best modes found written in one of the co-inventors' individual notebooks.¹⁴⁷ The court cited the language from *Pannu* stating that “[b]est mode issues can arise if any inventor fails to disclose the best mode known to him or her,” before ultimately concluding

144. *Id.* at 1361. The court gave several reasons, including Link's lack of collaboration with Pannu, the fact that the earliest version of the patent application's claims covered single piece lenses although it did not specifically disclose them, and the fact that Link's contribution, if anything, was mainly one of informing Pannu of the current state of the manufacturing art. *Id.* at 1366–67. But the court relied mainly on the fact that Link had waived any potential joint inventorship rights in a licensing agreement with Pannu and would be estopped from raising the claims again himself. *Id.* at 1363–65. The court noted that “[a] claimed co-inventor, who is estopped to challenge the validity of a patent, may not circumvent the equitable bar by having the joint inventorship issue raised as an affirmative defense in an infringement action brought against a corporation in which he has an ownership interest.” *Id.* at 1369. Link acquired an ownership interest when he left his previous company, where he negotiated the original licenses with Pannu, and started his own firm in 1989. *Id.* at 1365. Link was president and a shareholder of the new firm when it acquired Iolab prior to the start of the patent infringement proceedings. *Id.*

145. *Id.* at 1370.

146. *Id.* at 1369. The court cited *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456 (Fed. Cir. 1998), for the proposition that Dr. Link could prevent Dr. Pannu from suing future infringers by refusing to join the lawsuits.

147. *LNP Eng'g Plastics, Inc. v. Miller Waste Mills, Inc.*, No. CIV. A. 96-462-RRM, 2000 WL 33341185, at *7 (D. Del. Aug. 8, 2000), *aff'd on other grounds*, 275 F.3d 1347 (Fed. Cir. 2001) (offering no discussion of best mode).

that two of the alleged modes were production details that did not need to be disclosed and that the third had been properly disclosed in the patent.¹⁴⁸

Similarly, in *Scaltech, Inc. v. Retec/Tetra, L.L.C.*, three inventors had developed a centrifuge for refining waste materials.¹⁴⁹ One of the inventors developed a modification of the centrifuge shield for commercial reasons, namely, increasing the life of the shield and lowering its manufacturing costs.¹⁵⁰ On a motion for summary judgment, the accused infringer argued that this modification should have been disclosed as the best mode of the centrifuge and that the patent was invalid because of this failure.¹⁵¹ The court, citing *Pannu*, stated that in cases of “joint inventorship, a best mode disclosure is equally necessary, even if only one of the inventors contemplates a best mode.”¹⁵² It denied summary judgment on the best mode issue, however, because the record lacked clear and convincing evidence as to whether the inventor in question appreciated that the modification was the best mode at the time of the patent filing.¹⁵³ Nevertheless, this case does suggest that had the inventor believed his mode to be superior, the patent may have been invalidated regardless of what the other inventors may have thought.¹⁵⁴

In *Novellus Systems, Inc. v. Applied Materials, Inc.*, four out of five inventors believed that a certain filter position was the best mode of their invention.¹⁵⁵ The accused infringers claimed that the fifth inventor, however, believed that a certain theoretical position was the best mode at

148. *Id.* at *7–9 (quoting *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 n.5 (Fed. Cir. 1998)). What is interesting about this opinion is that in an earlier proceeding, the same judge had refused to grant a motion for summary judgment on the best mode issue, stating that there were material issues of fact that needed to be resolved, namely, “whether all three co-inventors contemplated the best mode identified by [the accused infringer], and whether the techniques identified by [the accused infringer] are merely production details that need not be disclosed.” *LNP Eng’g Plastics, Inc. v. Miller Waste Mills, Inc.*, 77 F. Supp. 2d 514, 559 (D. Del. 1999) (emphasis added), *aff’d in part and rev’d in part*, 275 F.3d 1347 (Fed. Cir. 2001) (offering no discussion of best mode). Considering that this opinion was written more than one year after *Pannu*, it is interesting that the court initially seemed to require an agreement among the inventors in line with the earlier case law, although the court cites no authority for its statements. *See supra* Part III.A.

149. *Scaltech, Inc. v. Retec/Tetra, L.L.C.*, No. H-95-4190, 2000 U.S. Dist. LEXIS 21598, at *3–4 (S.D. Tex. Sept. 8, 2000), *aff’d on other grounds*, 269 F.3d 1321 (Fed. Cir. 2001) (declining to address the best mode issue on appeal).

150. *Id.* at *8 & n.5.

151. *Id.* at *13–14.

152. *Id.* at *22 (citing *Pannu*, 155 F.3d at 1351 n.5).

153. *Id.* at *25–26.

154. *See id.* at *22–23.

155. *Novellus Sys., Inc. v. Applied Materials, Inc.*, No. C-97-20551 RMW, at 6 (N.D. Cal. Nov. 14, 2002) (order denying cross-motions for summary judgment) (on file with author).

the time of filing.¹⁵⁶ The other inventors argued that the theoretical position was untested at the time of filing and that they affirmatively believed that their mode was best.¹⁵⁷ The court applied the *Pannu* standard, stating that failure to disclose any inventor’s preferences will give rise to a best mode violation, and that the best mode inquiry “should not be affected by whether other co-inventors are aware of, or disagree with, that belief.”¹⁵⁸ Still, the court found that the record was unclear as to what the fifth inventor actually believed was best at the time of filing, and denied summary judgment as to the validity of the best mode defense.¹⁵⁹

C. PROBLEMS WITH THE *PANNU* STANDARD

Basic principles of fairness and equity among inventors do not support the standard derived from the dicta in *Pannu*. Consider a hypothetical similar to the one posed previously: A and B are joint inventors who wish to file a patent application with fifty claims. A contributed to forty-nine of the claims and B contributed to one claim.¹⁶⁰ If B has a subjective best mode preference for one or more of the forty-nine claims that A developed, but A does not have a preference, must B’s preferred method be disclosed to satisfy the best mode requirement? What if A does have a preferred embodiment, but it is different from what B feels is the best mode? If both A and B have a preference, whose opinion should govern? A, who contributed to the claims at issue, or B, who only worked on one claim? Or must both modes be disclosed? What if A and B contributed equally to an invention, but disagree completely about what the best mode is? The earliest cases that discussed these issues found that joint inventors had to agree on a best mode as an inventive entity in order to give rise to a disclosure requirement.¹⁶¹ But under the current standard of *Pannu*, the Federal Circuit appears to require that any best mode known to any inventor be disclosed.¹⁶²

Applying *Pannu* to the scenarios above produces results that are unfair for a number of intuitive reasons. First, if an inventor did not contribute to a claim, why should that inventor’s best mode preference for that claim

156. *Id.* at 14.

157. *Id.* at 6.

158. *Id.* at 16–17.

159. *Id.* at 17.

160. In this situation, A and B are properly listed as joint inventors under 35 U.S.C. § 116 (2000). *See supra* Part II.B.

161. *See supra* Part III.A.

162. *See supra* Part III.B.

matter if the inventor or inventors who did contribute to that claim do not share it? Logically, the actual inventors should be in a better position to give an informed opinion as to the best mode of the invention. In addition, finding best mode violations in situations where an inventor who did not contribute to the claim has an undisclosed preference will create traps for unsophisticated inventors by invalidating patents even if they disclosed the best mode known to the inventor or inventors who actually contributed to that claim.

Moreover, if joint inventors have contributed equally to an invention, but disagree as to the preferred embodiment, is there really a best mode for that invention if the inventors themselves cannot agree on what it is? Supporters of *Pannu* may argue that disclosing all preferred modes of each inventor is still preferable to the old standard, under which inventors could avoid best mode disclosure simply by claiming they disagreed. This scenario is unlikely, however, because the patent still must disclose enough information about how to make and use the invention to satisfy the enablement requirement,¹⁶³ and it is likely that the patent will have to disclose at least one of the preferred modes in order to do so.¹⁶⁴ Even if both modes are disclosed, there is no guarantee that this requirement will improve the quality of disclosure because the inventors' preferences do not have to be an objective best mode. Rather, they are only a subjective best mode. Furthermore, if the modes are conflicting or mutually exclusive, can the inventors truly satisfy the objective prong of the best mode test, which requires disclosure of the best mode such that a person with ordinary skill in the art can make and use the invention?¹⁶⁵ Because Federal Circuit case law permits the best mode to be disclosed indiscriminately with other methods,¹⁶⁶ how would a person of ordinary skill know which mode to implement?

Now, consider the above scenario with an *Ethicon*-like twist: inventor A files a patent application on an invention and lists all fifty claims. Later, in an infringement suit, the accused infringer moves to have B added as a joint inventor under 35 U.S.C. § 256, which the court grants because B had contributed to one of the fifty claims. Now B states that he has a best mode preference for one of the claims that was not disclosed at the time of filing,

163. See *supra* note 1.

164. In fact, this is analogous to the situation that occurred in *Pittway Corp. v. Maple Chase Co.*, No. 91 C 3582, 1992 U.S. Dist. LEXIS 19237 (N.D. Ill. Dec. 16, 1992), where the inventors disagreed as to which circuit design was better, but nevertheless one of the modes was still disclosed. See *supra* text accompanying notes 99–107.

165. See *supra* text accompanying notes 42–47.

166. See *supra* text accompanying notes 44–45.

because he was not listed as an inventor on the patent at that point. Has a best mode violation occurred? This scenario is essentially the same fact pattern as *Pannu*, where the Federal Circuit indicated that a best mode violation could occur if the omitted inventor had a best mode preference that was not disclosed.¹⁶⁷ Is it fair to penalize inventor A for failure to disclose inventor B's subjective preferences when inventor B was not originally involved with the initial patent application, and A may not have even realized that B's efforts rose to the level of joint inventorship? Intuitively, the answer is no. Why should inventor A's patent be invalidated because it did not disclose the preferences of a person who contributed to such a small portion of the invention? Such a rule grants too much power to inventors who have contributed minimally to new inventions at the expense of the inventors who have made the most significant contributions.

These considerations demonstrate that, in the case of multiple inventors, the *Pannu* standard for best mode analysis fails to adequately address the needs of inventors and decreases the effectiveness of the patent system as a whole. In fact, the *Pannu* standard increases confusion among joint inventors over what must be disclosed in order to preserve the validity of the patent. In research involving large teams, especially in corporate or academic settings where multiple researchers in different departments may be involved, the requirement that the patent must disclose every inventor's subjective preference for each claim involved will make the patent prosecution process excessively lengthy and difficult as applications become longer and longer in an effort to ward off future challenges in litigation.¹⁶⁸

Furthermore, allowing a patent to be amended to include a joint inventor during litigation and then invalidating the patent for failing to disclose that unknown inventor's best mode introduces too much uncertainty into patent law. This tactic could be used as a bargaining chip by infringers and persons who do not deserve joint inventorship status, but who could nonetheless threaten to litigate the issue because of the low standard for joint inventorship set forth in 35 U.S.C. § 116, and thereby force a settlement.

The Federal Circuit's previous rulings create additional policy considerations. If a court will not impute third-party knowledge of a best

167. See *supra* text accompanying notes 122–42.

168. See Christopher S. Marchese, *Promoting the Progress of the Useful Arts by Narrowing Best Mode Disclosure Requirements in Patent Law*, 54 U. PITT. L. REV. 589, 630–31 (1993); Walmsley, *supra* note 8, at 158.

mode to an inventor where that third party is the inventor's employer, another coworker, or even a patent agent, as in the *Glaxo* case,¹⁶⁹ why should the court impute the knowledge of inventors who are unknown at the time of filing to the inventors listed on the patent? This is essentially what occurs when a court allows a patent to be invalidated for failure to disclose the added inventor's best mode, as the Federal Circuit suggested in *Pannu*.¹⁷⁰ In addition, courts have repeatedly stated that they disfavor "technical" defenses to patent infringement.¹⁷¹ The ease of establishing joint inventorship, combined with the strong ownership rights of an inventor and the precarious subjectivity of best mode analysis can lead to the invalidation of otherwise valid patents for highly technical and sometimes insignificant defaults.¹⁷²

These concerns are not limited to best mode analysis as it applies to joint inventors. Indeed, many of these concerns apply to the best mode requirement in general. Numerous commentators have noted how the subjective element of the best mode requirement increases uncertainty in patent litigation, as well as its costs.¹⁷³ Also, because the first prong of the best mode analysis is subjective, some unscrupulous inventors may be tempted to lie about when they discovered improvements or falsely claim that they did not believe any particular mode was the best. Furthermore, the first prong disadvantages less sophisticated inventors, who may not realize that their patent could be invalidated for failure to join a party as an inventor when that party made minimal inventive contributions but had a best mode preference that was not disclosed. It also disadvantages foreign applicants trying to claim their earlier filing dates from foreign applications: if foreign applicants did not include the best mode in the foreign application, they cannot rely on that earlier date for their U.S. application.¹⁷⁴

169. See *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1050–51 (Fed. Cir. 1995).

170. See *supra* text accompanying notes 133–42.

171. Barney & Carlson, *supra* note 8, at 35–36.

172. See *id.*

173. See, e.g., Chisum, *supra* note 11, at 279–80; William C. Rooklidge, *Reform of the Patent Laws: Forging Legislation Addressing Disparate Interests*, 88 J. PAT. & TRADEMARK OFF. SOC'Y 9, 10, 23–24 (2006).

174. MUELLER, *supra* note 6, at 347–48. Because foreign jurisdictions generally do not require a best mode disclosure, see *supra* text accompanying note 11, this can occur if the inventor did not originally intend to file for a patent in the United States or was simply unaware of the requirement and subsequently did not include a best mode because it was not required by the foreign jurisdiction. Later U.S. applications can only be backdated to the foreign filing date where they meet all the requirements of U.S. patent law, including the disclosure and best mode requirements of 35 U.S.C. § 112. MUELLER, *supra* note 6, at 348.

IV. SOLVING THE PROBLEMS CAUSED BY BEST MODE ANALYSIS FOR MULTIPLE INVENTORS

A. ELIMINATING THE BEST MODE REQUIREMENT

Considering the subjective nature of the first prong of the best mode analysis and the fact that other major international patent systems do not require best mode disclosure, this Note argues that the most prudent course of action would be to eliminate the best mode requirement from U.S. patent law.¹⁷⁵ Although the purpose of the best mode requirement is arguably to improve the quality of the disclosure by ensuring that inventors divulge the best embodiment known to them,¹⁷⁶ there are so many loopholes in the requirement that this purpose is arguably unfulfilled for most patents.

Supporters of the best mode requirement generally cite various policy reasons for its continued presence in patent law. One proponent of the best mode requirement argues that it serves the dual purpose of ensuring that “the public receives not merely a disclosure of the invention, but the best way contemplated by the inventor of carrying out the invention,” and also allows “the public to compete fairly with the patentee after the patent expires.”¹⁷⁷ Both of these claims lack merit. First, the best mode analysis is wholly subjective, so it is irrelevant whether the mode preferred by the inventor is actually the best mode.¹⁷⁸ There is no guarantee that any preferred mode disclosed would even represent an improvement, let alone the best. Second, the inventor need not disclose a best mode at all if the inventor has no preference.¹⁷⁹ Third, the best mode does not have to be clearly identified within the patent, and can be randomly listed along with clearly inferior embodiments of the invention.¹⁸⁰ When multiple modes are disclosed, there may be no way for a person examining the patent to know which mode is the best without experimenting with each one. When the *Pannu* standard is applied in the case of multiple inventors, the number of

175. Many other commentators have also suggested this. *E.g.*, James G. McEwen, *Is the Cure Worse than the Disease? An Overview of the Patent Reform Act of 2005*, 5 J. MARSHALL REV. INTELL. PROP. L. 55, 72 (2005); Rooklidge, *supra* note 173, at 9, 23–24; Walmsley, *supra* note 8, at 162–63.

176. *See supra* text accompanying notes 12–14. *See also* Jerry R. Selinger, *In Defense of “Best Mode”: Preserving the Benefit of the Bargain for the Public*, 43 CATH. U. L. REV. 1071, 1096–105 (1994) (arguing that if the best mode requirement were repealed the public would suffer a serious “loss of information”).

177. Selinger, *supra* note 176, at 1097.

178. *See supra* text accompanying note 19.

179. *See supra* text accompanying note 22.

180. *See supra* text accompanying notes 44–45.

best mode disclosures could become excessively long, as each inventor discloses every preference for every claim at the time of filing, resulting in a much longer—though not necessarily higher quality—disclosure.¹⁸¹

The suggestion that the best mode requirement improves competition after the expiration of the patent completely ignores the realities of the patent system and modern commercial development. The best mode preference matters only at the time of filing; improvements conceived just one day after filing do not have to be disclosed.¹⁸² This could encourage many inventors to file their patent applications at a minimal level of development in order to preserve any future improvements as valuable trade secrets for use in commercial production.¹⁸³ Moreover, the inventor's subjective best mode might be different from the best mode for manufacturing or other commercial purposes, so disclosure arguably does not improve competition in all circumstances. For instance, it is theoretically possible that an inventor could disclose a process for chemical synthesis that takes longer and is more expensive than another available process because the inventor prefers the color of the intermediate solution. As absurd as this scenario may sound, there is no requirement that the preference be commercially motivated, or even reasonable, because in the end it is still a subjective analysis.

Furthermore, the fact that best mode issues are nearly exclusive to patent litigation¹⁸⁴ as a defense to infringement demonstrates that the best mode requirement is nothing more than a technical way to invalidate a patent, rather than a method of assisting competitors. If the undisclosed best mode were truly important in promoting competition such that the basic disclosure required by enablement was insufficient to practice the "best" version of the invention, then, in theory, there should be less patent infringement litigation in these cases because it should be more difficult to

181. See Marchese, *supra* note 168, at 630–31; Walmsley, *supra* note 8, at 158.

182. See *supra* text accompanying notes 23–27.

183. There are a number of other reasons that encourage inventors to file early in the development process. For instance, the patentee may be subject to a running statutory bar. See 35 U.S.C. § 102(b)–(d) (2000). Also, most foreign jurisdictions use a first-to-file system, as opposed to the United States's first-to-invent system, so foreign inventors often have incentive to file as early as possible to preserve their rights against competitors who may file first. See, e.g., MUELLER, *supra* note 6, at 358–60.

184. E.g., Selinger, *supra* note 176, at 1099–100 (noting that a patent examiner cannot ordinarily examine best mode compliance during prosecution and assumes compliance); Walmsley, *supra* note 8, at 158–59 (noting it is unlikely that best mode violations will be caught during prosecution).

make competitive infringing products.¹⁸⁵ Lastly, the competition argument assumes the invention is still worth something to competitors after the expiration of the patent term. In rapidly advancing industries, such as software, electronics, and computer hardware, most of the patented technology would be obsolete; in fact, in these industries, the patented invention may become worthless to the owner before the patent term even expires.

A related argument used to support the best mode requirement is that the inventor should not be allowed to conceal the best mode of the invention as a trade secret while gaining monopoly benefits.¹⁸⁶ This also ignores the realities of the patent system. It is largely irrelevant whether the best mode is disclosed or kept as a trade secret because even if the public knows the best mode, the patent grant still prohibits others from practicing any version of the invention until the patent term expires.¹⁸⁷ Combined with the fact that the best mode is limited to the time of filing, the public is arguably no worse off because it is highly likely that there will be future improvements that do not have to be disclosed anyway. In addition, many best mode violations are more likely to occur through unintentional omissions, not active concealment, because active concealment could lead to a finding of inequitable conduct and subsequently invalidate all claims in the patent, even those unrelated to the best mode deficiency.¹⁸⁸ Litigation may result when accused infringers find evidence in notebooks or memos that suggests that the inventor contemplated various modes that were not disclosed, and then present this evidence to a jury in an effort to demonstrate that the inventor was being deceitful by concealing this information.¹⁸⁹ Considering that juries often have little or no understanding

185. Admittedly, with the advent of patent trolls and the PTO's issuance of ambiguous or overbroad patents that probably should not have been granted, this argument has practical weaknesses in terms of most modern litigation. It does raise an interesting theoretical point, however, in cases where the patent is sound and infringement is occurring on a level competitive enough with the patentee such that it becomes cost effective to sue the infringer. If concealing the best mode from disclosure is so harmful to competition, how can the infringer compete so well without it?

186. *E.g.*, Carlson et al., *supra* note 11, at 271–72; Selinger, *supra* note 176, at 1102.

187. 35 U.S.C. §§ 154(a)(1), 271 (2000).

188. *See* Adamo, *Best Mode Requirement*, *supra* note 121, at 361 (warning that intentional failure to disclose the best mode of an invention, or intentionally disclosing an inoperative or fictitious mode, could be grounds for a finding of inequitable conduct which renders all claims of the patent unenforceable). *See also* Marchese, *supra* note 168, at 627–28 (noting that inventors are “generally professionals and [are] sufficiently ethical to comply with what the patent laws require” and that patent attorneys prosecuting applications “will be motivated to follow what the law prescribes” to avoid damaging their personal reputations and practices).

189. *See, e.g.*, Walmsley, *supra* note 8, at 159.

of the technology at issue, it can be relatively easy to persuade a jury that “the invention works better with the undisclosed information and that there is no way that the inventor could not have contemplated that fact,” and convince the jury to invalidate the patent.¹⁹⁰

Supporters of the best mode requirement may argue that requiring the inventor to update the best mode disclosure throughout prosecution could alleviate many of the technical problems with the best mode requirement that make it impractical. This would pose numerous problems. First, it would be contrary to current law requiring disclosure only of knowledge at the time of filing.¹⁹¹ Second, by introducing potentially new matter into the application, the inventors would lose their priority filing date under the current statute.¹⁹² Third, this would likely place the individual inventor at a severe disadvantage relative to large companies and institutions by significantly increasing the time and expense of patent prosecution.¹⁹³ Finally, it could encourage litigation and increase discovery costs by expanding the opportunities for clever defense lawyers to invalidate the patent, as there would be a longer window of time to find undisclosed best modes.

As of this writing, there is a patent reform bill in Congress that is poised to eliminate the best mode requirement.¹⁹⁴ The new bill would amend the first paragraph of 35 U.S.C. § 112 by striking the existing language, “and shall set forth the best mode contemplated by the inventor of carrying out his invention,” from the statute.¹⁹⁵ Several commentators have supported this amendment and elimination of the best mode requirement in general, noting that the “best mode generally does not improve the [patent’s] detailed description” and “has generally been a trap for the unwary by providing yet another technical mechanism for invalidating claims.”¹⁹⁶ Others find that the “additional disclosure is not worth the costs and uncertainty created by the subjective best mode requirement” because disclosure of the best mode is determined at the time the patent application is filed, “long before the much more useful

190. *Id.*

191. *See supra* text accompanying notes 23–27.

192. *See* 35 U.S.C. § 132(a) (2000) (“No amendment shall introduce new matter into the disclosure of the invention.”); 35 U.S.C. § 120 (2000) (describing the circumstances entitling an inventor to a priority filing date).

193. *See* Walmsley, *supra* note 8, at 158.

194. *See* Patent Reform Act of 2005, H.R. 2795, 109th Cong. § 4(d)(1) (2005).

195. *Id.*

196. *E.g.*, McEwen, *supra* note 175, at 72. *But see, e.g.*, Selinger, *supra* note 176, at 1096–105 (defending best mode based on public policy grounds).

commercial best mode has been finalized.”¹⁹⁷ Elimination of the best mode requirement would also increase U.S. conformity with international patent systems, which do not require a best mode disclosure.¹⁹⁸ In sum, eliminating the best mode requirement would remove much of the subjectivity from patent law without any corresponding loss of benefits, as well as reduce the amount of technical defenses available to accused patent infringers.

B. IMPROVING THE BEST MODE STANDARD FOR JOINT INVENTORS

Even if the best mode requirement is not eliminated, there are several guidelines that courts should apply to make the requirement more equitable when there are multiple inventors. First, courts should consider only the best mode preferences of those inventors who actually contributed to the claim or claims at issue. Thus, in the hypotheticals previously posed, where inventor A contributed to forty-nine out of fifty claims and inventor B contributed to just one claim, inventor B’s preferences should be considered for that one claim only. The fact that inventor B may have a preference for one or more of the forty-nine other claims should not be considered in a best mode analysis. Similarly, inventor A’s preferences should not affect the best mode analysis for inventor B’s claim if A did not contribute to that claim. Likewise, when best mode disclosures extend to unclaimed elements that materially affect a claimed invention, only the preferences of the inventors who worked on the affected claim should be considered. Thus, in a case similar to *Dana*, where a surface treatment was needed for the satisfactory performance of a seal,¹⁹⁹ the court should consider only the treatment preferences of the inventors who worked on the seal.

Second, if more than one inventor worked on a claim, there should be no best mode unless a majority of the inventors who contributed to that claim agree that a particular embodiment is best. If it is impossible to tell who worked on a claim, the court should consider the preferences of the majority of all inventors. This would represent a compromise between earlier cases, which required inventors to agree in order to establish a best mode disclosure requirement,²⁰⁰ and the ambiguous standard in *Pannu*,

197. *E.g.*, Rooklidge, *supra* note 173, at 23–24.

198. *See supra* text accompanying note 11.

199. *See supra* text accompanying notes 52–53.

200. *See supra* Part III.A.

which suggests that any inventor's preference must be disclosed.²⁰¹ For example, if two inventors contribute to a claim but cannot reach a consensus regarding which particular embodiment is superior, then there is no best mode to be disclosed. If three or more inventors work on a claim, a simple majority must agree that a specific embodiment is best in order to give rise to the best mode disclosure requirement. And again, if the best mode disclosure pertains to an unclaimed element affecting one of the claims, the court should consider the preferences of the majority of the inventors who contributed to the affected claims or, where it is unclear, the majority of all inventors. If an unclaimed element may affect more than one claim and it is known that different inventors worked on those claims, the majority rule should be applied to the preferences of the combined group of known inventors.

These guidelines eliminate much of the inequity surrounding the current *Pannu* standard, which requires disclosure of any preferred embodiment of any inventor. By limiting the applicability of inventor preference only to those who actually contribute to a claim, the new standard simplifies the requirements for obtaining a patent and establishes a subjective standard that is as close as possible to a bright line rule. Preferences that must be disclosed are more easily identified, enabling the patent prosecution to progress more smoothly, while simultaneously reducing the amount of extraneous disclosure in each application. This standard is particularly useful in situations where it is clear which inventors worked on each claim. Examples of these situations include instances in which research is divided into highly specialized teams that translate into distinct claims and when corporate entities bring in consultants to work on specific aspects of the claimed invention. In the common scenario where all the inventors have collaborated to such an extent that it is virtually impossible to determine who contributed to what, the majority rule comes into play. Instead of wasting time and money on endless collateral litigation to determine who invented what, the court simply polls the inventors as a group to determine the best mode.

Furthermore, restricting the analysis to the opinions of inventors who contributed to the claim corresponds to currently accepted standards for best mode analysis. Under the Federal Circuit's decision in *Glaxo*, knowledge of third parties, such as corporate superiors, coworkers, and patent agents, cannot be imputed to the inventor.²⁰² In *Glaxo*, the court

201. See *supra* text accompanying notes 122–42.

202. See *supra* text accompanying notes 30–41.

strictly interpreted the language of 35 U.S.C. § 112, stating that it requires only the knowledge of the inventor, while finding that the practical nature of corporate development prevents inventors from knowing everything that occurs in every department, regardless of how relevant it is to the invention at issue.²⁰³ Using analogous reasoning, the knowledge or preferences of co-inventors who did not contribute to a claim should not be imputed to the inventors who did contribute to that claim. As noted, 35 U.S.C. § 116 does not require that joint inventors contribute to every claim of an invention.²⁰⁴ Consequently, even though a joint inventor may be properly named under § 116, that does not necessarily mean that the joint inventor is an inventor of every claim.

Returning once more to the hypothetical with inventors A and B, B is properly named as a joint inventor for contributing to one claim, but is not an inventor of the forty-nine claims developed solely by A. As a result, B's subjective preferences for those forty-nine claims should not be imputed to A. If, however, B were to disclose his or her preferences to A, and A determined that B's preferred embodiment was in fact the best mode prior to the filing date, neither *Glaxo* nor the proposed guideline would eliminate the requirement that A disclose that mode in the application because the preference is now shared by the inventor who contributed to the claims at issue. Thus, restricting best mode analysis to the preferences of those inventors who contributed to a claim reduces uncertainty over what needs to be disclosed, while preserving the policy goals and knowledge standards previously articulated by the Federal Circuit.

The second standard, which requires a majority of inventors to agree on an embodiment in order for it to be disclosed, prevents fractionated inventor opinions from unintentionally invalidating a patent. This standard is particularly useful to counter modern litigation tactics where accused infringers often will move to invalidate a patent for technical best mode violations if they discover that any inventor's preference was not disclosed in the application.²⁰⁵ Requiring a majority opinion also appeals to notions of common sense. If inventors have been working together on an invention, it would be logical to assume that in most cases they would come to similar conclusions as to what is the best embodiment of the invention. Consider a situation where a minority of the inventors have a preferred method that is known to all the inventors, but the majority does not agree that this mode is

203. *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1049–52 (Fed. Cir. 1995).

204. 35 U.S.C. § 116 (2000).

205. See *Barney & Carlson*, *supra* note 8, at 32–34.

best. If the minority is unable to convince its fellow inventors that its mode is superior, why should a court invalidate a patent for failing to disclose that embodiment as a best mode of the invention? Moreover, why should an accused infringer be able to invalidate a patent for failure to disclose such a mode, especially in cases where the mode preferred by the majority of inventors has been disclosed? Such outcomes appear absurd, but under *Pannu* as it has been interpreted by the courts, any method preferred by the minority inventors must be disclosed, or the affected claims will be invalidated.²⁰⁶

Arguments that inventors will conspire to conceal the best mode by claiming that the majority prefers a worse mode, whereas *Pannu* would require disclosure of all modes, are also largely unfounded. If the inventors were that intent on concealing the best mode, they would probably do so regardless of the standard applied. There are a variety of options available to inventors who seek to avoid the best mode requirement: they could state that they had no preference at all, or that they discovered the best mode after filing, or they simply could lie about the mode each of them preferred. Cases like *Glaxo*, where there was an actual conspiracy to conceal a best mode,²⁰⁷ are probably the exception and not the rule due to concerns about inequitable conduct.²⁰⁸ Most inventors who are aware of the best mode requirement will not risk invalidation of their patent if it could be proven in litigation through notebooks or other documentation that they concealed a superior mode of the invention.

A third standard would be to limit best mode analysis to the preferences of those inventors who are named on the patent at the time of its original filing.²⁰⁹ Restricting the analysis in such a way prevents the *Pannu*-type best mode problems that arise when inventors are added to a patent under 35 U.S.C. § 256, and an accused infringer moves to have the patent invalidated for failing to disclose the omitted inventor's preferred

206. See *supra* text accompanying notes 122–42.

207. See *supra* text accompanying notes 30–41.

208. See *supra* text accompanying note 188.

209. See *Barney & Carlson*, *supra* note 8, at 37. Another possible solution would be to allow joinder of the inventor under § 256 while simultaneously allowing the patentee to amend the disclosure to include the new inventor's best mode. This solution is impractical, however, unless several other rules were also amended. First, adding the best mode would be new matter, which would cause the inventors to lose the priority filing date. See *supra* text accompanying note 192. Even worse, because best mode and joinder challenges most often occur in litigation, at this point the statutory bar period would likely have run, and the patent would still be invalid because it could not be refiled more than one year after its previous publication as the originally issued patent. See 35 U.S.C. § 102(b), (d) (2000).

embodiment.²¹⁰ This standard also better fulfills the intended purpose of § 256, which was to alleviate the harsh consequences of misjoinder and nonjoinder as absolute invalidation of the patent at stake.²¹¹

Furthermore, this standard has intuitive appeal from a fairness standpoint. In cases like *Pannu* and *Ethicon*, the omitted inventors were not initially named on the patent because the original inventors did not believe that they had actually contributed to the patented invention.²¹² In fact, the omitted inventors never even moved to be added as joint inventors; it was the accused infringers in each case who were hoping to use § 256 as a back door to invalidate the patent and avoid liability.²¹³ By restricting best mode analysis to those inventors initially named on the patents, there is less incentive for accused infringers to try to find anyone who could possibly be named as a joint inventor in order to claim the omitted inventor had a preference that was not disclosed in the initial application. Reducing this incentive potentially could lower the number of nonjoinder challenges brought by accused infringers in litigation, which in turn could lower the number of inventors who suddenly find themselves sharing their patent rights with someone who contributed minimally to the invention, as happened to Dr. Yoon in *Ethicon*.²¹⁴

Limiting the analysis to the original named inventors is also supported by the policy justifications underlying other current best mode analysis standards. For instance, the best mode analysis depends on the knowledge of the inventor at the time the patent was filed.²¹⁵ The *Glaxo* decision made it clear that the knowledge of third parties would not be imputed to the inventor, even if the inventor was deliberately prevented from learning about those preferences.²¹⁶ If the originally named inventors were unaware of an omitted inventor’s best mode preferences, the named inventors should not be penalized for failing to disclose those unknown preferences. This type of penalty, which the court in *Pannu* indicated was possible, is

210. See *supra* text accompanying notes 122–42.

211. Barney & Carlson, *supra* note 8, at 37.

212. See *supra* notes 122–42 and accompanying text; *supra* notes 78–85 and accompanying text.

213. See *supra* notes 122–42 and accompanying text; *supra* notes 78–85 and accompanying text. See also Barney & Carlson, *supra* note 8, at 27–29, 31–32 (explaining that in both *Pannu* and *Ethicon*, it was the defendant companies, rather than the omitted inventors, who sought to have the patents invalidated).

214. See *supra* notes 78–85 and accompanying text.

215. See *supra* text accompanying notes 23–27.

216. See *supra* notes 30–41 and accompanying text.

analogous to imputing the knowledge of the omitted inventor to the named inventor, which would contradict the policy established in *Glaxo*.

V. CONCLUSION

The current best mode analysis established under *Pannu* does not adequately serve the goals of best mode policy or the needs of joint inventors. Requiring disclosure of all the best mode preferences of every inventor increases the complexity and length of patent disclosures without adding any significant corresponding benefit. It also weakens the validity of issued patents, as accused infringers are likely to use the subjective nature of the best mode analysis in order to invalidate patents for technical violations. The best solution to these issues is to eliminate the best mode requirement entirely from patent law because this will remove the subjective element from patent litigation and help prevent the invalidation of otherwise valid patents for technical violations.

In the event that the best mode requirement is not eliminated, however, there are three major guidelines that courts should implement when conducting best mode analyses on patents where there is more than one inventor:

(1) Only the best mode preferences of those inventors who actually contributed to the claim at issue should be considered.

(2) If more than one inventor worked on a claim, there is no best mode disclosure requirement unless a majority of the inventors who contributed to that claim agree that a particular embodiment is best. If it is unclear who contributed to a claim, the best mode is the preference of a majority of all the inventors.

(3) Best mode analysis should be limited to the preferences of those inventors who are named on the patent at the time of its original filing, regardless of subsequent joinder.

These standards will improve best mode analysis by making it fairer and more representative of the realities of joint inventorship under the current standards of 35 U.S.C. § 116. They will also reduce the ability of accused patent infringers to invalidate patents for technical violations of best mode, especially in cases where infringers can force patent holders to correct inventorship under 35 U.S.C. § 256 by adding an omitted inventor. In sum, the current standard derived from *Pannu* is fundamentally flawed from a policy standpoint and has the potential to needlessly destroy many otherwise valid patents. The standards proposed in this Note will help

alleviate some of these policy concerns, while clarifying the scope of the best mode requirement for multiple inventors in a fair and equitable manner.

