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Exclusion Confusion? A Defense of the Federal Circuit's Specific Exclusion Jurisprudence

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NOTE

**EXCLUSION CONFUSION? A DEFENSE OF
THE FEDERAL CIRCUIT'S SPECIFIC
EXCLUSION JURISPRUDENCE**

*Peter Curtis Magic**

Specific exclusion has become a controversial limitation on the doctrine of equivalents, which is itself an essential and controversial area of patent law. The doctrine of equivalents allows a patentee to successfully claim infringement against devices that are outside of the literal reach of the language used by the patentee in her patent to describe what she claims as her invention. The Supreme Court has prescribed some of the outer limits of the doctrine of equivalents and articulated the underlying policy concerns that inform its analysis—noting that courts should balance protection of the patentee's intellectual property with the public's reasonable expectations of the bounds of the patent—but has entrusted most of the doctrine's development to the Federal Circuit. Critics argue that the Federal Circuit has applied specific exclusion, which precludes the doctrine of equivalents from reaching subject matter that is "specifically excluded" by the language used in the patent to describe the invention, in a way that does not adhere to the Supreme Court's guidance on the doctrine of equivalents. The critics assert that the Federal Circuit has unduly narrowed the doctrine of equivalents by applying specific exclusion too aggressively. This Note demonstrates that the critics' extreme characterization of Federal Circuit specific exclusion case law is unwarranted. The Federal Circuit has consistently and conscientiously applied specific exclusion, and their decisions conform to the Supreme Court's guidance on the public notice function of patent claims. At the same time, the Federal Circuit has protected patentees by not allowing specific exclusion to reduce the doctrine of equivalents to another test for literal infringement.

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INTRODUCTION

The doctrine of equivalents in patent law “is premised on language’s inability to capture the essence of innovation.”¹ Because a patent’s claims—the part of the patent that defines what the patentee *claims* as her invention—consist of sentences and phrases, they suffer from the imprecision inherent in language itself. The doctrine of equivalents states that the scope of a patent is not necessarily limited to the literal meaning of the words in the patent’s claims, but may encompass inventions with elements insubstantially different from those described in the patent. The scope of the doctrine is limited by several analytical tools, including the all limitations rule,

1. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 734 (2002).

prosecution history estoppel, and the specific exclusion doctrine.² This Note focuses on the specific exclusion doctrine, which mandates that the doctrine of equivalents cannot bring into a patent's scope "a structure that is specifically excluded from the scope of the claims."³ Specific exclusion has been applied somewhat liberally by the Federal Circuit, sparking criticism that it has narrowed the doctrine of equivalents too far.⁴ Nevertheless, as this Note explains, the Federal Circuit has applied specific exclusion in a manner consistent with the Supreme Court's view of the doctrine of equivalents generally and has limited the doctrine of equivalents to a similar degree as other limitations. Furthermore, contrary to the views of critics, specific exclusion has not been applied by the Federal Circuit in a manner that vitiates⁵ the doctrine of equivalents altogether.

The two competing interests shaping the doctrine of equivalents are the public-notice function of patent claims and protection of the patentee's property rights. On one hand, the Supreme Court has stressed the importance of clarity in patent claim language so that the patentee "know[s] what he owns, and the public . . . know[s] what he does not."⁶ On the other hand, the Court has recognized that "[i]f patents were always interpreted by their literal terms, their value would be greatly diminished [because]

2. The all limitations rule, discussed *infra*, states that a determination of infringement by equivalence is made by examining whether the accused device contains an equivalent of each claim limitation in the patent, not by comparing inventions as a whole for equivalence. *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1358 (Fed. Cir. 2005) (citing *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29 (1997)).

Prosecution history estoppel, also discussed *infra*, prevents a patentee from employing the doctrine of equivalents to bring within the scope of infringement analysis any material that was disclaimed by amendment of the patent application during prosecution. *Festo Corp.*, 535 U.S. at 733–34.

3. *Dolly, Inc. v. Spalding & Evenflo Cos.*, 16 F.3d 394, 400 (Fed. Cir. 1994). In *Dolly*, the patentee claimed a portable child's seat composed of a "stable rigid frame" formed from "side panels," and the claim language recited seat panels and back panels as separate from the rigid frame. *Id.* at 396. Evenflo made a competing child's seat composed of a "stable rigid frame assembled from . . . seat and back panels." *Id.* at 400. The court held that the claim language specifically excluded structures where the stable frame included seat and back panels. *Id.*

4. See, e.g., Daniel H. Shulman & Donald W. Rupert, "Vitiating" the Doctrine of Equivalents: A New Patent Law Doctrine, 12 FED. CIR. B.J. 457 (2003) (arguing that the claim vitiation doctrine has been used by the Federal Circuit either to narrow the doctrine of equivalents out of existence or to make the doctrine of equivalents unworkable); Robert Pribish, Casenote, *Freedman Seating Co. and the Claim Vitiating Doctrine*, 43 SAN DIEGO L. REV. 379 (2006) (arguing that the way in which the Federal Circuit has applied the claim vitiation doctrine, which includes the doctrine of specific exclusion, has destroyed the doctrine of equivalents). Federal Circuit Judge Newman has also complained of allegedly improper use of specific exclusion. See *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1117 (Fed. Cir. 2000) (Newman, J., dissenting) (arguing that it was improper for the court to apply specific exclusion and decide the issue of equivalence on summary judgment when the parties did not dispute the evidence of function, way, and result or the evidence of insubstantial difference).

5. The reader should note that the idea of "vitiating" the doctrine of equivalents should not be confused with the doctrine of claim vitiation. The former simply means to gut, render meaningless, or to narrow out of existence the doctrine of equivalents as a theory of law altogether. The latter has a much more narrow focus. Its concern is that there should be no finding of infringement if to find infringement would require ignoring the meaning of a particular patent's claim limitation.

6. *Festo Corp.*, 535 U.S. at 730–31.

[u]nimportant and insubstantial substitutes . . . could defeat the patent.”⁷ These competing concerns pull in opposite directions on the doctrine of equivalents.⁸

This Note contends that the Federal Circuit’s specific exclusion jurisprudence balances public notice and protection of the patentee in accordance with Supreme Court precedent and has not improperly narrowed the doctrine of equivalents. Part I of this Note analyzes the Supreme Court’s doctrine of equivalents jurisprudence, explaining that while the Court has not addressed the specific exclusion doctrine directly, the trend has been to narrow the doctrine of equivalents. Part II explores the role of specific exclusion as a necessary limit on the doctrine of equivalents and argues that the Federal Circuit has applied the specific exclusion limitation in a manner consistent with the Supreme Court’s treatment of the doctrine of equivalents. Specifically, this Note examines how the Supreme Court has explained the proper role of other limitations on the doctrine of equivalents and argues that the Federal Circuit’s specific exclusion jurisprudence fits within that framework. Part III refutes the criticism that the Federal Circuit has applied specific exclusion so strongly that it has effectively vitiated the doctrine of equivalents and shows not only that the Federal Circuit has conscientiously avoided narrowing the doctrine of equivalents out of existence, but that it has reconciled specific exclusion with several measures of equivalence.

I. THE SUPREME COURT’S TREND OF NARROWING THE DOCTRINE OF EQUIVALENTS

This Part examines the creation of the doctrine of equivalents and the Supreme Court’s progressive narrowing of the doctrine through the application of different analytical frameworks, such as the all limitations rule and the “insubstantial differences” test. This Part also examines the Court’s narrowing of the doctrine of equivalents through progressively stronger application of prosecution history estoppel, a limitation on the doctrine stemming from an increased concern for the public notice function of patent claims. Although specific exclusion has never been addressed by the Court, the aforementioned frameworks serve as evidence that the Federal Circuit’s specific exclusion jurisprudence fits comfortably within the Supreme Court’s narrow conception of the doctrine of equivalents.

The doctrine of equivalents originated in *Winans v. Denmead*⁹ in 1853. The dispute in *Winans* centered on a patent for a new design of a rail car used to carry coal. The patent claimed a cylindrical rail car container that narrowed at its base to form the frustum of a cone, with the frustum ending

7. *Id.* at 731.

8. *Wamer-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29 (1997) (“There can be no denying that the doctrine of equivalents, when applied broadly, conflicts with the definitional and public-notice functions of the statutory claiming requirement.”).

9. 56 U.S. (15 How.) 330 (1853).

at a closed bottom.¹⁰ The infringing design was an octagonal container that became an inverted pyramid at its bottom.¹¹

The Court concluded that the evidence supported a finding that the defendant's eight-sided rail car was equivalent to the plaintiff's patented design.¹² The Court conceded that the plaintiff's patent explicitly claimed "one form only."¹³ Nevertheless, the Court agreed with the plaintiff's argument that the patent should cover not only a container of perfectly circular design, but also designs of similar form that perform the same function, such as a 100-sided approximation to a circular design.¹⁴

The Court held that when a patentee writes a patent claim, "he is understood to intend to claim, and does by law actually cover, not only the precise forms he has described, but all other forms which embody his invention."¹⁵ The *Winans* Court explained that the doctrine of equivalents was an essential part of patent law¹⁶ because "the property of inventors would be valueless, if it were enough for the defendant to say" that his form was not exactly the one that the plaintiff had claimed.¹⁷ Indeed, the Court found it "difficult to perceive how any other rule could be applied . . . to cases like this."¹⁸

Nearly one hundred years after *Winans*, the Supreme Court reaffirmed the vitality of the doctrine of equivalents in *Graver Tank & Manufacturing Co. v. Linde Air Products Co.* and created a new test for applying the doctrine.¹⁹ *Graver Tank* held that not to recognize any infringement beyond literal infringement "would be to convert the protection of the patent grant into a hollow and useless thing."²⁰ The Court further recognized that to do

10. *Id.* at 331.

11. *Id.* at 333.

12. *Id.* at 343–44. The Court held that the test was whether the infringer's railcar was "so near to a true circle as substantially to embody the patentee's mode of operation, and thereby attain the same kind of result as was reached by his invention." *Id.* at 344.

13. *Id.* at 342.

14. *Id.* at 333, 343–44.

15. *Id.* at 342.

16. As demonstrated *infra*, the Supreme Court has not wavered from this position.

17. *Winans*, 56 U.S. (15 How.) at 342–43. The Court made this point clear a second time by stating that "[t]he exclusive right to the thing patented is not secured, if the public are at liberty to make substantial copies of it, varying its form or proportions." *Id.* at 343.

18. *Id.*

19. 339 U.S. 605 (1950). In *Graver Tank* the plaintiff held a patent on a certain electric welding composition or "flux" composed of a combination of alkaline earth metal and calcium fluoride. *Id.* at 610. The accused compound was exactly like the patented compound except that instead of using an alkaline earth metal it used manganese. *Id.* The Court agreed with the trial court's finding that the accused compound was "substantially identical in operation and in result" to the patented compound, *id.* at 611, and that "the changes which avoid[ed] literal infringement [were] colorable only," *id.* at 612.

20. *Id.* at 607. Justice Jackson continued: "Such a limitation would leave room for—indeed encourage—the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law." *Id.*

otherwise “would be subordinating substance to form”²¹ and would permit one to “practice a fraud on a patent.”²² After endorsing the doctrine of equivalents as a necessary component of patent law, *Graver Tank* articulated the test for applying the doctrine commonly known as the “function-way-result” test. The Court held that a plaintiff could evoke the doctrine of equivalents if the defendant’s device “performs substantially the same *function* in substantially the same *way* to obtain the same *result*.”²³

In addition to articulating the function-way-result test, the Court narrowed the doctrine of equivalents by placing a separate constraint on the equivalence analysis based on whether the change made by the defendant was “so insubstantial” as to justify applying the doctrine.²⁴ The function-way-result test and insubstantiality test do not overlap perfectly.²⁵ A defendant’s device might be equivalent under the function-way-result test, yet still be different from the patented device in a not “insubstantial” way.²⁶ In that circumstance, the doctrine of equivalents would apply.²⁷

Nearly fifty years after *Graver Tank*, the Supreme Court further narrowed the doctrine of equivalents in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*²⁸ Plaintiff Hilton Davis held a patent for an “ultrafiltration” process used to purify dyes. At issue was certain language in the patent claims that required the use of an aqueous solution having “a pH from approximately 6.0 to 9.0.”²⁹ That language, according to the Court, was added to the claim during patent prosecution to distinguish Hilton Davis’s invention from an earlier patent that disclosed an ultrafiltration process that used a solution with a pH above 9.0.³⁰ Warner-Jenkinson’s ultrafiltration process

21. *Id.*

22. *Id.* Not all the Justices agreed about the need for the doctrine of equivalents. Justice Black strongly dissented, noting that “[w]hat is not specifically claimed is dedicated to the public.” *Id.* at 614 (Black, J., dissenting). He criticized the doctrine of equivalents as “unjust to the public, as well as an evasion of the law, [because it construes a claim] in a manner different from the plain import of its terms.” *Id.* Finally, Justice Black warned of anticompetitive effects resulting from the doctrine of equivalents creating too much uncertainty as to the scope of patent claims. *Id.* at 617.

23. *Id.* at 608 (majority opinion) (citation omitted) (emphasis added). This test appears to have roots at least as far back as *Winans v. Denmead*, where the Court stated that in order for a defendant’s device to be equivalent, it should “substantially . . . embody the patentee’s mode of operation, and thereby attain the same kind of result” 56 U.S. (15 How.) 330, 344 (1853).

24. *Graver Tank*, 339 U.S. at 610. The Court held that the changes in the accused compound that helped it avoid literal infringement were colorable only (i.e. insubstantial). *Id.* at 612.

25. Martin J. Adelman & Gary L. Francione, *The Doctrine of Equivalents in Patent Law: Questions That Pennwalt Did Not Answer*, 137 U. PA. L. REV. 673, 710 (1989) (explaining that the function-way-result test would allow a finding of equivalence in certain instances where the test for insubstantiality would not).

26. To my knowledge, no case actually addresses this circumstance. Likewise, in theory, the reverse proposition may be true because the function-way-result test is arguably broader than the insubstantiality test. *Id.*

27. *Id.*

28. 520 U.S. 17, 21 (1997) (“Petitioner . . . invites us to speak the death of th[e] doctrine [of equivalents]. We decline that invitation.”).

29. *Warner-Jenkinson*, 520 U.S. at 22.

30. *Id.*

used a solution with a pH of 5.0.³¹ The district court sent the issue of equivalence to the jury, which returned a verdict for the patentee. The Court of Appeals for the Federal Circuit affirmed en banc, with several judges dissenting.

Writing for a unanimous Court, Justice Thomas “endeavor[ed] to clarify the proper scope of the doctrine,”³² and in doing so, he narrowed the doctrine by creating a new test for equivalence.³³ He recognized that the doctrine of equivalents had become confusing and somewhat “unbounded”³⁴ and that it had the potential to conflict with the definitional and public-notice functions of patent claims.³⁵ To avoid such conflict, Justice Thomas explained, “the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole.”³⁶ This standard has since become known as the all elements rule.³⁷ After articulating the standard, Justice Thomas warned that courts should apply the doctrine in a sufficiently narrow manner so as to avoid effectively eliminating an element entirely.³⁸

Next, Justice Thomas narrowed the doctrine of equivalents through his application of prosecution history estoppel.³⁹ He explained that prosecution history estoppel serves as a bar to applying the doctrine of equivalents to an element of a claim when that element was added to the claim during prosecution to avoid prior art.⁴⁰ If the reason for the added claim language was not

31. *Id.* at 23.

32. *Id.* at 21.

33. *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1107 (Fed. Cir. 2000) (noting that *Warner-Jenkinson* recognized that the all elements rule acts to constrain the doctrine of equivalents).

34. *Warner-Jenkinson*, 520 U.S. at 28.

35. *Id.* at 29.

36. *Id.* This formulation was adopted from the dissent of Judge Nies in the Federal Circuit’s decision below. *Id.*

37. The all elements rule was later renamed by the Federal Circuit as the all limitations rule. See *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp. (Ethicon II)*, 149 F.3d 1309, 1317 n. (Fed. Cir. 1998) (“We have said that ‘[i]n the All Elements rule, “element” is used in the sense of a *limitation* of a claim,’ . . . Thus, the All Elements rule might better be called the All Limitations rule.” (alteration in original)).

The all limitations rule and other tests for equivalence are questions of fact. *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1357 (Fed. Cir. 2005) (“[A determination of] whether the accused product or process contains each limitation . . . either literally or by a substantial equivalent . . . is a question of fact.”). However, the Federal Circuit has often relied on language in *Warner-Jenkinson* to allow it to render judgment on a question of equivalence (often by specific exclusion) when no reasonable jury could possibly find equivalence. See *Depuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1017 (Fed. Cir. 2006) (quoting *Warner-Jenkinson*, 520 U.S. at 39 n.8).

38. *Warner-Jenkinson*, 520 U.S. at 29.

39. The doctrine of prosecution history estoppel operates to prevent a patentee from employing the doctrine of equivalents to bring within the scope of infringement analysis any material that was disclaimed by amendment of the application during prosecution. Jay I. Alexander, *Cabining the Doctrine of Equivalents in Festo: A Historical Perspective on the Relationship Between The Doctrines of Equivalents and Prosecution History Estoppel*, 51 AM. U. L. REV. 553, 603–04 (2002).

40. *Warner-Jenkinson*, 520 U.S. at 33 (“Where the reason for the change was not related to avoiding the prior art, the change may introduce a new element, but it does not necessarily preclude

clear—for example, in *Warner-Jenkinson* it was unclear why the patentee had amended the claim to include a lower pH limit of “approximately 6.0”—then, Justice Thomas explained, the patent holder must rebut⁴¹ the presumption that prosecution history estoppel applies by proffering a reason for the change.⁴²

Finally, Justice Thomas stated that it would be the Federal Circuit’s responsibility to refine the test for equivalence.⁴³ Case-by-case analysis would allow for such refinement, with the overall objective of promoting “certainty, consistency, and reviewability” in patent law.⁴⁴ Turning to the facts of *Warner-Jenkinson*, Justice Thomas reversed and remanded to the Federal Circuit to apply the newly articulated framework of equivalence and prosecution history estoppel.⁴⁵ Justice Thomas also hinted at the narrowness of the scope of equivalence available to the patentee. He implied that Warner-Jenkinson’s 5.0 pH solution might not be considered equivalent to Hilton Davis’ claimed lower limit of 6.0 by stating that among the reasons for the remand was “the preservation of some meaning for each element in a claim.”⁴⁶

In 2002, five years after *Warner-Jenkinson*, the Supreme Court granted certiorari in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushki Co.*,⁴⁷ and by expanding the scope of prosecution history estoppel, the Court again narrowed the doctrine of equivalents. By the time *Festo* reached the Court, the Federal Circuit had found that case-by-case refinement of the rule of prosecution history estoppel had proven unworkable.⁴⁸ The Court again recognized the doctrine of equivalents and the uncertainty it created but

infringement by equivalents of that element.”). Prior art is the body of works (publications, patents, etc.) that existed in the relevant field prior to the applicant’s filing date.

41. For example, the patent holder might have shown that they amended the claim not in response to an examiner’s rejection, but rather because they felt that their patent’s specification more clearly enabled the invention as limited by a lower limit of 6.0.

42. *Warner-Jenkinson*, 520 U.S. at 33–34.

43. *Id.* at 40 (“[W]e leave such refinement to that court’s sound judgment in this area of its special expertise.”). It is unclear whether Justice Thomas’s statements in this regard indicate that a specified numerical limit deserves little or no scope of equivalents.

44. *Id.* at 39 n.8.

45. *Id.* at 41.

46. *Id.*

47. 535 U.S. 722 (2002).

48. *Festo*, 535 U.S. at 730. *Festo* involved two patents for a magnetic rodless cylinder that was used in a variety of industrial applications. *Id.* at 728 (“The device . . . has been employed in machinery as diverse as sewing equipment and the Thunder Mountain ride at Disney World.”). The district court described *Festo*’s invention as “a magnetically coupled rodless cylinder [consisting of] a hollow cylindrical tube which is connected to a pressure medium at either end, a piston containing magnets . . . and a driven member . . . surrounding the tube and magnetically coupled to the piston inside the tube.” *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co. Ltd.*, 1993 WL 1510657, at *1 (D. Mass. 1993).

The patent applications had been amended during prosecution to resolve some ambiguities in the claims and because some of the claims did not conform to technical requirements of claim drafting under the applicable patent statute. *Festo*, 535 U.S. at 736. The question facing the Supreme Court was whether those reasons for amending the claims could give rise to an application of prosecution history estoppel. *Id.* at 735.

stated flatly that such uncertainty was “the price of ensuring the appropriate incentives for innovation.”⁴⁹

The Court addressed the appropriate analysis of prosecution history estoppel, explaining that *Warner-Jenkinson* left open the possibility that estoppel could apply even if a claim was amended for reasons unrelated to patentability.⁵⁰ The Court stated that the “doctrine of equivalents is premised on language’s inability to capture the essence of innovation, but a prior application [that is, a preamendment application] describing the precise element at issue undercuts that premise.”⁵¹ Therefore, when a patent owner makes an amendment that relates to patentability, the presumption is that he has disclaimed everything between the amended claim and the original claim.⁵² Finally, the Court recognized that a narrowed, postamendment claim may still be analyzed for equivalents because the narrowed language was not necessarily any more precise simply by virtue of having been narrowed.⁵³ Having explained the proper scope of prosecution history estoppel, the Court remanded the case so that the Federal Circuit could determine the extent to which the plaintiff had rebutted the presumption that the plaintiff had surrendered all possible equivalents between the original claim and the amended claim.

II. THE FEDERAL CIRCUIT’S APPROACH TO SPECIFIC EXCLUSION IS CONSISTENT WITH SUPREME COURT PRECEDENT ON THE DOCTRINE OF EQUIVALENTS

First articulated in 1994 in *Dolly, Inc. v. Spalding & Evenflo Cos.*,⁵⁴ the specific exclusion limitation on the doctrine of equivalents is based on the notion that “the concept of equivalency cannot embrace a structure that is *specifically excluded* from the scope of the claims.”⁵⁵ Specific exclusion

49. *Id.* at 732.

50. *Id.* at 735 (explaining that regardless of the reason for amendment, a court could still consider whether prosecution history estoppel was required).

51. *Id.* at 734.

52. *Id.* at 740 (noting also that this presumption is rebuttable by the patent owner). This is a broader application of prosecution history estoppel than in *Warner-Jenkinson*, where the court held that prosecution history estoppel applies when a claim is amended to *avoid the prior art*. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29 (1997).

53. *Festo*, 535 U.S. at 738. The Court also noted that some equivalents may not have been foreseeable at the time the claim was written. *Id.* In those cases, the patentee would need to show that at the time an amendment was made, it would have been unreasonable to expect one skilled in the relevant art to have drafted the claim language so as to capture the unforeseen equivalent in its literal scope. *Id.* at 740–41.

54. 16 F.3d 394 (Fed. Cir. 1994).

55. *Dolly*, 16 F.3d at 400 (emphasis added). In *Dolly*, the patentee claimed a portable child’s seat composed of a “stable rigid frame” formed from “side panels,” and the claim language recited seat panels and back panels as separate from the rigid frame. *Id.* at 396. Evenflo made a competing child’s seat composed of a “stable rigid frame assembled from the seat and back panels.” *Id.* at 400. The court held that the claim language specifically excluded structures where the stable frame included either seat or back panels. *Id.*

developed as a corollary to the all limitations rule.⁵⁶ The Federal Circuit has explained that specific exclusion mirrors language in *Warner-Jenkinson*,⁵⁷ stating that “the doctrine of equivalents cannot be employed in a manner that wholly vitiates a claim limitation.”⁵⁸ Under the all limitations rule, the court may apply specific exclusion to narrow the permissible scope of equivalence for a particular limitation.⁵⁹ By potentially narrowing the scope of equivalence for each claim limitation, specific exclusion ultimately narrows the number of cases in which a court may find infringement via the doctrine of equivalents.

Although the Supreme Court has provided guidance on how to frame a doctrine of equivalents analysis, it also has explicitly given the Federal Circuit significant leeway to determine equivalence using the all limitations rule.⁶⁰ In *Warner-Jenkinson*, the Supreme Court decided to “leave it to the Federal Circuit how best to implement procedural improvements [to the test for equivalence] to promote certainty, consistency, and reviewability.”⁶¹ By giving the Federal Circuit discretion in formulating the test for equivalence, the Supreme Court left the Federal Circuit constrained only by the Supreme Court’s jurisprudence on the doctrine of equivalents. The Court’s jurisprudence instructs that the doctrine of equivalents serves a useful role in patent law in helping to protect patentees by avoiding overly narrow claim construction, but also requires courts to balance the practical needs of patentees against the public notice function of patent claims. Balancing these two concerns, the Federal Circuit has looked to the text of a patent’s claims as well as the patent’s specification⁶² in making its specific exclusion determinations.

This Part analyzes the Federal Circuit’s specific exclusion jurisprudence and details five ways in which the Federal Circuit has explained and applied specific exclusion in a manner consistent with Supreme Court precedent on

56. See *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys.*, 242 F.3d 1337, 1346–47 (Fed. Cir. 2001) (citing *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573 (Fed. Cir. 1996)). The all limitations rule, as mentioned in Part I, *supra*, states that infringement by equivalence may be found by examining whether the accused device contains an equivalent of each claim limitation in the patent. *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1358 (Fed. Cir. 2005) (citing *Warner-Jenkinson*, 520 U.S. at 29).

57. *SciMed*, 242 F.3d at 1346–47 (noting that specific exclusion is akin to the prohibition against using the doctrine of equivalents in a way that would vitiate a claim limitation).

58. *Id.* at 1346.

59. As both a corollary and constraint on the all limitations rule, specific exclusion can be thought of as one step in the overall analysis of the all limitations rule. When a particular claim limitation is analyzed under the all limitations rule, the court could decide that the limitation specifically excludes certain alternatives. In that manner, specific exclusion doctrine can preclude a finding of equivalence as to a particular claim limitation, and therefore, preclude a finding of equivalence for an entire patent claim under the all limitations rule.

60. See *Warner-Jenkinson*, 520 U.S. 17, 40 (1997).

61. *Id.* at 39 n.8.

62. A patent’s specification is commonly understood to mean all of the written material (including diagrams) contained in the patent before the claims, though the specification technically includes the claims themselves. See 35 U.S.C. § 112 (2000) (defining what a patent specification must include).

the doctrine of equivalents.⁶³ Section II.A maintains that the Federal Circuit has adhered to the Supreme Court's articulation of the public notice function of patent claims by more readily applying specific exclusion to claims that are clear and detailed.⁶⁴ Section II.B argues that the Federal Circuit has applied specific exclusion in a manner consistent with the requirement that an equivalent cannot be substantially different from the language of a claim limitation.⁶⁵ Section II.C notes that case law often explains that specific exclusion stems from the Supreme Court's requirement that courts not apply the doctrine of equivalents in a way that would vitiate the language of a claim.⁶⁶ Section II.D argues that specific exclusion accords with the Supreme Court's prosecution history estoppel jurisprudence by giving appropriate deference the public notice function of patent claims. Section II.E

63. The relevant Supreme Court precedent on the doctrine of equivalents and its limitations is *Winans*, *Graver Tank*, *Warner-Jenkinson*, and *Festo*—the four cases discussed in Part I, *supra*.

64. See *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 955 (Fed. Cir. 2006) (“A claim that contains a detailed recitation of structure is properly accorded correspondingly limited recourse to the doctrine of equivalents.”); *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1106 (Fed. Cir. 2000) (stating that some claim language could be inherently narrow and therefore, “warrant[s] little, if any, range of equivalents”). The Federal Circuit's statements that accord detailed claims a narrow scope of equivalence could incentivize patentees to draft vague claim limitations. This would actually hinder the public notice function of patents, the very function that the court seeks to protect in its specific exclusion analysis. Courts seem not to address this potential side effect.

The Federal Circuit has explained that a clear or detailed claim makes it easier for the court and the public to discern that which the patentee has excluded. See, e.g., *Bicon*, 441 F.3d at 955 (“[B]y defining the claim in a way that *clearly* excluded certain subject matter, the patent implicitly disclaimed the subject matter that was excluded” (emphasis added) (quoting *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1346 (Fed. Cir. 2001))); *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1362 (Fed. Cir. 2005) (stating, after discussing cases involving clear structural limitations, that plaintiffs “chose to specifically limit the claims to slider-crank mechanisms vis-à-vis the ‘slidably mounted’ moveable end limitation. Members of the public were therefore justified in relying on this specific language in assessing the bounds of the claim.”); see also *Bicon*, 441 F.3d at 955 (“A claim that contains a *detailed* recitation of structure is properly accorded correspondingly limited recourse to the doctrine of equivalents.” (emphasis added)).

65. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 610 (1950) (framing the question as “whether under the circumstances the change was so insubstantial that the trial court’s invocation of the doctrine of equivalents was justified”); *Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188, 1195 (Fed. Cir. 2005) (supporting its specific exclusion analysis by quoting language from a previous case discussing insubstantial differences).

66. *Warner-Jenkinson*, 520 U.S. at 39 n.8. In *SciMed*, after reviewing case law on specific exclusion, the Federal Circuit explained that “[t]he principle articulated in these cases is akin to the familiar rule that the doctrine of equivalents cannot be employed in a manner that wholly vitiates a claim limitation.” 242 F.3d at 1346.

This rationale is inextricably related to the insubstantiality requirement insofar as the Federal Circuit has indicated on several occasions that finding something that is substantially different from the claim limitation to be equivalent would vitiate the language of the claim. Cases such as *Freedman Seating*, *Asyst*, and *Moore* seem to indicate this. *Freedman Seating*, 420 F.3d at 1359–60 (explaining that finding defendant’s device to be equivalent to plaintiff’s patent claim limitations would vitiate the claim limitations, and therefore, would not be an insubstantial difference); *Asyst Techs.*, 402 F.3d at 1195 (supporting its specific exclusion analysis by quoting language from a previous case discussing insubstantial differences); *Moore*, 229 F.3d at 1106 (explaining that finding a minority to be equivalent to a majority would vitiate the claim limitation and be insubstantially different from the claim limitation). Furthermore, *Warner-Jenkinson* stated that the various tests for infringement were simply different linguistic frameworks to answer the same question. *Warner-Jenkinson*, 520 U.S. at 40.

shows that the Federal Circuit has construed specific exclusion in a way that leaves ample room for a finding of infringement against an after-arising technology,⁶⁷ a concern raised by the Supreme Court in *Festo*.⁶⁸

A. The Federal Circuit Has Applied Specific Exclusion with an Eye Towards the Public Notice Function of Patent Claims

The Federal Circuit has aligned its specific exclusion jurisprudence with Supreme Court precedent by explaining that the public notice function of patent claims helps justify the specific exclusion doctrine.⁶⁹ As the Supreme Court stated in *Warner-Jenkinson* and discussed at length in *Festo*, the doctrine of equivalents, if applied too broadly, could conflict with the public notice function of patent claims.⁷⁰ Patent claims give the public, including competitors, notice of what exactly the patent holder has claimed and the bounds of the patentee's intellectual property.⁷¹ Clarity in notice to the public "is essential to promote progress, because it enables efficient investment in innovation."⁷² By constraining application of the doctrine of equivalents, specific exclusion can operate to prevent a finding of infringement that would be unexpected or unfair in light of the public notice given by the patent.⁷³

In *Freedman Seating*, the Federal Circuit imposed a bias against wide claim scope for unambiguous claim language in order to maintain the balance between public notice and protection of patentees. The court explained that unambiguous or detailed claim limitations may be entitled to a more constricted scope of equivalents.⁷⁴ The court stated that the public is entitled to rely on specific language in the patent claims:

67. After-arising technologies are inventions that are developed after the patentee files her patent application. After-arising technologies are usually unforeseeable. The classic example is a patentee whose claims include a "means for fastening" at a time before Velcro was invented. The later invention of Velcro would be an unforeseeable after-arising technology.

68. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 740 (2002) ("There are some cases, however, where the amendment [by the patentee during prosecution history] cannot reasonably be viewed as surrendering a particular equivalent. The equivalent may have been unforeseeable at the time of the application . . .").

69. *SciMed*, 242 F.3d at 1347 ("The unavailability of the doctrine of equivalents could be explained . . . as the product of a clear and binding statement to the public that metallic structures are excluded from the protection of the patent.").

70. *Festo*, 535 U.S. at 731 ("A patent holder should know what he owns, and the public should know what he does not."); *Warner-Jenkinson*, 520 U.S. at 29 ("There can be no denying that the doctrine of equivalents, when applied broadly, conflicts with the definitional and public-notice functions of the statutory claiming requirement.").

71. See *Festo*, 535 U.S. at 731.

72. *Id.* at 730–31.

73. Caution against upsetting the reasonable expectations of the public based on the patent claim language is pervasive in the Federal Circuit case law. See, e.g., *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1362 (Fed. Cir. 2005) (explaining that applying the doctrine of equivalents would undermine the reasonable expectations of the public).

74. See *id.* at 1359.

Given a choice of imposing the higher costs of careful prosecution on patentees, or imposing the costs of foreclosed business activity on the public at large, [the] court believes the costs are properly imposed on the group best positioned to determine whether or not a particular invention warrants investment at a higher level . . . [—]the patentees.⁷⁵

In favoring public notice over the patentee, the Federal Circuit's doctrine of equivalents analysis, and consequently, its specific exclusion analysis, tracked *Warner-Jenkinson*.⁷⁶ Freedman Seating, the patentee, claimed a stowable seat for use in public transportation, where the seat could collapse into a vertical position for easy storage via a "slidably mounted" mechanism beneath the seat.⁷⁷ Freedman claimed that American Seating's competing seat, which used a "rotatably mounted" stowing mechanism, infringed Freedman's patent. The court, in finding no infringement, held that to find equivalence between "slidably mounted" and "rotatably mounted" would "unjustly undermine the reasonable expectations of the public" as to the scope of Freedman Seating's claims.⁷⁸

*B. The Federal Circuit Has Applied Specific Exclusion to Find
Nonequivalence where the Accused Device is Substantially
Different from the Language of a Claim Limitation*

The Federal Circuit aligned specific exclusion with the Supreme Court's "insubstantial difference" standard⁷⁹ by introducing in *Ethicon Endo-Surgery, Inc. v. United States Surgical Corp.* the principle that a claim limitation and its opposite are not equivalent because they are necessarily substantially different.⁸⁰ In *Ethicon*, the plaintiff held a patent relating to a surgical stapler. The defendant had developed a competing stapler, and the issue of equivalence centered on the different lockout mechanisms used by the competing staplers.⁸¹ The plaintiff's patent claimed a lockout mechanism

75. Sage Prods., inc. v. Devon Indus., Inc., 126 F.3d 1420, 1425 (Fed. Cir. 1997), quoted in *Freedman Seating*, 420 F.3d at 1362.

76. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 33 (1997) ("[C]laims do indeed serve both a definitional and a notice function, [and] we think the better rule is to place the burden on the patent holder to establish the reason for an amendment required during patent prosecution.").

77. For diagrams of the seat, including the mechanism, see *Freedman Seating*, 420 F.3d at 1352, 1354.

78. *Id.* at 1362.

79. The insubstantial difference test is merely one conceptual framework for determining whether a particular claim limitation has a corresponding equivalent in the accused device. The function-way-result test is another framework. The Supreme Court explained in *Warner-Jenkinson* that the linguistic framework chosen for analyzing equivalence is not pivotal. 520 U.S. at 40 (1997). What matters is whether "the accused product or process contain[s] elements . . . equivalent to each claimed element of the patented invention[.]" *Id.*

80. *Ethicon Endo-Surgery, Inc. v. United States Surgical Corp. (Ethicon II)*, 149 F.3d 1309, 1319 (Fed. Cir. 1998).

81. *Ethicon II*, 149 F.3d at 1316-17.

that was connected to certain longitudinal slots in the stapler.⁸² The lockout mechanism in the defendant's stapler, however, was on the end of the stapler *opposite* to the longitudinal slots.⁸³

The court engaged in a lengthy discussion of specific exclusion,⁸⁴ explaining that a patent specifically excludes subject matter that is inconsistent with the language of its claims.⁸⁵ The court focused on the fact that the defendant's lockout mechanism, which was located near the rear of the stapler, was "opposite" and "not even close to" the longitudinal slots—the part to which the lockout mechanism must be connected according to the patent claim language.⁸⁶ Yet, the court also cautioned that it would not be correct to base a finding of non-equivalence solely on the fact that the defendant's lockout mechanism was not connected to the longitudinal slots.⁸⁷ By focusing on the great disparity between the defendant's product and the patent claim, *Ethicon* introduced a notion that would be reinforced and articulated more clearly in later cases: at a minimum, a patent claim can be said specifically to exclude that which is its complete opposite.⁸⁸ To find the opposite of the claim language to be equivalent would violate the *Graver Tank* requirement that the differences between equivalents be "insubstantial."⁸⁹

82. *Id.* at 1316.

83. *Id.* at 1318–19.

84. *Id.* at 1317–19. The language in the plaintiff's patent relating to the position of the lockout mechanism was in the preamble of the claim, so the court noted that "the *claim* does not contain a specific exclusion." *Id.* at 1319 (emphasis added). Technically, the court based its finding of non-equivalence on the fact that the difference between the patent claim and the defendant's stapler were not insubstantial. Later cases such as *SciMed*, however, recognized specific exclusion based on language outside of the patent claims, for example, in the patent's written description. *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys.*, 242 F.3d 1337, 1345 (Fed. Cir. 2001) ("[T]he common specification of SciMed's patents referred to [the structure of the accused device] as suffering from [certain] disadvantages . . . Having specifically identified, criticized, and disclaimed the [structure of the accused device], the patentee cannot now invoke the doctrine of equivalents to 'embrace a structure that was specifically excluded from the claims.'" (quoting *Dolly, Inc. v. Spalding & Evenflo Cos.*, 16 F.3d 394, 400 (Fed. Cir. 1994))).

85. *Ethicon II*, 149 F.3d., at 1317. The court also made clear that subject matter could be outside of the literal scope of the claim limitation and yet not be inconsistent with the language of the claim. *Id.*

86. *Id.* at 1318–19.

87. *Id.* at 1318. If the court were to allow such a finding without any minimum requirement as to the degree of non-equivalence, infringement could be limited entirely to literal infringement.

88. This notion is gleaned from the fact that *Ethicon II* stated that subject matter is specifically excluded if including it within the scope of equivalence would be "inconsistent with the language of the claim" and then went on to describe the "opposite" of the claim language as necessarily a substantial difference. *Id.* at 1317–19.

89. See *Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188, 1195 (Fed. Cir. 2005) ("[T]he term 'mounted' can fairly be said to specifically exclude objects that are 'unmounted.'"); *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1106 (Fed. Cir. 2000) ("[I]t would defy logic to conclude that a minority—the very antithesis of a majority—could be insubstantially different from a claim limitation requiring a majority."). It would also vitiate the claim limitation. See *infra* Section II.C.

*C. The Federal Circuit Has Applied Specific Exclusion to Avoid
Vitiating the Language of Claim Limitations*

A third way the Federal Circuit has viewed specific exclusion reflects the Supreme Court's requirement in *Warner-Jenkinson*: a court may not apply the doctrine of equivalents so as to vitiate the language of a claim.⁹⁰ In *SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc.*, the Federal Circuit reviewed its own case law on specific exclusion and explained the case law as "akin to the familiar rule that the doctrine of equivalents cannot be employed in a manner that wholly vitiates a claim limitation."⁹¹ The court found that the patentee had specifically criticized and disclaimed "dual lumen configuration[s]" for catheters, and therefore could not use the doctrine of equivalents to claim infringement against dual lumen catheters.⁹² The court explained that "[t]he unavailability of the doctrine of equivalents could be explained *either* as the product of [claim vitiation] *or as* . . . a clear and binding statement to the public that [the subject matter at issue is] excluded from the protection of the patent."⁹³

In addition to framing the specific exclusion analysis with respect to the Supreme Court's prohibition against vitiation of the claim, the Federal Circuit has also linked the "non-vitiation" requirement to the Supreme Court's "insubstantial difference" requirement. The Federal Circuit has often reasoned that where a defendant's device is substantially different from the claimed invention, a finding of equivalence would vitiate the claim language.⁹⁴

*D. The Federal Circuit Has Applied Specific Exclusion
in Accordance with the Supreme Court's Guidance
on Prosecution History Estoppel*

In *Freedman Seating*, the Federal Circuit's treatment of specific exclusion was not only consistent with the Supreme Court's treatment of the doctrine of equivalents generally but also with the Supreme Court's treatment of prosecution history estoppel.⁹⁵ This consistency is significant because prosecution history estoppel, unlike specific exclusion, is a limitation on the doctrine of equivalents that the Supreme Court has directly

90. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39 n.8 (1997). This prohibition has since become known as the doctrine of claim vitiation.

91. 242 F.3d 1337, 1346 (Fed. Cir. 2001). *SciMed* involved a patent for a dilation catheter used in coronary angioplasty procedures. *Id.* at 1339.

92. *SciMed*, 242 F.3d at 1345.

93. *Id.* at 1347 (emphasis added).

94. See, e.g., *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1361 (Fed. Cir. 2005) (explaining that vitiation of the claim language would occur where the defendant's device was substantially different from the patent claim); *Asyst Techs.*, 402 F.3d at 1195; *Moore*, 229 F.3d at 1106-07.

95. *Freedman Seating* relied on language from *Warner-Jenkinson* dealing with public notice and protection of the patentee in the context of prosecution history estoppel. See *supra* Section II.A.

addressed. *Warner-Jenkinson* explained that courts should apply prosecution history estoppel in accordance with “proper deference to the role of claims in defining an invention and providing public notice” and that placing reasonable limits on the doctrine of equivalents would help “insulate[] the doctrine from any feared conflict with the Patent Act.”⁹⁶ This language shows that the Court analyzed prosecution history estoppel in light of overarching policies that constrain the doctrine of equivalents. The Court would almost certainly analyze specific exclusion in light of the same overarching policies.⁹⁷ Furthermore, specific exclusion can be viewed as operating concurrently with prosecution history estoppel—thereby according deference to the public notice function of patent claims—to the extent that material that has been amended out of the claims is thereby specifically excluded from the postamendment claim.

*E. Specific Exclusion Has Not Made After-Arising
Technologies Immune to Infringement Liability*

Finally, the Federal Circuit has construed specific exclusion in a way that would not prevent a finding of infringement by equivalence by an after-arising technology, a concern of the Supreme Court in *Festo*.⁹⁸ This restraint in applying specific exclusion is significant because a major purpose of the doctrine of equivalents is to give patent holders recourse against after-arising technologies.⁹⁹ If the Federal Circuit were to apply specific exclusion too aggressively, the doctrine of equivalents might not effectively perform this important function. Rather than apply specific exclusion to such effect, the Federal Circuit’s specific exclusion jurisprudence has had “little or no application to the case of later-developed technology.”¹⁰⁰

The Federal Circuit has attempted to avoid using specific exclusion to foreclose infringement suits against after-arising technologies even when the detailed language of the claim supports only a narrow scope of equivalents.¹⁰¹ The Federal Circuit has explained this allowance in favor of the patentee as part of a balance struck between the patentee “who had a clear

96. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 33–34 (1997). The “feared conflict” is that the doctrine of equivalents could be used to give the patent claims such a large scope that they would reach subject matter that would not be patentable under the Patent Act. *Id.*

97. The Court has given no indication that the overarching policies that guide the doctrine of equivalents would not apply equally to both an analysis of specific exclusion and an analysis of prosecution history estoppel.

98. *See Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 740 (2002).

99. *See* Mark A. Lemley, *The Changing Meaning of Patent Claim Terms*, 104 MICH. L. REV. 105, 126 (2005) (“Indeed, covering equivalent technology not contemplated when the patent claims were written is one of the major benefits of the doctrine of equivalents.”).

100. *Id.* (“While the Federal Circuit has gone to significant lengths in recent years to cabin the scope of the doctrine of equivalents in order to prevent abuse of the doctrine, those restrictions have little or no application to the case of later-developed technology.”).

101. *See supra* Section II.A.

opportunity to negotiate broader claims but did not do so, and the public at large,” who are put on notice by the language of the patent claims.¹⁰² Admittedly, striking the balance is a discretionary process, and the potential exists for the Federal Circuit to apply specific exclusion too aggressively. Although the Supreme Court has not provided detailed language regarding how the Federal Circuit can or should avoid applying specific exclusion too aggressively, at least one recent case demonstrates that the Federal Circuit is still willing to affirm a finding of infringement against after-arising technologies, while rejecting the argument that the after-arising technology was specifically excluded.

In *Abraxis Bioscience, Inc. v. Mayne Pharma (USA) Inc.*,¹⁰³ the Federal Circuit rejected the defendant’s argument that because the plaintiff’s patent claim was worded narrowly, it could not reach the defendant’s after-arising product as an equivalent. The product at issue was a pharmaceutical compound designed to induce and maintain general anesthesia.¹⁰⁴ The doctrine of equivalents dispute centered on whether edetate, a chemical required by the language of the claims, could reach via equivalence the accused product, which used calcium trisodium DTPA rather than edetate.¹⁰⁵ The Federal Circuit noted that the defendant’s product was an unforeseeable, after-arising technology.¹⁰⁶ Therefore, the court reasoned, despite the specificity of the language in the plaintiff’s patent claim, the plaintiff could not possibly have disavowed the defendant’s product as an equivalent.¹⁰⁷ Although the court did not use the term “specific exclusion,” the court’s reasoning is easily read as an argument against applying specific exclusion because it found equivalence despite specific, unambiguous claim language.¹⁰⁸

102. *Planet Bingo, LLC v. Gametech Int’l, Inc.*, 472 F.3d 1338, 1344 (Fed. Cir. 2006) (quoting *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997)). Although a patentee logically cannot calculate *how* broad her patent claims should be to capture unforeseeable technologies, she could logically assume that a broader claim would be *more likely* to encompass future technologies than a narrow claim.

103. 467 F.3d 1370 (Fed. Cir. 2006).

104. *Abraxis*, 467 F.3d at 1373.

105. *Id.* at 1379. Both chemicals fall within the group of compounds known as polyaminocarboxylates. *Id.* In this case, the chemicals were employed to prevent unsafe levels of bacteria from forming in the anesthesia solution.

106. *Id.* at 1381–82.

107. *Id.*

108. It is doubtful the Federal Circuit would endorse a rule that a patentee can never specifically exclude an unforeseeable, after-arising technology. In some cases, it seems likely that the scope of equivalents for a patentee’s claims could be extremely small. For example, *Freedman Seating* stated that detailed, structural claims may only be entitled to a very narrow range of equivalents. *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1359–60 (Fed. Cir. 2005). Given the court in *Freedman Seating* was willing to hold that the plaintiff’s “slidably mounted” mechanism excluded the defendant’s “rotatably mounted” mechanism, *id.* at 1361, it is possible to envision the court holding that a particular after-arising mechanism is also excluded.

III. CONTRARY TO CRITICS' ARGUMENTS, THE FEDERAL CIRCUIT'S SPECIFIC EXCLUSION JURISPRUDENCE HAS NOT ENDANGERED THE DOCTRINE OF EQUIVALENTS

Contrary to the view of critics, the Federal Circuit's treatment of specific exclusion provides many assurances that it has not expanded to the point of swallowing the doctrine of equivalents. In fact, the Federal Circuit has recognized that an overly strict application of the all limitations rule would "swallow the doctrine of equivalents, reducing the application of the doctrine to nothing more than a repeated analysis of literal infringement."¹⁰⁹ The Federal Circuit's reasoning applies implicitly to specific exclusion doctrine as well because specific exclusion operates on each claim limitation in a doctrine of equivalents analysis under the all limitations rule. Some commentators have argued that this risk—specific exclusion swallowing the doctrine of equivalents—has in fact materialized under the Federal Circuit's doctrine of equivalents jurisprudence.¹¹⁰ Critics assert that the Federal Circuit has applied claim vitiation doctrine and specific exclusion without considering other measures of equivalence, such as insubstantial difference or the function-way-result test.¹¹¹ Section III.A, however, demonstrates that the Federal Circuit has generally refrained from applying specific exclusion where it would effectively shrink the doctrine of equivalents to a test for literal infringement.¹¹² Likewise, Section III.B shows that the Federal Circuit has articulated a close connection between specific exclusion and other measures of equivalence.¹¹³

109. *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp. (Ethicon II)*, 149 F.3d 1309, 1317 (Fed. Cir. 1998).

110. See Shulman & Rupert, *supra* note 4 (arguing that the claim vitiation doctrine, which includes the doctrine of specific exclusion, has been used by the Federal Circuit to either narrow the doctrine of equivalents out of existence or to make the doctrine of equivalents unworkable); Pribish, *supra* note 4 (arguing that the way the Federal Circuit has applied the doctrine of specific exclusion has destroyed the doctrine of equivalents). Some have urged that the courts should do away with the doctrine of equivalents altogether. See, e.g., *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 612–18 (1950) (Black, J., dissenting) (arguing that the doctrine of equivalents improperly expands the scope of the patent claims and violates the public notice function of the patent); Joshua D. Sarnoff, *Abolishing the Doctrine of Equivalents and Claiming the Future After Festo*, 19 BERKELEY TECH. L.J. 1157 (2004) (arguing that the doctrine of equivalents lacks theoretical justification, imposes social costs, and creates doctrinal complexity). This Note does not aim to make the case for the doctrine of equivalents in general, but the Supreme Court has clearly disclaimed interest in abolishing the doctrine. See *supra* Part I.

111. Shulman & Rupert, *supra* note 4, at 465–67, 474–75.

112. It is also worth noting that much of the so-called shrinking of the doctrine of equivalents is due to aggressive application of prosecution history estoppel, rather than specific exclusion. See, e.g., *Honeywell Int'l Inc. v. Hamilton Sundstrand Corp.*, 370 F.3d 1131 (Fed. Cir. 2004) (providing a recent example in which the Federal Circuit has used prosecution history estoppel to restrain the applicability of the doctrine of equivalents yet further); John R. Allison & Mark A. Lemley, *The (Unnoticed) Demise of the Doctrine of Equivalents*, 59 STAN. L. REV. 955, 975 (2007) (finding that in a survey of hundreds of doctrine of equivalence cases over the past eight years, prosecution history estoppel was the limitation asserted most frequently).

113. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 40 (1997) (stating that the tests are just different linguistic frameworks to answer the same question and that different tests may be more suitable to different cases).

A. *The Federal Circuit's Specific Exclusion Jurisprudence Has Not Reduced the Doctrine of Equivalents to a Test for Literal Infringement*

Case law demonstrates the Federal Circuit's unwillingness to apply specific exclusion in a manner that would swallow the doctrine of equivalents. Critics mistakenly point to cases such as *Ethicon Endo-Surgery* and *Moore* as evidence that specific exclusion has been applied in a manner that reduces the doctrine of equivalents to a test for literal infringement.¹¹⁴ In *Ethicon Endo-Surgery*, where the issue was whether the lockout mechanism on the defendant's surgical stapler was equivalent to the lockout mechanism as claimed in the plaintiff's patent, the court focused on "'connected to said longitudinal slots'" as the key limitation.¹¹⁵ Critics assert that the court unduly focused on that limitation and argue that the result was an "all or nothing" (i.e., literal infringement) rule for spatial arrangement limitations, requiring a finding of noninfringement whenever the accused device does not literally meet the claim limitation.¹¹⁶

The court made clear, however, that it was not creating an all or nothing rule, and that infringement by equivalence was something more than just literal infringement. The court began by surveying the case law: "[The prior cases] did not read the doctrine of equivalents out of existence when a claim limitation is not expressly met by an accused device."¹¹⁷ Then, the court explained that "it would be insufficient to base a conclusion of non-infringement by equivalents solely on the fact that the allegedly infringing lockout is *not* connected to the longitudinal slots."¹¹⁸ Finally, the court made clear that it was the substantiality of the difference between the two staplers, not merely that they were different, that made the doctrine of equivalents inapplicable: "Because the rear of the stapler is *opposite* the longitudinal slots, no reasonable jury could have found that the [defendant's] lockout was substantially 'connected to said longitudinal slots.'"¹¹⁹

Critics point to *Moore* as another example of applying the doctrine of equivalents as nothing more than a test for literal infringement. In *Moore*, the Federal Circuit held that where the patent claimed an adhesive strip that extended the "majority" of the length of the mailer to which it was attached, the defendant's use of a mailer with an adhesive strip that ran 47.8% of the length of the mailer could not infringe by equivalence as a

114. Shulman & Rupert, *supra* note 4, at 465 (describing the rule applied in *Ethicon II* as "[e]very word in a claim is a limitation that must be met in an identical way").

115. *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp. (Ethicon II)*, 149 F.3d 1309, 1318–19 (Fed. Cir. 1998) (quoting *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp. (Ethicon I)*, 900 F. Supp. 172, 178 (S.D. Ohio 1995)).

116. Shulman & Rupert, *supra* note 4, at 467 ("Can an element that is literally *not connected* to a separate element ever be *substantially connected* to that element? Under the all-or-nothing [rule], it cannot.").

117. *Ethicon II*, 149 F.3d at 1318.

118. *Id.*

119. *Id.* at 1319 (emphasis added).

matter of law.¹²⁰ Critics argue that, after *Moore*, claim limitations that involve numerical ranges cannot be infringed by equivalence.¹²¹ They criticize the doctrine of specific exclusion in such cases as requiring a finding that “[a]n equivalent vitiates a claim limitation if the equivalent is excluded from the *literal* scope of the claim language.”¹²²

Critics erroneously contend that this characterization of *Moore* is supported by *Athletic Alternatives, Inc. v. Prince Manufacturing, Inc.*,¹²³ where the Federal Circuit held that “‘the concept of equivalency cannot embrace a structure that is specifically excluded from the scope of the claims.’”¹²⁴ That language in *Athletic Alternatives* does not support the critics’ position, however, because it does not imply that everything outside of the literal scope of the claim is by definition not equivalent. The language does not imply that “scope” means “literal scope.” The court in *Athletic Alternatives* could not have meant “literal scope” when they said “scope,” as this would be contrary to the statement the court made at the beginning of its doctrine of equivalents analysis: “Under the doctrine of equivalents, an accused product that differs from the claim, and thus does not literally infringe, nonetheless infringes if its *difference from that claim* is insubstantial”¹²⁵

Critics further argue that *Moore* conflicts with *Warner-Jenkinson* because *Moore* allegedly eliminates the possibility that a pH level below 6.0 could be equivalent to a claim limitation that requires a pH range of 6.0 to 9.0,¹²⁶ but this criticism is misguided. The facts of *Moore*, which involved specific claim language different from the language used in a disclosed but unclaimed embodiment in the patent’s specification, do not necessarily require that limitations involving numerical ranges be constrained to their literal scope. The court in *Moore* focused on the fact that the patent claim

120. *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1106 (Fed. Cir. 2000).

121. Pribish, *supra* note 4, at 388–89.

122. *Id.* (emphasis added) (quoting Shulman & Rupert, *supra* note 4, at 473).

123. 73 F.3d 1573 (Fed. Cir. 1996). The technology at issue in *Athletic Alternatives* was a string system for tennis rackets. The patentee claimed a system where the strings as connected to the perimeter of the racket were offset from the midline of the perimeter at an amount that “varie[d] between” a predetermined maximum and minimum distance. *Id.* at 1582. The court interpreted this to require that the strings of a given racket have at least three different offset distances. *Id.* The accused device used only had two offset values that it used for all the racket strings. *Id.* The court held that the claim language specifically excluded any string system that used less than three offset distances. *Id.* at 1582–83.

124. *Athletic Alternatives*, 73 F.3d at 1582 (quoting *Dolly, Inc. v. Spalding & Evenflo. Cos.*, 16 F.3d 394, 400 (Fed. Cir. 1994)).

125. *Id.* at 1581 (emphasis added); see also *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp. (Ethicon II)*, 149 F.3d 1309, 1317 (Fed. Cir. 1998) (“Literal failure to meet a claim limitation does not necessarily amount to ‘specific exclusion.’”).

126. See Shulman & Rupert, *supra* note 4, at 478 (“[The Federal Circuit’s] adherence to numerical limitations [in *Moore*] runs afoul of *Warner-Jenkinson* . . . [in which] the Supreme Court confirmed that the DOE could apply to compositions outside of a claimed numerical range. . . .”).

limitation used the word “majority”¹²⁷ and that Moore had disclosed, but declined to claim, an embodiment with more flexible language than appeared in the claims.¹²⁸ The presence of those factors in *Moore* caution against reading *Moore* broadly as requiring no scope of equivalence for numerical ranges. In light of those factors, the court made two arguments as to why 47.8% was not equivalent to the claim limitation. First, the use of the word “majority” gives notice to the public that the patentee is not claiming anything that would be a “minority.” The court applied the same principle as in *Ethicon Endo-Surgery*: allowing a claim limitation to be equivalent to its opposite would vitiate the limitation and would not be an insubstantial difference.¹²⁹ Second, the court’s decision was also influenced by the fact that Moore had disclosed an embodiment in his written description¹³⁰ that included an adhesive strip running “about ‘half of the length’ ” of the mailer, but conspicuously failed to use this language in the actual claims.¹³¹ Had this language appeared in Moore’s patent claims, it would have probably supported a finding that 47.8% was equivalent,¹³² but the court stated that Moore could not “‘enforce the unclaimed embodiment.’ ”¹³³ The court also explained that different types of claim language merit different ranges of equivalents,¹³⁴ and while the Court was unclear as to exactly how large a scope of equivalence is afforded to a numerical range in a particular case, the court’s inclination to narrow the range in this case was clearly influenced by the patentee’s disclosed but unclaimed embodiment.¹³⁵

Moreover, two key factual differences distinguish *Moore* from *Warner-Jenkinson*. First, the evidence showed that the patentee in *Moore* was aware of, and disclosed in the written description, an alternative embodiment that, if claimed, would have indicated his intent not to foreclose a finding of equivalence.¹³⁶ Moore chose not to claim that embodiment and instead claimed a more restrictive patent scope. In *Warner-Jenkinson*, by contrast, the critical fact issue underlying the Court’s decision to remand

127. See *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1106–07 (Fed. Cir. 2000).

128. See *id.* at 1107.

129. See *id.* at 1106.

130. A written description is the part of the patent’s specification that contains the patentee’s description of her invention. In the written description the patentee usually discloses several versions, or embodiments, of her invention.

131. *Id.* at 1107.

132. *Id.* (describing the claimed and unclaimed embodiments respectively as “one in which the first and second longitudinal strips extend a majority of the length of the longitudinal marginal portions, and one in which they do not”).

133. *Id.* (quoting *YBM Magnex, Inc. V. Int’l Trade Comm’n*, 145 F.3d 1317, 1320 (Fed. Cir. 1998)).

134. *Id.* at 1106.

135. *Id.* at 1107.

136. *Id.*

the case was that “the record seem[ed] not to reveal the reason for including the lower pH limit of 6.0.”¹³⁷ The result is that in *Moore*, the court supported its finding of nonequivalence by noting the affirmative choice made by the patentee, whereas in *Warner-Jenkinson* the lower court had not yet made a finding as to the reason for the patentee’s amendment to the claim.

Second, in *Warner-Jenkinson*, the relevant claim limitation read: “a pH from *approximately* 6.0 to 9.0.”¹³⁸ The Court might not have expressly ruled out the possibility of the equivalence of a pH below 6.0 due to the word “approximately.” Because the Court did not address this issue, however, any supposition would be purely speculative. Nevertheless, the way in which *Moore* clung to the word “majority” indicates that the result in *Moore* could have been different if the claim limitation was “*approximately* a majority.”¹³⁹

Beyond *Ethicon Endo-Surgery* and *Moore*, the Federal Circuit has shown in other cases a willingness not to apply specific exclusion too aggressively. In *Riles v. Shell Exploration and Production Co.*,¹⁴⁰ over Judge Michel’s dissent, the court refused to apply specific exclusion where the claim limitation described an oil-drilling platform support mechanism involving “metal-to-metal bearing contact” between different parts of the structure.¹⁴¹ The accused device had placed a layer of wood four inches thick between the two metal ends.¹⁴² The court found that the difference was insubstantial,¹⁴³ refusing to follow Judge Michel’s more literal view that the word “contact” specifically excluded devices that did not have direct contact of metal to metal.¹⁴⁴

137. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 33 (1997). The Supreme Court instructed that if no reason had been offered by the patentee, then the Federal Circuit should presume that the reason for amendment was related to patentability, thereby triggering prosecution history estoppel. *Id.*

138. *Id.* at 22 (emphasis added).

139. As further evidence that the word “approximately” matters, on remand from the Supreme Court’s decision in *Warner-Jenkinson*, the Federal Circuit stated: “[If the district court finds that prosecution history estoppel does not apply, then the] jury’s finding that the accused process with a pH of 5.0 is equivalent to the claimed process with a lower limit of *approximately* 6.0 does *not* . . . vitiate the claim limitation.” *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 114 F.3d 1161, 1164 (Fed. Cir. 1997) (emphasis added).

140. 298 F.3d 1302 (Fed. Cir. 2002).

141. *Riles*, 298 F.3d at 1309.

142. *Id.*

143. *Id.* at 1310 (“[I]n the context of the metal jacket leg (over *seven hundred feet* in length), a *four-inch* layer of wood . . . is an insubstantial addition.” (emphases added)).

144. *Id.* at 1314 (Michel, J., dissenting).

B. The Federal Circuit Has Not Applied Specific Exclusion in a Manner that Ignores Other Tests for Equivalence

The second main criticism of the Federal Circuit's claim vitiation and specific exclusion jurisprudence is that the Court has applied both the claim vitiation doctrine and specific exclusion without considering other measures of equivalence, such as insubstantial difference or the function-way-result test.¹⁴⁵ Critics argue that by ignoring the other measures of equivalence, the Federal Circuit has denied a finding of equivalence where the other measures would have allowed it.¹⁴⁶ The critics' arguments fail for two reasons. First, the Supreme Court stated in *Warner-Jenkinson* that different tests for equivalence may be suitable for different cases,¹⁴⁷ and the Federal Circuit has accordingly employed several tests.¹⁴⁸ Second, the Federal Circuit has in fact often recognized a relationship between specific exclusion and other measures of equivalence.

In *Warner-Jenkinson*, the Supreme Court gave the Federal Circuit discretion in deciding what associations to draw between the different tests for equivalence, addressing "the debate regarding the linguistic framework under which 'equivalence' is determined."¹⁴⁹ The Court stated in unambiguous terms: "In our view, the particular linguistic framework used is less important than whether the test is probative of the essential inquiry: Does the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?"¹⁵⁰ By this language, the Court gave the Federal Circuit substantial freedom to apply whichever linguistic framework it felt was best suited for an equivalence determination in a particular case. Exercising this discretion, the Federal Circuit has frequently chosen to apply the all limitations rule.¹⁵¹ Within that rule, the court has frequently undertaken a specific exclusion and claim vitiation analysis. Although the court is free to tie as many linguistic

145. See, e.g., *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1119 (Fed. Cir. 2000) (Newman, J., dissenting) (arguing that the court should not decide the issue of equivalence as a matter of law where the evidence of function, way, and result, along with insubstantial difference, were not disputed by the parties); *Shulman & Rupert*, *supra* note 4, at 466 (arguing that the court in *Ethicon II* failed to consider the insubstantial differences test or the function-way-result test).

146. See *Shulman & Rupert*, *supra* note 4, at 475 (using the holding in *Moore* as an example).

147. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 40 (1997).

148. See *Abraxis Bioscience, Inc. v. Mayne Pharma (U.S.A.) Inc.*, 467 F.3d 1370, 1380–82 (Fed. Cir. 2006) (applying the function-way-result test); *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1358–60 (Fed. Cir. 2005) (applying the all limitations rule); *Moore*, 229 F.3d at 1106–07 (applying the insubstantial differences test).

149. *Warner-Jenkinson*, 520 U.S. at 39.

150. *Id.* at 40. The Court went on to say that "[d]ifferent linguistic frameworks may be more suitable to different cases." *Id.*

151. See, e.g., *Depuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005 (Fed. Cir. 2006) (applying the all limitations rule); *Novartis Pharm. Corp. v. Abbott Labs.*, 375 F.3d 1328 (Fed. Cir. 2004) (applying the all limitations rule); *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp. (Ethicon II)*, 149 F.3d 1309 (Fed. Cir. 1998) (applying the all limitations rule).

frameworks—insubstantial difference, function-way-result—to this analysis as it would like, it need not do so in every case.

Furthermore, the Federal Circuit has in fact tied different frameworks together in several cases, indicating that specific exclusion and claim vitiation are related to the “insubstantial difference” test of equivalence.¹⁵² In *Moore*, the court noted that finding 47.8% as equivalent to a “majority” would not only vitiate the claim limitation, it would be a substantial difference from the claim limitation.¹⁵³ Although *Moore* cast its argument in vitiation terms, a later Federal Circuit case, *SciMed*, discussed *Moore* as an example of specific exclusion.¹⁵⁴ Finally, *Freedman Seating* connected specific exclusion to the “insubstantial difference” doctrine, holding that the claim limitation “slidably mounted” specifically excluded the defendant’s “rotatably mounted” design, and that the two could not be equivalent because the difference was “clear” and “substantial.”¹⁵⁵ These cases show that the Federal Circuit perceives a close connection between specific exclusion, claim vitiation, and the “insubstantial difference” test.¹⁵⁶

CONCLUSION

Specific exclusion has become a controversial limitation on the doctrine of equivalents, which is itself an essential and controversial area of patent law. The Supreme Court has prescribed some of the outer limits of the doctrine of equivalents and articulated the underlying policy concerns

152. See *Freedman Seating*, 420 F.3d at 1359–60 (explaining that finding defendant’s device to be equivalent to plaintiff’s patent claim limitations would vitiate the claim limitations, and therefore, would be an insubstantial difference); *Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188, 1195 (Fed. Cir. 2005) (supporting its specific exclusion analysis by quoting language from a previous case discussing insubstantial differences); *Moore*, 229 F.3d at 1106 (explaining that finding a minority to be equivalent to a majority would vitiate the claim limitation and be substantially different from the claim limitation); see also Allison & Lemley, *supra* note 112, at 974–75 (“Of the 413 [doctrine of equivalents cases from the past eight years] in our dataset, 126 used more than one test [for equivalence].”).

153. *Moore*, 229 F.3d at 1106.

154. *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys.*, 242 F.3d 1337, 1345 (Fed. Cir. 2001). The connection between specific exclusion and vitiation drawn in *SciMed* supports the notion that when something is specifically excluded from a claim, to find that same thing to be equivalent to the claim would vitiate the claim language.

155. *Freedman Seating*, 420 F.3d at 1361.

156. The exact contours of the connection are not clear. The Federal Circuit seems to have indicated that whatever is specifically excluded would also constitute a substantial difference from the claim limitation because it has expressed the view that equivalence and insubstantiality are one and the same. See *id.* at 1360 (“[W]e concluded that no reasonable juror could find equivalence, i.e., an insubstantial difference.”). There is no evidence to support the opposite proposition—that any substantial difference must be specifically excluded.

The Federal Circuit has also linked the function-way-result test to claim vitiation. On remand from the Supreme Court’s decision in *Warner-Jenkinson*, the Federal Circuit stated that there was evidence to support a finding that “performing ultrafiltration at a pH of 5.0 . . . perform[s] substantially the same function in substantially the same way to reach substantially the same result as performing ultrafiltration at 6.0 . . . The jury’s finding that the accused process . . . is equivalent . . . does not therefore vitiate the claim limitation.” *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 114 F.3d 1161, 1164 (Fed. Cir. 1997).

that inform its analysis but has entrusted most of the doctrine's development to the Federal Circuit. Critics argue that the Federal Circuit has applied specific exclusion in a way that has not adhered to the Supreme Court's guidance on the doctrine of equivalents. This Note demonstrates that the Federal Circuit has consistently and conscientiously applied specific exclusion in a manner that conforms to the Supreme Court's guidance on the public notice function of patent claims. At the same time, the Federal Circuit has protected patentees by not allowing specific exclusion to narrow the doctrine of the equivalents to the point of being just another test for literal infringement. The Federal Circuit's specific exclusion jurisprudence has balanced these competing interests well within the broad discretion granted by the Supreme Court.

