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## The State of the Law of Claim Construction and Infringement

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## I. INTRODUCTION

Congress created the U.S. Court of Appeals for the Federal Circuit on October 1, 1982, via the Federal Courts Improvement Act of 1982<sup>1</sup> to promote national uniformity in patent law by providing a single court with exclusive appellate jurisdiction over patent law cases.<sup>2</sup> The Federal Circuit resulted from the merger of the U.S. Court of Customs and Patent Appeals and the U.S. Court of Claims, appellate division. Since the Federal Circuit was created, the number of U.S. patent applications filed and the number of patents litigated have risen significantly.

This chapter discusses two of the most fundamental questions in patent litigation: first, what do the words in a patent claim mean, and second, under a correct interpretation (or “construction”) of the claim, does the claim cover an accused device or process? Claim interpretation is also the first step in determining whether the patent is invalid over prior art, a staple defense in an infringement lawsuit.

These two questions are also fundamental to licensing negotiations. The patent owner and licensee must evaluate the scope of the claims of the patent at issue and determine whether the claims would cover the licensee’s current or planned products. A potential licensee should also consider whether the patent is invalid over the prior art or for other reasons. If the potential licensee identifies strong invalidity arguments, these would support negotiating more aggressively or declining to license.

A practitioner must keep these two questions in mind while writing a patent application. This perspective helps avoid drafting errors that would yield unduly narrow meanings to specific words used in the claims. This perspective also helps to ensure that the claims include important

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1. Pub. L. No. 97-164, 96 Stat. 25 (1982).

2. *See* 28 U.S.C. § 1295.

commercial embodiments of the patent owner and the patent owner's competitors.

In summarizing the state of the law with respect to these fundamental questions of claim construction and infringement, this chapter reviews how the Federal Circuit has emphasized the patentee's burden to properly draft patents; the law of claim construction, including how the U.S. Patent and Trademark Office (PTO) and federal courts interpret patent claims; and direct and indirect infringement.

## II. APPLICANTS BEAR THE BURDEN TO DRAFT CAREFULLY

The Federal Circuit has emphasized that the patent applicant must be cautious in drafting and prosecuting patent applications. Thus, the Federal Circuit has generally placed a heavy burden on the applicant and the applicant's patent attorney to draft and prosecute patent applications carefully. In *Sage Products, Inc. v. Devon Industries*,<sup>3</sup> the Federal Circuit stated:

Given a choice of imposing the higher costs of careful [patent] prosecution on patentees, or imposing the costs of foreclosed business activity on the public at large, this 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, that is, the patentees.

This case and others have placed the patent bar on notice of the importance of careful patent drafting.

### A. *Obvious, Harmless Errors Are Correctible*

The Federal Circuit has not been totally unsympathetic to patent drafters, and has allowed district courts to correct obvious errors at least in some cases. For example, the court held in *Hoffer v. Microsoft*<sup>4</sup> that an error can be corrected if it is clear from the face of the patent and if the prosecution history does not contradict the nature of the correction. The PTO had issued the relevant patent in *Hoffer v. Microsoft* with claim 22 incorrectly depending from claim 38, which did not exist in the patent. The PTO had neglected to renumber the dependency. The district court

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3. 126 F.3d 1420, 1426, 44 U.S.P.Q.2d 1103 (Fed. Cir. 1997).

4. 405 F.3d 1326, 1331, 74 U.S.P.Q.2d 1481 (Fed. Cir. 2005) (citing *Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1356–57, 69 U.S.P.Q.2d 1128 (Fed. Cir. 2003)).

refused to correct the error, and instead held the claim to be invalid as indefinite under section 112. The Federal Circuit reversed, stating that “[a]bsent evidence of culpability or intent to deceive by delaying formal correction, a patent should not be invalidated based on an obvious administrative error.”<sup>5</sup> In *Novo Industries*, the court stated the relevant test as follows: “A district court can correct a patent only if (1) the correction is not subject to reasonable debate based on consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims.”<sup>6</sup>

Thus, a court must rely only on the specification and claims to decide the first part of the test, and thereafter should consult the prosecution history only to confirm that it contains no contrary suggestion. If the error is not apparent from the specification and claims, then evidence of the error appearing in the prosecution history is insufficient to allow a district court to correct the error.<sup>7</sup> Patentees may correct minor errors by filing a certificate of correction under 35 U.S.C. § 254 (PTO error) or § 255 (applicant error), but the correction is effective only from the date the certificate of correction issues.<sup>8</sup> The Federal Circuit has interpreted section 254 to limit the effect of a certificate of correction to causes of action arising after the certificate was issued, thus distinguishing a case from a sister circuit treating a certificate of correction issued under section 255 as effective from the issue date of the underlying patent.<sup>9</sup> In *Southwest Software*, a potentially fatal omission was corrected by certificate of correction after the lawsuit began. In remanding for the district court to determine whether the patent at issue was invalid for purposes of the lawsuit, the Federal Circuit reasoned: “[W]here the claim is invalid on its face without the certificate of correction, it strikes us as an illogical result to allow the patent holder, once the certificate of correction has issued, to sue an alleged infringer for activities that occurred before the issuance of the certificate of correction.”<sup>10</sup>

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5. *Id.*

6. *Novo Indus.*, 350 F.3d at 1357.

7. *H-W Tech., L.C. v. Overstock.com, Inc.*, 758 F.3d 1329, 1334, 111 U.S.P.Q.2d 1727 (Fed. Cir. 2014).

8. *Id.* at 1356–57 (“For causes of action that arise before the correction becomes effective, the patent must be considered without the benefit of the certificate of correction.”) (citing *Sw. Software, Inc. v. Harlequin Inc.*, 226 F.3d 1280, 1294, 56 U.S.P.Q.2d 1161 (Fed. Cir. 2000)).

9. *Sw. Software*, 226 F.3d at 1296–97 (distinguishing *Eagle Iron Works v. McLanahan Corp.*, 429 F.2d 1375, 166 U.S.P.Q. 225 (3d Cir. 1970)).

10. *Id.* at 1295–96.

Patentees should, therefore, review issued patents for errors correctable by certificate of correction and, if such errors are found, file for correction as soon as possible after issuance.

### **B. Serious Errors Are Not Correctible**

In contrast to obvious and harmless errors, the Federal Circuit has refused to permit courts to correct more serious drafting errors. For example, a district court may not correct an applicant's obvious drafting error, even where a skilled artisan would have clearly recognized what was intended and where the plain meaning yields a nonsensical result. Such a case arose in *Chef America, Inc. v. Lamb-Weston, Inc.*,<sup>11</sup> where the patent claimed a method for making a puff pastry, including a step of "heating the resulting batter-coated dough to a temperature in the range of about 400° F to 850° F" (emphasis added). The court interpreted the word "to" to mean that the dough must reach the stated temperature, even though as a result the dough "would be burned to a crisp."

In interpreting the patent in such a way that no infringement could be found, the district court in *Chef America* had stated that "[i]t is the job of the patentee, and not the court, to write patents carefully and consistently."<sup>12</sup> The Federal Circuit agreed and affirmed the judgment. The Federal Circuit considered expert testimony that a baker would recognize that raising the temperature this high to bake dough would yield an unusable product, and that a baker would therefore conclude that the claim meant heating the dough in an oven at the specified temperature. But the Federal Circuit concluded that this testimony confirmed that the word "to" had no special meaning to a person of ordinary skill in the art of baking and that the claim plainly stated the dough should actually reach the stated temperature. If the expert had testified that persons of ordinary skill in the art commonly use "heating to" and "heating at" interchangeably to mean the same thing, the outcome of the case might have changed. Similarly, the patentee in *Chef America* could perhaps have prevailed by arguing that use of the word "to" represented a drafting error. The Federal Circuit hinted that this might have been a better approach:

Chef America does not contend that the patentees' use of "to" rather than "at" was a draftsman's mistake. The patentees made no attempt to have such an error corrected, either by obtaining a certificate of

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11. 358 F.3d 1371, 1373, 69 U.S.P.Q.2d 1857 (Fed. Cir. 2004).

12. *Id.*

correction from the Patent and Trademark Office pursuant to 35 U.S.C. § 255, or by action of the district court. *Cf. Novo Indus. v. Micro Molds Corp.*, 350 F.3d 1348 (Fed. Cir. 2003). To the contrary they argue only that “to” should be construed to mean “at” because otherwise the patented process could not perform the function the patentees intended. As we have noted, however, we have repeatedly declined to rewrite unambiguous patent claim language for that reason.<sup>13</sup>

The court’s final sentence in the above quote (stated without citing authority) narrowly interprets the principle that claims are construed to preserve their validity. At the time, other decisions had expressed the principle more broadly without mentioning a need for ambiguity.<sup>14</sup> The following year, in *Phillips v. AWH Corp.*,<sup>15</sup> the Federal Circuit clarified this point by stating that a court should only construe a claim in such a way as to preserve its validity if the claim is ambiguous and one interpretation preserves validity. In particular, preserving validity reflects an inference that the PTO intends to issue valid claims:

The applicability of the doctrine in a particular case therefore depends on the strength of the inference that the PTO would have recognized that one claim interpretation would render the claim invalid, and that the PTO would not have issued the patent assuming that to be the proper construction of the term.<sup>16</sup>

As another example, the Federal Circuit in *Novo Industries, L.P. v. Micro Molds Corp.*<sup>17</sup> refused to permit a lower court to correct a claim drafting error because the nature of the error was not apparent from the face of the patent. Indeed, the patent owner had suggested two different possible corrections, and the district court had adopted yet a third correction.<sup>18</sup> Based on these facts, the Federal Circuit concluded that it could not be determined what correction was appropriate or how the claim should have been interpreted, and thus held that the claim was invalid.<sup>19</sup>

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13. *Id.* at 1375.

14. *See ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929 (Fed. Cir. 1984); *Carman Indus. v. Wahl*, 724 F.2d 932, 937 n.5, 220 U.S.P.Q. 481 (Fed. Cir. 1983).

15. 415 F.3d 1303, 1327, 75 U.S.P.Q.2d 1321 (Fed. Cir. 2005) (en banc).

16. *Id.* at 1328.

17. 350 F.3d 1348, 69 U.S.P.Q.2d 1128 (Fed. Cir. 2003).

18. *Id.* at 1357.

19. *Id.* at 1358.

If a claim drafting error is amenable to more than one reasonable correction, but each correction yields the same meaning, then the claim error is correctible and the claim is not indefinite.<sup>20</sup> In upholding as valid a claim reciting a “computer being programmed to detect analyze [sic] the electronic mail,” the Federal Circuit held that the drafting error “detect analyze” did not render the claim invalid as indefinite, because the same meaning resulted whether the erroneous phrase was corrected to read “detect” standing alone, “analyze” standing alone, or “detect and analyze.” The Federal Circuit reasoned that to “detect” required analysis and to “analyze” required initial detection, so both yielded the same meaning as “detect and analyze.” Thus, the construction of the term was not subject to reasonable debate, and the error was correctible by reading the phrase “detect analyze” as “detect and analyze.”<sup>21</sup>

In *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*,<sup>22</sup> the Federal Circuit distinguished *Chef America* as allowing for only a single meaning that was nonsensical, whereas the claim limitation in *Ortho-McNeil* allowed for another construction that was supported by the intrinsic evidence. The limitation at issue in *Ortho-McNeil* defined a chemical compound by stating, “R2, R3, R4, and R5 are independently hydrogen or lower alkyl and R2 and R3 and/or R4 and R5 together may be a group of formula (II).”<sup>23</sup> In the allegedly infringing compound, R2, R3, R4, and R5 were neither hydrogen nor lower alkyl, and Mylan argued that the limitation quoted above was not satisfied. The court held that in such a claim defining a compound by a structural formula with variables, the highlighted word “and” could be properly construed to mean “or.” The court relied on the context of the claim itself, which defined the variables at issue using the adverbs “independently” and “together”; clear usage of “and” in the specification to link alternative structures; and a dictionary definition indicating the use of “and” for alternatives. Also, the court noted that absent such a construction, four dependent claims would be invalid or meaningless.<sup>24</sup> This issue could have been avoided, of course, by more careful drafting of the limitation defining R2, R3, R4, and R5.

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20. *CBT Flint Partners, LLC v. Return Path, Inc.*, 654 F.3d 1353, 1358–59, 99 U.S.P.Q.2d 1610 (Fed. Cir. 2011).

21. *Id.* at 1360.

22. 520 F.3d 1358, 86 U.S.P.Q.2d 1196 (Fed. Cir. 2008).

23. *Id.* at 1361.

24. *Id.* at 1361–62.

The Federal Circuit also distinguished *Chef America* in interpreting a claim to avoid invalidity in *Wellman, Inc. v. Eastman Chemical Co.*<sup>25</sup> The claim at issue referred to a polyethylene terephthalate (PET) resin as having a “heating crystallization exotherm peak temperature (T<sub>CH</sub>).” The Federal Circuit reversed a district court ruling that the claims were indefinite for lack of disclosure in the specification of the T<sub>CH</sub> measurement conditions. The Federal Circuit interpreted the claims as requiring determination of the T<sub>CH</sub> on PET that is in amorphous form, as disclosed in the examples in the specification. The Federal Circuit distinguished *Chef America* as involving rewriting a claim by replacing one word with another, while the present case involved interpreting claim terms in view of the specification.<sup>26</sup>

The Federal Circuit held in *Haemonetics Corp. v. Baxter Healthcare Corp.*<sup>27</sup> that a court may not construe a claim to ignore a structural limitation even if it leads to a nonsensical result. The claim at issue in *Haemonetics* stated that “[a] centrifugal unit comprising a centrifugal component and a plurality of tubes.” Construing the “centrifugal unit” as including a “plurality of tubes” according to the plain language of the claim rendered the dimensional limitations of the centrifugal unit nonsensical. In reaching its decision, the Federal Circuit noted that the apparent claim drafting error “is what the patentee claimed and what the public is entitled to rely on.”<sup>28</sup>

In *Bayer CropScience AG v. Dow AgroSciences LLC*,<sup>29</sup> the Federal Circuit declined to correct a claim drafting error that was due to a misunderstanding of the mechanism of action of a polypeptide coded by the claimed DNA sequence. The claim at issue referred to the polypeptide as “having the biological activity of a 2,4-D monooxygenase,” which experts in the field initially believed to be the case, but the polypeptide was later found to have the activity of a dioxygenase instead. The Federal Circuit construed the claim under its plain meaning, which resulted in a finding of noninfringement, and noted a lack of diligence on the patentee’s part in attempting to correct the problem: “Bayer chose the language based on an unverified belief that it accurately described its [polypeptide], learned that the belief was false while its application was

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25. 642 F.3d 1355, 1366–67, 98 U.S.P.Q.2d 1505 (Fed. Cir. 2011).

26. *Id.*

27. 607 F.3d 776, 781–82, 95 U.S.P.Q.2d 1556 (Fed. Cir. 2010).

28. *Id.* at 782–83.

29. 728 F.3d 1324, 108 U.S.P.Q.2d 1071 (Fed. Cir. 2013).



pending, had seven years before its patent issued to alter the language, but never did.”<sup>30</sup>

### C. Avoiding Indefiniteness Requires “Reasonable Certainty” of Scope

Section 112 requires that claims “particularly point[] out and distinctly claim[]” the invention.<sup>31</sup> Based on this requirement, courts have invalidated claims for indefiniteness.<sup>32</sup> It may be relatively easy to identify potential ambiguity in a patent claim. For example, one commentary has identified three varieties of ambiguity that may appear in patent claims.<sup>33</sup>

The U.S. Supreme Court in *Nautilus, Inc. v. Biosig Instruments, Inc.*<sup>34</sup> clarified that the proper standard for avoiding indefiniteness is that “a patent’s claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” The Court in *Nautilus* vacated and remanded a Federal Circuit decision that had applied the Federal Circuit’s existing standard that a claim is indefinite under section 112 only if it is “insolubly ambiguous” and not “amenable to construction.” This threshold was high, and not easily met even for claim terms that appear unclear at first glance: “If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds.”<sup>35</sup>

In *Nautilus*, the claim at issue related to a cylindrical bar that a user grips with both hands, each hand contacting a pair of electrodes and a display device, wherein the pairs of electrodes are “mounted . . . in spaced relationship with each other.” The Federal Circuit considered the limitation “spaced relationship” to be definite under the “insolubly

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30. *Id.* at 1328.

31. 35 U.S.C. § 112(b) (2012).

32. *See, e.g.*, *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 75 U.S.P.Q.2d 1801 (Fed. Cir. 2005); *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 77 U.S.P.Q.2d 1140 (Fed. Cir. 2005); *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 227 U.S.P.Q. 293 (Fed. Cir. 1985).

33. Michael S. Connor & John A. Wasleff, *Where Do We Go from Here? A Critical Examination of Existing Claim Construction Doctrine*, 86 J. PAT. & TRADEMARK OFF. SOC’Y 878, 894 (2004).

34. 134 S. Ct. 2120, 110 U.S.P.Q.2d 1688 (2014).

35. *Exxon Research & Eng’g Co. v. United States*, 265 F.3d 1371, 1375, 60 U.S.P.Q.2d 1272 (Fed. Cir. 2001), *overruled by Nautilus, Inc.*, 134 S. Ct. 2120.

ambiguous” standard.<sup>36</sup> The Supreme Court vacated the Federal Circuit’s decision and remanded for further proceedings in view of its newly established standard requiring “reasonable certainty.” On remand from the Supreme Court, the Federal Circuit applied the new “reasonable certainty” standard and again ruled that the limitation “spaced relationship” was not indefinite, relying on essentially the same reasoning used in its earlier, vacated decision.<sup>37</sup> This result suggests that the Supreme Court’s *Nautilus* standard may not have greatly lowered the bar for establishing indefiniteness.

It is unclear whether the new standard would have resulted in different outcomes in cases prior to the Supreme Court’s *Nautilus* decision. The Federal Circuit had been quite generous in applying the earlier, more lenient standard. For example, in *Young v. Lumenis, Inc.*,<sup>38</sup> the Federal Circuit reversed a district court’s ruling that the term “near” in a step of cutting the epidermis of a cat’s paw “near the edge” of a part of the claw was indefinite. The limitation at issue was “forming a first circumferential incision in the epidermis near the edge of the ungual crest of the claw” in a claim drawn to a surgical method for declawing a cat. The Federal Circuit construed the term “near” to mean “close to or at” the ungual crest, and compared “near” to the term “approximately” to conclude that a person of ordinary skill in the art would know where to cut the epidermis, based on several explanations in the specification and a figure illustrating where the cut should be made.<sup>39</sup> The Federal Circuit in *Deere & Co. v. Bush Hog, LLC* held that a claim limitation describing a deck as “easily . . . washed off” was not indefinite because the intrinsic evidence provided several physical characteristics to guide a skilled artisan in determining whether a given deck could be easily washed off or not, and because a skilled artisan could refer to prior art “easy-clean” decks as a standard for the same determination.<sup>40</sup> The term “adapted to” in the phrase “adapted to power a portion of the devices on the board” was held to be not indefinite because the specification explained what output

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36. *Biosig Instruments, Inc. v. Nautilus, Inc.*, 715 F.3d 891, 898–99, 106 U.S.P.Q.2d 1554 (Fed. Cir. 2013), *vacated and remanded by Nautilus, Inc.*, 134 S. Ct. 2120.

37. *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1382–84, 114 U.S.P.Q.2d 1651 (Fed. Cir. 2015), *on remand from* 134 S. Ct. 2120 (2014).

38. 492 F.3d 1336, 83 U.S.P.Q.2d 1191 (Fed. Cir. 2007).

39. *Id.* at 1345–46.

40. 703 F.3d 1349, 1360, 104 U.S.P.Q.2d 1881 (Fed. Cir. 2012).

power was necessary in the context of the claimed invention.<sup>41</sup> The Federal Circuit noted that relative terms such as “adapted to” or “near” are insolubly ambiguous only if the intrinsic record provides no guidance to skilled artisans regarding the scope of the relative term.<sup>42</sup> In another pre-*Nautilus* case, the Federal Circuit held that a claim term such as “aesthetically pleasing” may be hopelessly indefinite and insolubly ambiguous, for lack of an objective anchor.<sup>43</sup>

The Federal Circuit continued to apply this “objective anchor” requirement in cases after the Supreme Court’s *Nautilus* decision. For example, the Federal Circuit in *Interval Licensing LLC v. AOL, Inc.*<sup>44</sup> held that the claim term “in an unobtrusive manner that does not distract the user” is indefinite because it constitutes “facially subjective claim language without an objective boundary.” Later, in *DDR Holdings, LLC v. Hotels.com, L.P.*,<sup>45</sup> the Federal Circuit held that “[i]n sum, ‘look and feel’ is not a facially subjective term like ‘unobtrusive manner’ . . . or ‘aesthetically pleasing’ . . . . Rather, as demonstrated by Digital River’s own advertisements for its prior art SSS and its admissions at trial, the term had an established meaning in the art by the relevant timeframe.”

The Federal Circuit held that the claim limitation “minimal redundancy” was indefinite because the specification described the phrase using inconsistent terminology and the prosecution history did not explain the phrase, thereby providing no objective boundary for what constitutes “minimal redundancy.”<sup>46</sup> Similarly, the Federal Circuit concluded that the claim limitation “internet protocol quality of service (QoS) requirements” was entirely subjective and user-defined, based on the specification’s description of QoS as a relative term having different meanings for different users; thus, the limitation was indefinite.<sup>47</sup>

It is not necessary, however, for the specification to provide an objective standard of measure for establishing the scope of a limitation, if scope

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41. *Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1349, 94 U.S.P.Q.2d 1241 (Fed. Cir. 2010).

42. *Id.* at 1348.

43. *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 75 U.S.P.Q.2d 1801 (Fed. Cir. 2005).

44. 766 F.3d 1364, 1373, 112 U.S.P.Q.2d 1188 (Fed. Cir. 2014).

45. 773 F.3d 1245, 1261, 113 U.S.P.Q.2d 1097 (Fed. Cir. 2014).

46. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1363–64, 125 U.S.P.Q.2d 1649 (Fed. Cir. 2018).

47. *Intellectual Ventures I LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1381, 127 U.S.P.Q.2d 1697 (Fed. Cir. 2018).

can be determined with reasonable certainty.<sup>48</sup> In *Liberty Ammunition, Inc. v. United States*,<sup>49</sup> the Federal Circuit interpreted the claim limitation “reduced area of contact of said body with the rifling of the firearm” by referring to standard North Atlantic Treaty Organization (NATO)-issued rounds of corresponding caliber, because the specification indicated intent to improve on a NATO projectile, and because this interpretation provided an “objective boundary” for the scope of the limitation.

Lest practitioners believe that the formal requirements of section 112 are generally easy to satisfy, the Federal Circuit invalidated a dependent claim under section 112(d) because the claim did not fall within the scope of the claim from which it depended.<sup>50</sup>

The PTO applies a lower indefiniteness threshold to conform to its obligation to give claims their broadest reasonable interpretation (BRI). Thus, the PTO never applied the now-overruled “insolubly ambiguous” standard of the Federal Circuit, and even before *Nautilus* the PTO considered ambiguous a claim having two or more plausible constructions.<sup>51</sup> In particular, the PTO considers that “the applicant has an opportunity and a duty to amend the claims during prosecution to more clearly and precisely define the metes and bounds of the claimed invention.”<sup>52</sup>

The Federal Circuit in *In re Packard*, a decision preceding the Supreme Court’s *Nautilus* decision, essentially affirmed the PTO’s approach by stating:

[W]hen the USPTO has initially issued a well-grounded rejection that identifies ways in which language in a claim is ambiguous, vague, incoherent, opaque, or otherwise unclear in describing and defining the claimed invention, and thereafter the applicant fails to provide a satisfactory response, the USPTO can properly reject the claim as failing to meet the statutory requirements of § 112(b). The satisfactory response by the applicant can take the form of a modification of the language identified as unclear, a separate definition of the unclear language, or, in an appropriate case, a persuasive explanation for the record of why the language at issue is not actually unclear.<sup>53</sup>

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48. *Apple Inc. v. Samsung Elecs. Co.*, 786 F.3d 983, 1002–03, 114 U.S.P.Q.2d 1953 (Fed. Cir. 2015), *reversed and remanded on other grounds*, *Samsung Elecs. Co. v. Apple Inc.*, 137 S. Ct. 429 (2016).

49. 835 F.3d 1388, 1396–97, 119 U.S.P.Q.2d 1830 (Fed. Cir. 2016).

50. *Pfizer, Inc. v. Ranbaxy Labs. Ltd.*, 457 F.3d 1284, 1292, 79 U.S.P.Q.2d 1583 (Fed. Cir. 2006).

51. *Ex parte Miyazaki*, 89 U.S.P.Q.2d 1207, 1212 (B.P.A.I. 2008).

52. *Id.* at 1211–12.

53. *In re Packard*, 751 F.3d 1307, 1311, 110 U.S.P.Q.2d 1785 (Fed. Cir. 2014).

### III. CLAIM CONSTRUCTION

#### A. *Standard of Review*

In a long-awaited decision, the Supreme Court in *Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc.*<sup>54</sup> overruled the Federal Circuit’s en banc decision in *Lighting Ballast Control LLC v. Philips Electronics North America Corp.*<sup>55</sup> that had upheld the Federal Circuit’s 1998 decision in *Cybor Corp. v. FAS Technologies, Inc.*<sup>56</sup> that claim construction is a pure question of law.

In *Teva Pharmaceuticals*, the Supreme Court held that while a district court, not a jury, must decide claim construction, claim construction is a question of law with factual underpinnings. By allowing for deference to a trial court’s fact-finding under a “clear error” standard of review, *Teva Pharmaceuticals* may strengthen district court claim construction rulings on appeal and thereby reduce the Federal Circuit’s reversal rate.

Before *Teva Pharmaceuticals*, the Federal Circuit reviewed a district court’s claim construction de novo as a pure question of law with no factual underpinnings (i.e., with no deference to the district court for any aspect of the claim construction). The Supreme Court in *Markman v. Westview Instruments, Inc.* had held that claim construction is a question of law but suggested that some factual underpinnings could exist, stating that claim construction “falls somewhere between a pristine legal standard and a simple historical fact.”<sup>57</sup> The question remained whether the standard of review for claim construction should be exclusively de novo, with no deference to the district court, or whether some aspects of a district court’s claim construction should be reviewed under a clear error standard as an underlying factual issue. The Federal Circuit answered this question in *Cybor Corp. v. FAS Technologies, Inc.*,<sup>58</sup> holding that claim construction is a pure question of law with no factual underpinnings.

In *Teva Pharmaceuticals*, the Supreme Court reasoned that Federal Rule of Civil Procedure 52(a)(6) states that a court of appeals “must not . . . set aside” a district court’s findings of fact unless they are “clearly erroneous,” and that the Supreme Court’s earlier decisions held that this rule is

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54. 135 S. Ct. 831, 835, 113 U.S.P.Q.2d 1269 (2015).

55. 744 F.3d 1272, 109 U.S.P.Q.2d 1969 (Fed. Cir. 2014).

56. 138 F.3d 1448, 1451, 1455–56, 46 U.S.P.Q.2d 1169 (Fed. Cir. 1998).

57. 517 U.S. 370, 388, 38 U.S.P.Q.2d 1461 (1996).

58. 138 F.3d at 1451, 1455–56.

a “clear command” without exceptions.<sup>59</sup> The claim term at issue in *Teva Pharmaceuticals* was “molecular weight” of a mixture of co-polymers, where the litigants’ experts each presented a different meaning for the term. The Supreme Court held that by accepting the view of one expert over the other, the district court made a factual finding that must be reviewed by the Federal Circuit under the clear error standard.<sup>60</sup>

The Supreme Court specified that the clear error standard would apply only to factual findings about extrinsic evidence, whereas a claim construction based solely on intrinsic evidence would be subject to de novo review:

[W]hen the district court reviews only evidence intrinsic to the patent (the patent claims and specifications, along with the patent’s prosecution history), the judge’s determination will amount solely to a determination of law, and the Court of Appeals will review that construction de novo. In some cases, however, the district court will need to look beyond the patent’s intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period. . . . In cases where those subsidiary facts are in dispute, courts will need to make subsidiary factual findings about that extrinsic evidence. These are the “evidentiary underpinnings” of claim construction that we discussed in *Markman*, and this subsidiary factfinding must be reviewed for clear error on appeal.<sup>61</sup>

Thus, under *Teva Pharmaceuticals* the standard of review remains unchanged for Federal Circuit claim construction rulings where extrinsic evidence was not considered.

Regarding review of PTO claim construction rulings, the Federal Circuit held that it would apply *Teva Pharmaceuticals* to its review of the PTO’s application of its BRI standard; thus, the Federal Circuit would review underlying factual determinations involving extrinsic evidence for substantial evidence and would review the ultimate construction of the claim de novo.<sup>62</sup>

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59. *Teva Pharms.*, 135 S. Ct. at 836 (citing *Anderson v. Bessemer City*, 470 U.S. 564, 574 (1985); *Pullman-Standard v. Swint*, 456 U.S. 273, 287 (1982)).

60. *Id.* at 843.

61. *Id.* at 841.

62. *In re Cuozzo Speed Techs., LLC*, 778 F.3d 1271, 113 U.S.P.Q.2d 1613 (Fed. Cir. 2015), *aff’d on other grounds by Cuozzo Speed Techs., LLC v. Lee*, No. 15-446 (U.S. June 20, 2016).

## B. Phillips v. AWH

In *Phillips v. AWH Corp.*,<sup>63</sup> the Federal Circuit resolved an apparent conflict between *Vitronics Corp. v. Conceptoronic, Inc.*<sup>64</sup> and *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*,<sup>65</sup> on the one hand, which emphasized reliance on the intrinsic evidence for claim construction, and the differing approach set forth in *Texas Digital Systems, Inc. v. Telegenix, Inc.*,<sup>66</sup> which emphasized reliance on dictionary definitions for claim construction. The Federal Circuit's two predecessor courts, the Court of Claims and the Court of Customs and Patent Appeals,<sup>67</sup> had emphasized the importance of the specification in *Autogiro Co. of America v. United States*<sup>68</sup> and *In re Fout*.<sup>69</sup> The Federal Circuit had reemphasized this view in *Vitronics* by describing the specification as "always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term."<sup>70</sup>

In *Texas Digital*, the Federal Circuit had limited the role of the specification in claim construction and emphasized instead the ordinary meaning of the claim terms, as determined primarily through dictionaries.<sup>71</sup>

The court sat en banc in *Phillips* and rejected the dictionary-based approach of *Texas Digital*. Specifically, the court set out to decide "the extent to which we should resort to and rely on a patent's specification" in interpreting claims.<sup>72</sup> As the court explained in *Phillips*:

The main problem with elevating the dictionary to such prominence is that it focuses the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent. . . . The risk of systematic overbreadth is greatly reduced if the court instead focuses at the outset on how the patentee used the claim term in the

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63. 415 F.3d 1303, 75 U.S.P.Q.2d 1321 (Fed. Cir. 2005) (en banc).

64. 90 F.3d 1576, 39 U.S.P.Q.2d 1573 (Fed. Cir. 1996).

65. 381 F.3d 1111, 72 U.S.P.Q.2d 1001 (Fed. Cir. 2004).

66. 308 F.3d 1193, 64 U.S.P.Q.2d 1812 (Fed. Cir. 2002).

67. See *South Corp. v. United States*, 690 F.2d 1368, 215 U.S.P.Q. 657 (Fed. Cir. 1982) (en banc) (adopting as binding precedent the decisions of the Court of Claims and the Court of Customs and Patent Appeals).

68. 384 F.2d 391, 397–98, 155 U.S.P.Q. 697 (Ct. Cl. 1967).

69. 675 F.2d 297, 300, 213 U.S.P.Q. 532 (C.C.P.A. 1982).

70. *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1582, 39 U.S.P.Q.2d 1573 (Fed. Cir. 1996).

71. *Tex. Digital Sys.*, 308 F.3d 1193.

72. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312, 75 U.S.P.Q.2d 1321 (Fed. Cir. 2005) (en banc).

claims, specification, and prosecution history, rather than starting with a broad definition and whittling it down.<sup>73</sup>

The invention in *Phillips* related to wall modules that are secure against various types of assault (e.g., prison walls that can stop bullets from passing through). The relevant claim limitation was “steel baffles extending inwardly from the steel shell walls.” A panel of the Federal Circuit had construed “baffle” to exclude structures forming a 90-degree angle to the wall, based on the specification’s disclosure that the baffles should be set at an angle that prevents bullet penetration, the absence of any disclosure of baffles at a 90-degree angle, and disclosure of 90-degree baffles in the prior art.<sup>74</sup> The panel dissent would have relied primarily on a dictionary definition of baffles, which did not require any particular angle, as reflecting its plain meaning absent definition or disclaimer in the specification.<sup>75</sup>

The Federal Circuit granted a petition to rehear *Phillips* en banc and vacated the panel’s decision.<sup>76</sup> The en banc court reversed the panel majority’s construction of the term “baffles” as too narrow and adopted the panel dissent’s broader construction omitting any requirement for a 90-degree angle. The panel majority had interpreted the claims using what appeared to be the specification-based approach affirmed by the en banc court, while the dissent had advocated a *Texas Digital* dictionary-based claim interpretation yielding a broader construction. The en banc court in *Phillips* agreed with the panel dissent’s broad interpretation of “baffles” as not including an angle limitation, but disagreed with the panel dissent’s methodology. Instead of relying primarily on a dictionary definition, the court relied on the intrinsic evidence and concluded that the intrinsic evidence confirmed that a person of ordinary skill in the art would understand that the term “baffles” meant “objects that check, impede, or obstruct the flow of something” without angle limitation.<sup>77</sup> The en banc court criticized the approach taken in *Texas Digital* because of the danger of overbroad claim interpretation, but upon applying the specification-based approach of *Vitronics*, adopted the dissent’s broader interpretation of “baffles.”<sup>78</sup>

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73. *Id.* at 1321.

74. *Phillips v. AWH Corp.*, 363 F.3d 1207, 1213–14, 70 U.S.P.Q.2d 1417 (Fed. Cir. 2004) (withdrawn).

75. *Id.* at 1216–19 (Dyk, J., dissenting in part).

76. *Phillips v. AWH Corp.*, 376 F.3d 1382, 71 U.S.P.Q.2d 1765 (Fed. Cir. 2004).

77. *Phillips*, 415 F.3d at 1324.

78. *Id.* at 1325–28.



The en banc court relied on two bases for concluding that “baffles” contains no angle limitation. First, the court relied on the context of the claims and reasoned that claim differentiation supported interpreting “baffles” as containing no angle limitation because dependent claims 2 and 6 added specific orientation and angle limitations. Interpreting “baffles” to include an angle limitation would render those dependent claims wholly or partly redundant.<sup>79</sup>

Second, the court stated that interpreting “baffles” as containing no angle limitation was also supported by statements in the specification of other functions of the baffles besides projectile deflection (e.g., increasing load-bearing capacity).<sup>80</sup> Based on the district court’s erroneously narrow claim construction, the en banc court reversed the district court’s summary judgment of noninfringement and remanded.<sup>81</sup>

In *Phillips*, the Federal Circuit reaffirmed the systematic approach of *Vitronics*, interpreting the claims in light of the specification while emphasizing the context of the invention as understood by a person of ordinary skill in the art, with appropriate reliance on the prosecution history and extrinsic evidence. The court pointed to the first and second paragraphs of section 112<sup>82</sup> as the statutory framework for interpreting claims: “The second paragraph requires us to look to the language of the claims to determine what ‘the applicant regards as his invention.’ On the other hand, the first paragraph requires that the specification describe the invention set forth in the claims.”<sup>83</sup>

The various evidentiary sources differ in importance for construing claims. Primary are the claims themselves, so “the context in which a term is used in the asserted claim can be highly instructive” and the remaining claims “can also be valuable sources of enlightenment as to the meaning of a claim term.”<sup>84</sup>

Next, the Federal Circuit reiterated its statement in *Vitronics* that the specification is “the single best guide to the meaning of a disputed term.”<sup>85</sup> The court pointed to the first paragraph of section 112 as the

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79. *Id.* at 1324–25.

80. *Id.* at 1324–26.

81. *Id.* at 1328.

82. Citing to section 112 before revisions implemented by the America Invents Act of 2011 (AIA) on September 16, 2012; the text of the first and second paragraphs of pre-AIA section 112 appears essentially unchanged in post-AIA section 112(a) and (b).

83. *Phillips*, 415 F.3d at 1312.

84. *Id.* at 1314.

85. *Id.* at 1315.

statutory basis for the primary importance of the specification: “The close kinship between the written description and the claims is enforced by the statutory requirement that the specification describe the claimed invention in ‘full, clear, concise, and exact terms.’”<sup>86</sup>

The Federal Circuit stated that the prosecution history of the patent is secondary to the specification and claims for construing the claims because, as a representation of an ongoing negotiation between the PTO and the applicant, the prosecution history’s significance is often unclear. Nevertheless, the prosecution history should be considered, if in evidence, because it “provides evidence of how the PTO and the inventor understood the patent” and the prosecution history can show “how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.”<sup>87</sup>

Intrinsic evidence includes the claims, the written description (i.e., the specification other than the claims), and the prosecution history. Extrinsic evidence includes all evidence other than intrinsic evidence, including expert testimony, inventor testimony, dictionaries, and treatises. Extrinsic evidence may be consulted for construing claims, but it is of least significance and must be considered in the context of the intrinsic evidence.<sup>88</sup>

According to the Federal Circuit, extrinsic evidence is generally less reliable than intrinsic evidence because (1) it was not created at the time of patent prosecution for the purpose of explaining the patent’s scope and meaning; (2) it may not reflect the understanding of a skilled artisan in the field of the patent; (3) expert testimony generated for litigation may be biased; (4) given the unbounded universe of potential extrinsic evidence of some marginal relevance, it may be burdensome to distinguish the useful extrinsic evidence from the fluff; and (5) overemphasis on extrinsic evidence could undermine the public notice function of patents by too easily changing the meaning of claim terms.<sup>89</sup>

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86. *Id.* at 1316.

87. *Id.* at 1317.

88. *Id.* at 1319.

89. *Id.* at 1318–19.

### C. General Claim Construction Principles

As explained in *Phillips*,<sup>90</sup> and as reiterated thereafter by the Federal Circuit,<sup>91</sup> the ordinary meaning of a claim term is not based on the term's abstract meaning, but rather on its meaning to a person of ordinary skill in the art after reading the entire patent.

The Federal Circuit has emphasized that a claim term should be construed more narrowly than its apparent ordinary meaning in only two circumstances: where the applicant acted as his or her own lexicographer, or where the record shows clear disclaimer of claim scope by the applicant during prosecution.<sup>92</sup> These circumstances can arise even if merely implied by statements in the specification.<sup>93</sup>

These two important circumstances—applicant acting as lexicographer and disclaimer of claim scope—are discussed first in this section, followed by other principles of claim construction.

#### 1. Applicant as Lexicographer

An applicant may act as his or her own lexicographer by defining a claim term in the patent specification. As the Federal Circuit noted in *Renishaw PLC v. Marposs Societa' per Azioni*,<sup>94</sup> a definition contained in the specification provides the proper construction for the claim term, provided that the definition reflects “reasonable clarity, deliberateness, and precision.” The Federal Circuit reasoned that “the public may not be schooled in the terminology of the technical art or there may not be an extant term of singular meaning for the structure or concept that is being claimed.” In *Abbott Laboratories v. Syntron Bioresearch, Inc.*,<sup>95</sup> the Federal Circuit rejected ambiguous definitions in the specification as failing to clearly define the term “analyte.” The specification stated in one sentence that “analyte” referred to tested chemical entities and to reaction products of those tested chemical entities yet stated in another sentence

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90. *Id.* at 1321 (en banc).

91. *Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d 1314, 1320–21, 118 U.S.P.Q.2d 1013 (Fed. Cir. 2016).

92. *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1369, 103 U.S.P.Q.2d 1097 (Fed. Cir. 2012); *Aventis Pharma S.A. v. Hospira, Inc.*, 675 F.3d 1324, 1330, 102 U.S.P.Q.2d 1445 (Fed. Cir. 2012).

93. *In re Abbott Diabetes Care, Inc.*, 696 F.3d 1142, 1151, 104 U.S.P.Q.2d 1337 (Fed. Cir. 2012).

94. 158 F.3d 1243, 1249, 48 U.S.P.Q.2d 1117 (Fed. Cir. 1998).

95. 334 F.3d 1343, 1354–55, 67 U.S.P.Q.2d 1337 (Fed. Cir. 2003).

that “analyte” referred to chemical entities that were tested quantitatively. The Federal Circuit concluded that these statements ambiguously defined the term “analyte” and thus did not satisfy the *Renishaw* standard for clarity. The court instead relied on a technical reference to adopt the ordinary meaning of “analyte” as the substance analyzed or tested, without requiring that the testing be quantitative.

An applicant may also define a term by implication, through repeated use of the term in the specification indicating a particular meaning different from the ordinary meaning of the term. For example, in *Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc.*,<sup>96</sup> the Federal Circuit rejected the patent owner’s argument that the terms “mode” and “channel” should not be limited to specific modes and channels described in the specification for the claimed transmission system for digital subscriber line (DSL) signals. The court held that the specification defined these claim terms by implication through consistent use in a particular manner, despite the lack of explicit definition in the specification.

Applying similar reasoning to a claim regarding computer processing of program instructions, the Federal Circuit construed “prediction” as referring to dynamic prediction rather than static prediction, because the specification repeatedly described the prediction feature as dynamic, while describing no prediction that was active.<sup>97</sup>

In *Sinorgchem Co., Shandong v. International Trade Commission*,<sup>98</sup> the Federal Circuit held that a statement in the specification with a claim term in quotes followed by “is” constitutes an express definition. Specifically, the court held that the specification expressly defined “controlled amount” by setting off the term in quotation marks and following the term with the word “is” and an explanation.<sup>99</sup> The court noted that given such a clear, express definition, one need not search further for the meaning of the claim term.<sup>100</sup> Similarly, the Federal Circuit held that when the specification uses “refers to” to indicate the meaning of a phrase, this “generally indicates an intention to define a term.”<sup>101</sup> The Federal Circuit has

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96. 262 F.3d 1258, 1271, 59 U.S.P.Q.2d 1865 (Fed. Cir. 2001).

97. *Wis. Alumni Research Found. v. Apple Inc.*, 905 F.3d 1341, 1351, 128 U.S.P.Q.2d 1242 (Fed. Cir. 2018).

98. 511 F.3d 1132, 85 U.S.P.Q.2d 1415 (Fed. Cir. 2007).

99. *Id.* at 1136.

100. *Id.* at 1138.

101. *Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 679, 114 U.S.P.Q.2d 1349 (Fed. Cir. 2015).

also held that the expression “i.e.” (meaning “id est” or “that is”) signals that a definition follows.<sup>102</sup>

## 2. Disclaimer of Claim Scope

“Prosecution disclaimer” occurs when the applicant has clearly disclaimed broader scope by arguments made during prosecution. For example, prosecution disclaimer can result from repeated statements to the PTO about the “invention,”<sup>103</sup> and especially statements made to differentiate over prior art<sup>104</sup> or to overcome clarity objections,<sup>105</sup> thereby limiting the scope of the claims in later litigation or license negotiations.

The doctrine of prosecution disclaimer applies not only to statements made during prosecution of a patent application, but also to statements made in post-issuance proceedings of a granted patent before the PTO (e.g., reissue, reexamination, and inter partes review (IPR) proceedings).<sup>106</sup> The Federal Circuit explained in *Omega Engineering, Inc. v. Raytek Corp.*<sup>107</sup> that such statements must be “so clear as to show reasonable clarity and deliberateness” and “so unmistakable as to be unambiguous evidence of disclaimer.” Nevertheless, the Federal Circuit has stated that “applicants rarely submit affirmative disclaimers along the lines of ‘I hereby disclaim the following . . .’ during prosecution and need not do so to meet the applicable standard.”<sup>108</sup> Indeed, prosecution disclaimer may be found where the patent applicant failed to challenge statements of narrow scope made by an examiner in rejecting a claim, particularly

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102. *TF3 Ltd. v. Tre Milano, LLC*, 894 F.3d 1366, 1372, 127 U.S.P.Q.2d 1349 (Fed. Cir. 2018); *Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1334, 92 U.S.P.Q.2d 1599 (Fed. Cir. 2009); *SkinMedica, Inc. v. Histogen Inc.*, 727 F.3d 1187, 1202, 108 U.S.P.Q.2d 1001 (Fed. Cir. 2013).

103. *See Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325–26, 67 U.S.P.Q.2d 1321 (Fed. Cir. 2003) (repeated statements during prosecution regarding the invention unmistakably surrendered subject matter).

104. *See Day Int’l, Inc. v. Reeves Bros., Inc.*, 260 F.3d 1343, 1349, 59 U.S.P.Q.2d 1790 (Fed. Cir. 2001) (repeated statements during prosecution distinguishing prior art deemed to limit claims).

105. *Samsung Elecs. Co. v. Elm 3DS Innovations, LLC*, 925 F.3d 1373, 1379 (Fed. Cir. 2019).

106. *Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1361, 122 U.S.P.Q.2d 1672 (Fed. Cir. 2017).

107. 334 F.3d at 1325.

108. *Saffran v. Johnson & Johnson*, 712 F.3d 549, 559, 106 U.S.P.Q.2d 1274 (Fed. Cir. 2013).

where the record shows that the applicant adopted the examiner's characterization in responding to the examiner's rejection.<sup>109</sup>

The Federal Circuit in *Alfred E. Mann Foundation for Scientific Research v. Cochlear Corp.*<sup>110</sup> declined to interpret the limitation "signals which convey information" as requiring external display of the information, despite the PTO examiner's statement that the claims were allowed because the prior art did not disclose or suggest external display. The Federal Circuit reasoned that this argument had not been presented to the PTO by the patentee (who had instead distinguished the prior art by relying on the invention's real-time testing abilities) and that "an examiner's unilateral statement does not give rise to a clear disavowal of claim scope by the applicant."<sup>111</sup>

In *UCB, Inc. v. Yeda Research & Development Co., Ltd.*,<sup>112</sup> the Federal Circuit interpreted a term in a claim more narrowly than its plain meaning, because during prosecution dependent claims were added, rejected as presenting new matter, and later canceled. The claim term at issue was "monoclonal antibody," and the added dependent claims limited "monoclonal antibody" to antibodies that were chimeric or humanized. The Federal Circuit recognized that the claim reciting "monoclonal antibody" had not been amended, but nevertheless construed "monoclonal antibody" to exclude chimeric and humanized antibodies, because "a patent applicant cannot later obtain scope that was requested during prosecution, rejected by the Examiner, and then withdrawn by the applicant."<sup>113</sup>

Patent applicants should be wary that statements of disclaimer may arise from a variety of sources (i.e., prosecution disclaimer is not limited to statements made in response to PTO actions on the merits). For example, an applicant's statements in an information disclosure statement can act as disclaimer of claim scope.<sup>114</sup> Also, statements in a priority document incorporated by reference into a patent can constitute disavowal of claim scope.<sup>115</sup> The Federal Circuit has also held that statements made in a response to a restriction requirement "may be used to interpret patent

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109. *Biogen Idec, Inc. v. GlaxoSmithKline LLC*, 713 F.3d 1090, 1096, 106 U.S.P.Q.2d 1397 (Fed. Cir. 2013).

110. 841 F.3d 1334, 1341, 123 U.S.P.Q.2d 1669 (Fed. Cir. 2016).

111. *Id.*

112. 837 F.3d 1256, 1261, 120 U.S.P.Q.2d 1488 (Fed. Cir. 2016).

113. *Id.*

114. *Golden Bridge Tech., Inc. v. Apple, Inc.*, 758 F.3d 1362, 1366, 111 U.S.P.Q.2d 1812 (Fed. Cir. 2014).

115. *X2Y Attenuators, LLC v. Int'l Trade Comm'n*, 757 F.3d 1358, 1363, 111 U.S.P.Q.2d 1607 (Fed. Cir. 2014).

claim terms or as a source of disclaimer,”<sup>116</sup> citing to an earlier case where prosecution disclaimer resulted from statements made in an information disclosure statement.<sup>117</sup>

In *SanDisk Corp. v. Memorex Products*,<sup>118</sup> the Federal Circuit held that “clear and unambiguous disclaimer” of claim scope requires that no other reasonable interpretation exists. The claims at issue in *SanDisk* were drawn to methods of operating a computer system using an array of memory cells. The district court had found, based on statements by SanDisk during prosecution characterizing the memory as partitioned, that SanDisk disclaimed any method or device wherein the memory cells were not grouped into partitioned sectors. On appeal, the Federal Circuit reversed, reasoning that SanDisk’s arguments did not unmistakably surrender claim scope. The court noted that the claims were method claims drafted using open-ended language, which did not exclude memory that was not required by the claims. Consequently, the court concluded that the statements made during prosecution merely described the memory of the specifically claimed method but did not clearly disclaim additional memory having different features. The Federal Circuit concluded that the prosecution history did not compel disclaimer of memory cells with unpartitioned sectors.

An argument in the prosecution history distinguishing prior art can constitute disclaimer of claim scope, even if the argument was cumulative to other distinguishing arguments and the examiner expressed disagreement with the argument constituting disclaimer.<sup>119</sup> The Federal Circuit later applied this principle to decide the scope of “device” in claims drawn to mesh stents and methods of using the mesh stents to treat damaged tissue.<sup>120</sup> During prosecution, the applicant distinguished a prior art reference by arguing that the device is a sheet and that the device is not a preformed chamber. The Federal Circuit held that the “device” must be a sheet, even if the examiner relied only on the argument that the device was not a preformed chamber: “[A]n applicant’s argument that a prior art reference is distinguishable

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116. *Uship Intellectual Props., LLC v. United States*, 714 F.3d 1311, 1315, 106 U.S.P.Q.2d 1598 (Fed. Cir. 2013).

117. *Ekchian v. Home Depot, Inc.*, 104 F.3d 1299, 1304, 41 U.S.P.Q.2d 1364 (Fed. Cir. 1997).

118. 415 F.3d 1278, 1287, 75 U.S.P.Q.2d 1475 (Fed. Cir. 2005).

119. *Am. Piledriving Equip., Inc. v. Geoquip, Inc.*, 637 F.3d 1324, 1336, 98 U.S.P.Q.2d 1001 (Fed. Cir. 2011).

120. *Saffran v. Johnson & Johnson*, 712 F.3d 549, 106 U.S.P.Q.2d 1274 (Fed. Cir. 2013).

on a particular ground can serve as a disclaimer of claim scope even if the applicant distinguishes the reference on other grounds as well.”<sup>121</sup>

Clearly inaccurate or erroneous statements do not constitute clear disclaimer. For example, in *Elbex Video, Ltd. v. Sensormatic Electronics Corp.*,<sup>122</sup> the claim limitation at issue was “receiving means for receiving said video signals and said 1st code signals” in a claim drawn to a closed-circuit television apparatus. During prosecution, the applicants, in attempting to overcome prior art, asserted that the video signals were received by a monitor. The Federal Circuit noted that these prosecution statements were inconsistent with other statements made during prosecution, as well as with portions of the specification, and would yield an inoperable system.<sup>123</sup> On this “unique amalgamation of facts,” the Federal Circuit declined to limit the receiving means to a monitor, because the disclaimer in the prosecution history was not clear and unambiguous.<sup>124</sup>

In *North American Container, Inc. v. Plastipak Packaging, Inc.*,<sup>125</sup> the Federal Circuit considered the scope of a term used twice in a claim. The relevant claim term was “generally convex,” referring to inner wall portions and outer wall portions of a bottle-shaped plastic container. The court held that the term “generally convex” precluded any concavity in the inner wall portions because the applicant, in distinguishing prior art references, characterized those references as disclosing slightly concave inner walls. The court also held, however, that the term “generally convex” allowed for some concavity in the outer wall portions, because the applicant’s arguments during prosecution were limited to the inner walls. It rejected the patent owner’s argument on appeal that the references disclosed entirely concave inner walls, and concluded that this description mischaracterized the references. The Federal Circuit held that the narrow construction was an “inescapable consequence” of the arguments made during prosecution, regardless of the actual disclosure in the references.

In *Nystrom v. TREX Co.*,<sup>126</sup> the Federal Circuit reversed its earlier decision<sup>127</sup> regarding the proper scope of the term “board” in a claim drawn to a structure for outdoor flooring. Its initial decision relied on dictionary definitions, citing *Texas Digital*, to construe “board” as not

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121. *Id.* at 559.

122. 508 F.3d 1366, 85 U.S.P.Q.2d 1137 (Fed. Cir. 2007).

123. *Id.* at 1372–73.

124. *Id.* at 1373.

125. 415 F.3d 1335, 1345, 75 U.S.P.Q.2d 1545 (Fed. Cir. 2005).

126. 424 F.3d 1136, 76 U.S.P.Q.2d 1481 (Fed. Cir. 2005).

127. 374 F.3d 1105, 71 U.S.P.Q.2d 1241 (Fed. Cir. 2004).



being limited to wooden boards.<sup>128</sup> After deciding *Phillips* en banc, the court withdrew and superseded the initial *Nystrom* decision with a second decision<sup>129</sup> yielding the opposite interpretation of “board.” In its second decision, the Federal Circuit relied primarily on the specification and prosecution history. The specification nowhere referred to boards made of materials other than wood, and referred repeatedly to wooden boards or boards cut from logs. Furthermore, the prosecution history contained statements by the applicants asserting or implying that the boards were wooden. The Federal Circuit found no need for “clear disavowal of claim scope” to construe “board” as being limited to conventional wooden boards. Instead, the court held that if the context of the intrinsic evidence shows an ordinary and customary meaning, it is improper to rely on dictionaries for a broader definition:

What *Phillips* now counsels is that in the absence of something in the written description and/or prosecution history to provide explicit or implicit notice to the public—i.e., those of ordinary skill in the art—that the inventor intended a disputed term to cover more than the ordinary and customary meaning revealed by the context of the intrinsic record, it is improper to read the term to encompass a broader definition simply because it may be found in a dictionary, treatise, or other extrinsic source.<sup>130</sup>

In *Honeywell International, Inc. v. ITT Industries, Inc.*,<sup>131</sup> the Federal Circuit narrowly construed the claim terms “electrically conductive fibers” and “fuel system component” in a claim drawn to a moldable material for automotive fuel systems. In construing the term “electrically conductive fibers,” the court held that repeated derogatory statements in the specification regarding carbon fibers constituted clear disavowal of that subject matter. Accordingly, carbon fibers were not included within the scope of “electrically conductive fibers.” The court also limited the scope of the term “fuel system component” to fuel filters, based on statements in the specification regarding the “invention” and despite contrary statements by the applicant during prosecution and by the examiner in a restriction requirement. The Federal Circuit thereby emphasized the primacy of the specification over the prosecution history in claim construction.<sup>132</sup>

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128. *Id.* at 1111–12.

129. *Nystrom*, 424 F.3d at 1145.

130. *Id.*

131. 452 F.3d 1312, 79 U.S.P.Q.2d 1294 (Fed. Cir. 2006).

132. *Id.* at 1319–20.

In *Openwave Systems, Inc. v. Apple Inc.*,<sup>133</sup> the Federal Circuit affirmed a district court’s construction of the claim term “mobile device” as excluding computer modules because “the specification repeatedly and clearly distinguished the invention” from mobile devices that contained computer modules and thus were costlier and had a shorter battery life. Similarly, the Federal Circuit in *UltimatePointer, LLC v. Nintendo Co., Ltd.*<sup>134</sup> construed the term “handheld device” as limited to a “direct-pointing” device and excluding indirect-pointing devices, because the specification repeatedly emphasized that the invention relates to a direct-pointing device, and the specification disparaged indirect-pointing devices. The same reasoning was applied to a claim drawn to a pharmaceutical film containing a dried matrix. The specification repeatedly disparaged conventional top air drying as not producing uniform films, and on that basis the Federal Circuit interpreted the claim as excluding films formed using conventional top air drying.<sup>135</sup>

The title of a patent may also contribute to narrow construction of a claim term.<sup>136</sup> Thus, practitioners should avoid using an overly specific title and should consider revising a title that is in any aspect narrower than the claims.

The presence of derogatory statements about an embodiment does not necessarily constitute clear disavowal, however. In *Epistar Corp. v. International Trade Commission*,<sup>137</sup> the Federal Circuit declined to construe the term “transparent window layer” as excluding indium-tin oxide (ITO), despite statements in the specification that disparaged the use of ITO, because those statements, taken in the context of the specification as a whole, merely discouraged use of ITO, but did not express a “manifest exclusion.” More precisely, the specification merely stated that ITO yielded results that were not “completely satisfactory,” and this did not represent a clear disavowal of claim scope.<sup>138</sup>

The Federal Circuit has held that it is improper to limit claims to a particular feature merely because all embodiments disclosed in the specification contain that feature. In *Ventana Medical Systems, Inc. v. Biogenex Laboratories, Inc.*,<sup>139</sup> the district court construed “dispensing” to mean

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133. 808 F.3d 509, 516–17, 117 U.S.P.Q.2d 1189 (Fed. Cir. 2015).

134. 816 F.3d 816, 823–24, 118 U.S.P.Q.2d 1125 (Fed. Cir. 2016).

135. *Indivior Inc. v. Dr. Reddy’s Labs., S.A.*, 930 F.3d 1325, 1339 (Fed. Cir. 2019).

136. *Forest Labs., LLC v. Sigmapharm Labs., LLC*, 918 F.3d 928, 933 (Fed. Cir. 2019).

137. 566 F.3d 1321, 1336, 91 U.S.P.Q.2d 1180 (Fed. Cir. 2009).

138. *Id.* at 1335–36.

139. 473 F.3d 1173, 1182–83, 81 U.S.P.Q.2d 1314 (Fed. Cir. 2006).

“directly dispensing,” erroneously relying on the patent’s background section, which described prior art systems using an indirect dispensing method (“sip and spit” using pipettes). Yet the background section also described direct dispensing systems, so the district court’s reasoning would improperly require also disclaiming the patent’s preferred embodiment. The district court also erroneously relied on prosecution disclaimer in related applications, where the applicants distinguished the prior art by emphasizing direct dispensing. According to the Federal Circuit, the relevant claims in those applications contained language requiring either direct dispensing or another structural feature precluding indirect dispensing, and thus differed sufficiently to preclude extending prosecution disclaimer to the claims at issue.<sup>140</sup>

The Federal Circuit has also held that it is improper to limit a claim without associating specific words in the claim to the narrowing limitations, even if a clear basis exists in the specification and prosecution history for limiting the invention.<sup>141</sup> Context-based claim construction differs from importing a limitation from the specification because context-based claim construction must relate to an existing claim limitation; a limitation is therefore erroneously imported from the specification when a claim is narrowed without reference to an existing limitation.<sup>142</sup>

Disclaimer applied to a claim limitation in a patent application may not apply in a subsequent related application if the claim limitation has been “omitted or materially altered” in the subsequent application relative to the same limitation in the first application.<sup>143</sup>

Nevertheless, the Federal Circuit apparently recognizes an exception to the requirement for limitation-based disclaimer, if the patentee has made clear statements of disclaimer regarding “the present invention” in the specification and in the prosecution history.<sup>144</sup>

In a cautionary case for practitioners, the Federal Circuit held that an applicant may narrow claim scope by defining a term that appears in the specification but not in any claim, in a form of “implicit disclaimer”

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140. *Id.* at 1184.

141. *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1330–31, 81 U.S.P.Q.2d 1661 (Fed. Cir. 2007).

142. *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1379, 77 U.S.P.Q.2d 1988 (Fed. Cir. 2006).

143. *Saunders Group, Inc. v. Comfortrac, Inc.*, 492 F.3d 1326, 1333, 83 U.S.P.Q.2d 1225 (Fed. Cir. 2007).

144. *Ormco Corp. v. Align Tech., Inc.*, 498 F.3d 1307, 1314–15, 84 U.S.P.Q.2d 1146 (Fed. Cir. 2007).

of claim scope. In *SkinMedica, Inc. v. Histogen, Inc.*,<sup>145</sup> the Federal Circuit interpreted the expression “i.e.” as defining a term in the specification more narrowly than its common meaning at the time. The court held that the specification defined beads as two-dimensional by the phrase “beads (i.e., two-dimensions),” although it was known in the art at the time to use three-dimensional beads for the claimed method of culturing cells. The court reasoned that because the applicants defined beads to be solely two-dimensional, the claim limitation “culturing . . . cells in three-dimensions” could not include beads.<sup>146</sup>

Dictionary definitions may still be useful to interpret a claim, particularly where a patent specification is silent. For example, in construing the claim term “geometry” in *Ormco Corp. v. Align Technology, Inc.*,<sup>147</sup> the Federal Circuit looked to the specification for a definition and, finding none, relied on a dictionary definition to construe “geometry” more broadly than the invention disclosed in the specification might have suggested. As a result, the Federal Circuit held that the claims were invalid over the prior art. The claim at issue was drawn to “[a] method for repositioning teeth . . . wherein the first appliance has a geometry selected to reposition the teeth.” The court was silent on the “context” of the invention as disclosed in the specification, which could have led to a narrower construction. Instead, the court held that the district court erred by construing “geometry” narrowly based on the disclosure in the specification of changing the relative positions of cavities in transparent braces for positioning teeth.

The Federal Circuit has repeatedly rejected arguments that evidence of disclaimer in the prosecution history should be ignored if the patentee disclaimed more than what was needed to obtain allowance. For example, in a claim drawn to a bacterium with enhanced activity due to “replacing the native promoter” in a gene, the relevant limitation originally referred to altering an expression regulation sequence (a promoter is part of an expression regulation sequence). To overcome rejections for inadequate written description and non-enablement, the claim language was changed from “alteration of expression regulation sequence” to “replacing the native promoter.” The Federal Circuit rejected the argument that “replacing the native promoter” should be interpreted

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145. 727 F.3d 1187, 108 U.S.P.Q.2d 1001 (Fed. Cir. 2013).

146. *Id.* at 1200.

147. 463 F.3d 1299, 1306–07, 79 U.S.P.Q.2d 1931 (Fed. Cir. 2006).

to include “altering the native promoter” because the latter expression would have overcome the rejections.<sup>148</sup>

In PTO proceedings, the PTO is not generally obligated to accept a patent applicant’s narrow interpretation of a claim term when “proffered as a prosecution history disclaimer, which generally only binds the patent owner.”<sup>149</sup> In *Tempo Lighting, Inc. v. Tivoli, LLC*,<sup>150</sup> an appeal of a PTO inter partes reexamination, the Federal Circuit approved of the PTO Board’s acceptance of the patent applicant’s statement during prosecution that the claim term “inert to light” means “non-photoluminescent.” The applicant made the statement to explain replacing “non-photoluminescent” with “inert to light” in response to the PTO examiner’s objection to “non-photoluminescent” as a negative limitation; the court reasoned that the PTO examiner’s broader interpretation was unsupported by the intrinsic evidence and improperly relied on an extrinsic dictionary definition of “inert.”<sup>151</sup>

Prosecution disclaimer in a patent may affect a subsequent continuation or divisional patent: if prosecution disclaimer limits the scope of a claim limitation in a patent, the same will apply to claim limitations in later, related patents if the claim limitations are the same or substantially the same.<sup>152</sup> Regarding statements in prosecuting applications related by priority, the Federal Circuit has held that “when multiple patents derive from the same initial application, the prosecution history regarding a claim limitation in any patent that has issued applies with equal force to subsequently issued patents that contain the same claim limitation.”<sup>153</sup> This may not be the case for continuation-in-part applications, particularly if subject matter added in the continuation-in-part application contradicts the relevant statements of disclaimer made in the earlier application.<sup>154</sup> Similarly, narrowing statements found in the specification of a provisional application may not establish disclaimer of claim scope in

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148. *Ajinomoto Co. v. Int’l Trade Comm’n*, 932 F.3d 1342, 1347 (Fed. Cir. 2019).

149. *Tempo Lighting, Inc. v. Tivoli, LLC*, 742 F.3d 973, 978, 109 U.S.P.Q.2d 1599 (Fed. Cir. 2014).

150. *Id.*

151. *Id.* at 977–78.

152. *Regents of the Univ. of Minn. v. AGA Med. Corp.*, 717 F.3d 929, 943–44, 106 U.S.P.Q.2d 1982 (Fed. Cir. 2013).

153. *Stryker Corp. v. Zimmer, Inc.*, 782 F.3d 649, 656, 114 U.S.P.Q.2d 1187 (Fed. Cir. 2015), *vacated on other grounds and remanded sub nom.* *Halo Elecs. v. Pulse Elecs., Inc.*, 831 F.3d 1369, 119 U.S.P.Q.2d 1654 (Fed. Cir. 2016).

154. *Trading Techs. Int’l v. Open E Cry, LLC*, 728 F.3d 1309, 1323, 107 U.S.P.Q.2d 2085 (Fed. Cir. 2013).

a subsequent non-provisional application, even if the latter incorporates by reference the provisional application, where those narrowing statements were omitted from the specification of the non-provisional application and where the non-provisional application contained contrary statements.<sup>155</sup> In another case, the Federal Circuit stated more broadly that where a group of patents “derive from the same parent application and share many common terms,” the claims must be interpreted “consistently across all asserted patents.”<sup>156</sup>

The Federal Circuit in *Hill-Rom Services, Inc. v. Stryker Corp.*,<sup>157</sup> however, held that statements in the prosecution history of a later, unrelated patent cannot be used to interpret a patent’s claims.

Disclaimer of claim scope may also arise from statements made before a foreign patent office during prosecution of a counterpart patent application if “not related to unique aspects of foreign patent law.”<sup>158</sup>

### 3. Preamble Terms and Transitional Phrases

No bright-line rule delineates when a claim preamble acts to limit a claim (i.e., whether the scope of the claim extends only to structures or processes incorporating everything recited in the claim preamble). Nevertheless, some general principles apply. The Federal Circuit explained these general principles in *Catalina Marketing, International v. Coolsavings.com*.<sup>159</sup> Specifically, a claim preamble acts to limit the claim if the preamble recites essential structure or steps or is “necessary to give life, meaning, and vitality” to the claim. For example, in a Jepson claim, wherein the preamble states those limitations representative of the prior art and the body of the claim states limitations that distinguish over the prior art, the preamble is deemed to limit the claim. The preamble will also be deemed to limit a claim if a term in the preamble provides antecedent basis for a term in the body of the claim, or if the preamble is otherwise essential to understanding limitations in the body of the claim. In contrast, a preamble will not limit the claim if it merely states the purpose or

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155. MPHJ Tech. Invs., LLC v. Ricoh Americas Corp., 847 F.3d 1363, 1369, 121 U.S.P.Q.2d 1625 (Fed. Cir. 2017).

156. Sightsound Techs., LLC v. Apple Inc., 809 F.3d 1307, 1316, 117 U.S.P.Q.2d 1341 (Fed. Cir. 2015).

157. 755 F.3d 1367, 1381, 111 U.S.P.Q.2d 1501 (Fed. Cir. 2014).

158. Apple Inc. v. Motorola, Inc., 757 F.3d 1286, 1312, 110 U.S.P.Q.2d 1695 (Fed. Cir. 2014); see also Starhome GmbH v. AT&T Mobility LLC, 743 F.3d 849, 858, 109 U.S.P.Q.2d 1885 (Fed. Cir. 2014).

159. 289 F.3d 801, 807–08, 62 U.S.P.Q.2d 1781 (Fed. Cir. 2002).

intended use for the invention and the body of the claim defines a structurally complete invention.<sup>160</sup>

A court may decide to treat only part of a preamble as limiting. Thus, the Federal Circuit construed the preamble “method for generating and updating data for use in a destination tracking system of at least one mobile unit” as limiting for the phrase “destination tracking system of at least one mobile unit” (because it recited necessary structure), but not for the phrase “generating and updating data for use in” (because it recited an intended use).<sup>161</sup>

At least one member of the Federal Circuit would prefer that all preambles be considered to limit the claims (“we have not succeeded in articulating a clear and simple rule”) and suggested that this issue should be resolved by the court sitting en banc.<sup>162</sup>

A “transitional phrase” traditionally appears between the preamble and the body of the claim, and indicates the extent to which the claim limitations exclude other components or steps.<sup>163</sup> The Federal Circuit has recognized certain transitional phrases, such as “comprising,” “consisting essentially of,” and “consisting of,” as terms of art in patent law that define what unrecited additional components or steps are excluded.<sup>164</sup> If one of these phrases appears in the body of the claim, the phrase relates to the associated limitations but does not otherwise affect the remaining limitations of the claim as a whole.<sup>165</sup>

The transitional phrase “comprising” is open-ended and allows for additional unrecited components or steps.<sup>166</sup> The open-endedness of “comprising” may be limited in some contexts. In *Dippin’ Dots, Inc. v. Mosey*,<sup>167</sup> the Federal Circuit considered the scope of the term “beads” in a claim to a method of making an ice cream product, wherein the claim used the transitional phrase “comprising.” The claim recited “[a] method

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160. *Id.* at 808–09.

161. *TomTom, Inc. v. Adolph*, 790 F.3d 1315, 1323, 115 U.S.P.Q.2d 1232 (Fed. Cir. 2015).

162. *Am. Med. Sys., Inc. v. Biolitec, Inc.*, 618 F.3d 1354, 1363–64, 96 U.S.P.Q.2d 1652 (Fed. Cir. 2010) (Dyk, J., dissenting).

163. *Gillette Co. v. Energizer Holdings*, 405 F.3d 1367, 1371–73, 74 U.S.P.Q.2d 1586 (Fed. Cir. 2005).

164. *Conoco, Inc. v. Energy & Env’tl. Int’l, L.C.*, 460 F.3d 1349, 1360, 79 U.S.P.Q.2d 1801 (Fed. Cir. 2006).

165. *Mannesmann Demag Corp. v. Engineered Metal Prods. Co.*, 793 F.2d 1279, 1282, 230 U.S.P.Q. 45 (Fed. Cir. 1986).

166. *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368, 66 U.S.P.Q.2d 1631 (Fed. Cir. 2003).

167. 476 F.3d 1337, 81 U.S.P.Q.2d 1633 (Fed. Cir. 2007).

of preparing and storing a free-flowing, frozen alimentary dairy product, comprising the steps of . . . freezing said dripping alimentary composition into beads.” The specification defined “beads” as having a “smooth, spherical appearance.” The accused process yielded both beads and irregular particles. The Federal Circuit held that while the transitional term “comprising” rendered the enumerated steps open-ended and thus allowed for additional steps, the “presumption raised by the term ‘comprising’ does not reach into each of the six steps to render every word and phrase therein open-ended—especially where, as here, the patentee has narrowly defined the claim term it now seeks to have broadened.” The court stated that the open-ended preamble term “comprising” could not serve as a “weasel word” to expand the scope of individual steps that referred only to “beads.”<sup>168</sup>

In another case, the Federal Circuit relied on *Dippin’ Dots* to narrowly construe the term “a syllabic element” recited in a step of a claim to a keyboard input method, for keyboards where each key represents more than one letter, which matches key strokes with a vocabulary list.<sup>169</sup> The relevant claim step was “matching said binary code with one or more pre-programmed codes, each pre-programmed code being representative of a syllabic element.”<sup>170</sup> The Federal Circuit rejected a broad construction of “syllabic element” to include a word or part of a word, and instead limited it to single-syllable letter groups. The court rejected the argument that the transition word “comprising” would allow unrecited steps such that the claim would include matching nonsyllabic elements. The court cited *Dippin’ Dots* for the premise that “comprising” in the preamble does not reach into every claimed step to make each term therein open-ended, where the applicant narrowly defined that term. Here, during prosecution, the applicants introduced the limitation “syllabic elements” to overcome prior art disclosing matching with a list of words that could be multi-syllabic and distinguished the prior art by equating the limitation “syllabic elements” to “syllable-like letter groups.”<sup>171</sup>

The Federal Circuit also relied on *Dippin’ Dots* to hold that “comprising” in the preamble of a process claim reciting a step of “fractionating the pyrolysis gasoline to form a purified benzene product” excludes a process where fractionating is followed by distillation to arrive at the

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168. *Id.* at 1343.

169. *Regents of the Univ. of Tex. Sys. v. BENQ Am. Corp.*, 533 F.3d 1362, 87 U.S.P.Q.2d 1437 (Fed. Cir. 2008).

170. *Id.* at 1365.

171. *Id.* at 1369–72.



benzene product. The Federal Circuit reasoned that despite the word “comprising” in the preamble, each step must be performed as written, and including distillation would require reading the claim as stating “and forming a purified benzene product” instead of “to form a purified benzene product.”<sup>172</sup>

In *CIAS, Inc. v. Alliance Gaming Corp.*,<sup>173</sup> the Federal Circuit held that the transition phrase “comprised of” should be treated as open-ended and generally equivalent to “comprising.”

The transitional phrase “consisting essentially of” is less open-ended than “comprising” but more open-ended than “consisting of.”<sup>174</sup> The Federal Circuit has stated that “the term ‘consisting essentially of’ . . . is open to unlisted ingredients that do not materially affect the basic and novel properties of the invention.”<sup>175</sup> In *AK Steel Corp. v. Sollac*,<sup>176</sup> the court considered the scope of “consisting essentially of” in a claim drawn to hot-dip aluminum-coated stainless steel. The limitation at issue was “coating metal consisting essentially of aluminum.” The Federal Circuit held that this limitation excluded aluminum containing 10 percent or more silicon because the specification stated that such quantities of silicon did not achieve the goal of the invention, which was to enhance wetting by a coating metal. As such, 10 percent or more silicon would be excluded as materially affecting the basic and novel properties of the invention.

Practitioners should be wary of the transition phrase “consisting essentially of” because indefiniteness could result if the disclosed basic and novel property of the invention does not satisfy the *Nautilus* definiteness standard. A claim drawn to topical formulation was ruled indefinite due to use of the transition phrase “consisting essentially of” followed by a list of ingredients, where the specification identified as basic and novel the property of the invention “better drying time” but inadequately defined this property.<sup>177</sup>

In two other decisions the Federal Circuit strengthened the value of “consisting of” claims. Prior to these decisions, most practitioners

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172. *David Netzer Consulting Eng’r LLC v. Shell Oil Co.*, 824 F.3d 989, 998, 118 U.S.P.Q.2d 1701 (Fed. Cir. 2016).

173. 504 F.3d 1356, 1360, 84 U.S.P.Q.2d 1737 (Fed. Cir. 2007) (noting that “comprised of” is used less regularly than “comprising” but nevertheless “partakes of long-standing recognition as an open-ended term”).

174. *PPG Indus. v. Guardian Indus.*, 156 F.3d 1351, 1354, 48 U.S.P.Q.2d 1351 (Fed. Cir. 1998).

175. *Id.*

176. 344 F.3d 1234, 1239, 68 U.S.P.Q.2d 1280 (Fed. Cir. 2003).

177. *HZNP Meds. LLC v. Actavis Labs. UT, Inc.*, 940 F.3d 680, 699 (Fed. Cir. 2019).

believed that “consisting of” claims were so easily avoided as to be nearly worthless. For example, in *Vehicular Technologies Corp. v. Titan Wheel International, Inc.*,<sup>178</sup> the Federal Circuit stated that “a drafter uses the phrase ‘consisting of’ to mean ‘I claim what follows and nothing else.’”

Then, in *Norian Corp. v. Stryker Corp.*,<sup>179</sup> the Federal Circuit held that “consisting of” permits the inclusion of unrecited additional components or steps if they are unrelated to the invention. The relevant claim recited a “kit for preparing a calcium mineral, said kit consisting of” followed by a list of chemical components. The accused kit contained the same chemicals and no other chemicals, but also contained a spatula. The Federal Circuit held that the kit nevertheless infringed because “the spatula has no interaction with the chemicals and is irrelevant to the invention.”

Second, in *Conoco, Inc. v. Energy & Environmental International, L.C.*,<sup>180</sup> the Federal Circuit construed a “consisting of” claim to include an impurity that was not recited in the claim. At issue was whether the limitation “consisting of water and water-alcohol mixtures” could include the alcohol-denaturing agent MIBK. The Federal Circuit noted that MIBK is commonly added to industrial alcohols to avoid taxation as liquor. The court adopted the PTO Board of Patent Appeals and Interferences decision *Ex parte Davis*,<sup>181</sup> holding that “consisting of” permits the inclusion of impurities normally associated with components recited in the claim. In this regard, the court stated that “impurities normally associated with the component of a claimed invention are implicitly adopted by the ordinary meaning of the components themselves.”<sup>182</sup>

The Federal Circuit in *Shire Development, LLC v. Watson Pharmaceuticals, Inc.*<sup>183</sup> rejected an interpretation of *Norian Corp. v. Stryker Corp.* as considering “unrelated” any components that do not “advance or are intended to advance” recited elements. The claim limitation at issue in *Shire* recited “an outer hydrophilic matrix wherein the lipophilic matrix is dispersed, and said outer hydrophilic matrix consists of compounds selected from the group consisting of” followed by a Markush group listing a number of substances. The accused formulation included in its outer hydrophilic matrix the compound magnesium stearate, a substance that is lipophilic. The Federal Circuit rejected the patent owner’s

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178. 212 F.3d 1377, 1382–83, 54 U.S.P.Q.2d 1841 (Fed. Cir. 2000).

179. 363 F.3d 1321, 1331–32, 70 U.S.P.Q.2d 1508 (Fed. Cir. 2004).

180. 460 F.3d 1349, 1360–61, 79 U.S.P.Q.2d 1801 (Fed. Cir. 2006).

181. 80 U.S.P.Q. 448, 450 (Pat. Off. Bd. App. 1948).

182. *Conoco*, 460 F.3d at 1361.

183. 848 F.3d 981, 121 U.S.P.Q.2d 1509 (Fed. Cir. 2017).

argument that the claim covered such a formulation (despite the relevant limitation using the phrase “consists/consisting of” twice) because the magnesium stearate was lipophilic and therefore “unrelated” to the hydrophilic nature of the “outer hydrophilic matrix” element in which the magnesium stearate resided. The Federal Circuit reasoned that permitting the “outer hydrophilic matrix” element to include magnesium stearate “would in effect equate the scope of a Markush group’s ‘consisting of’ language with either ‘comprising’ or ‘consisting essentially of’ language.”<sup>184</sup>

#### 4. Context of Other Claims (Claim Differentiation)

Claim terms should be construed in the context of the claims themselves. For example, the claim term “orthotic device” was held not to cover both an orthotic insert and a shoe built to the insert’s shape, where this interpretation would render nonsensical another claim reciting a “footwear product” having such an orthotic device.<sup>185</sup>

Claim differentiation guides claim construction by presuming that each claim in a patent has a different scope; accordingly, claims are preferably construed to avoid redundant claims of identical scope.<sup>186</sup> When a dependent claim adds a limitation that does not appear in the independent claim from which it depends, there arises a presumption that the independent claim should not be construed to include the limitation.<sup>187</sup> The presumption can be rebutted by “strong contrary evidence such as definitional language in the patent or a clear disavowal of claim scope.”<sup>188</sup>

When claim differentiation is applied to two independent claims, two considerations apply: the canon considers whether a construction renders words in one of the claims superfluous, and the canon should not result in overbroadening.<sup>189</sup> In construing a claim to a coke drum de-heading

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184. *Id.* at 986.

185. *Schoenhaus v. Genesco, Inc.*, 440 F.3d 1354, 1357, 78 U.S.P.Q.2d 1252 (Fed. Cir. 2006).

186. *Versa Corp. v. Ag-Bag Int’l Ltd.*, 392 F.3d 1325, 1330, 73 U.S.P.Q.2d 1191 (Fed. Cir. 2004).

187. *Kara Tech., Inc. v. Stamps.com, Inc.*, 582 F.3d 1341, 1347, 92 U.S.P.Q.2d 1252 (Fed. Cir. 2009).

188. *InterDigital Commc’ns, LLC v. Int’l Trade Comm’n*, 690 F.3d 1318, 1325, 103 U.S.P.Q.2d 1610 (Fed. Cir. 2012).

189. *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1381, 77 U.S.P.Q.2d 1988 (Fed. Cir. 2006).

system, the Federal Circuit applied the second consideration to reject a broad construction of the term “adjustable” as not requiring adjustability during de-heading because the specification consistently described the system as allowing for adjustment during de-heading.<sup>190</sup> Claim differentiation does not apply to claims that are not otherwise identical except for the limitation at issue, and the specification and prosecution history may trump the doctrine of claim differentiation.<sup>191</sup>

Claim differentiation historically has had somewhat secondary status among doctrines governing claim construction. For example, in *Netcraft Corp. v. eBay, Inc.*,<sup>192</sup> the Federal Circuit ignored claim differentiation to construe “providing a communications link” to require providing customer access to the Internet in a claim to an Internet billing method. The court relied on repeated statements in the intrinsic evidence that the invention involves providing Internet access, and the court rejected the patentee’s argument that resulting redundancy in a dependent claim reciting an “Internet access provider” precluded such a narrow construction due to claim differentiation. The court stated that although “claim differentiation may be helpful in some cases, it is just one of many tools used by courts in the analysis of claim terms.”<sup>193</sup>

In *Edwards Lifesciences LLC v. Cook, Inc.*,<sup>194</sup> the Federal Circuit stated that “claim differentiation is a rule of thumb that does not trump the clear import of the specification.” The court relied on the context provided by the specification and other claims to construe the term “graft” in a claim to a prosthesis device as requiring a wire structure, despite a corresponding dependent claim that newly introduced “wire structure” as a limitation.<sup>195</sup> The Federal Circuit has reiterated this view by stating that “the doctrine of claim differentiation is not a conclusive basis for construing claims,”<sup>196</sup> and “[i]f a claim will bear only one interpretation,

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190. *Id.*

191. *Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1370, 81 U.S.P.Q.2d 1545 (Fed. Cir. 2007) (“the written description and prosecution history overcome any presumption arising from the doctrine of claim differentiation”).

192. 549 F.3d 1394, 89 U.S.P.Q.2d 1234 (Fed. Cir. 2008) (citing *Nystrom v. TREX Co.*, 424 F.3d 1136, 76 U.S.P.Q.2d 1481 (Fed. Cir. 2005)).

193. *Id.* at 1400 n.1.

194. 582 F.3d 1322, 92 U.S.P.Q.2d 1599 (Fed. Cir. 2009).

195. *Id.* at 1332.

196. *Am. Calcar, Inc. v. Am. Honda Motor Co.*, 651 F.3d 1318, 1337, 99 U.S.P.Q.2d 1137 (Fed. Cir. 2011).

similarity will have to be tolerated,”<sup>197</sup> “any presumption created by the doctrine of claim differentiation ‘will be overcome by a contrary construction dictated by the written description or prosecution history,’”<sup>198</sup> and “[c]laim differentiation is not a rigid rule and it cannot overcome a construction required by the prosecution history.”<sup>199</sup>

A split panel of the Federal Circuit in *Interdigital Communications, LLC v. International Trade Commission*<sup>200</sup> implied a stronger role for claim differentiation, and perhaps created tension with earlier decisions, by stating that the presumption created by claim differentiation must be overcome by “strong contrary evidence such as definitional language in the patent or a clear disavowal of claim scope.” In analyzing a claim drawn to a wireless code division multiple access (CDMA) subscriber unit, the Federal Circuit held that claim differentiation precluded construing the “code” limitation of claim 1 to mean “spreading code,” despite repeated statements in the specification referring to “spreading code,” because the specification lacked a limiting definition or clear statement of disavowal.<sup>201</sup>

Later cases, however, described claim differentiation in weaker terms and declined to apply this canon of claim construction, stating that “claim differentiation is merely a presumption . . . that does not trump the clear import of the specification,”<sup>202</sup> and that the presumption of claim differentiation is “overcome by a contrary construction dictated by the written description.”<sup>203</sup> In *Power Integrations, Inc. v. Fairchild Semiconductor International, Inc.*, the Federal Circuit held that the context in which the claim term is used, and other intrinsic evidence, can result in identical or similar claim terms being construed differently in different claims of a patent.<sup>204</sup>

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197. *Lairam Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538, 19 U.S.P.Q.2d 1367 (Fed. Cir. 1991).

198. *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305, 99 U.S.P.Q.2d 1233 (Fed. Cir. 2011) (quoting *Seachange Int’l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1369, 75 U.S.P.Q.2d 1385 (Fed. Cir. 2005)).

199. *TecSec, Inc. v. IBM*, 731 F.3d 1336, 1345, 108 U.S.P.Q.2d 1429 (Fed. Cir. 2013).

200. 690 F.3d 1318, 1325, 103 U.S.P.Q.2d 1610 (Fed. Cir. 2012).

201. *Id.* at 1324–25.

202. *CardSoft (Assignment for the Benefit of Creditors), LLC v. VeriFone, Inc.*, 807 F.3d 1346, 1352, 117 U.S.P.Q.2d 1354 (Fed. Cir. 2015).

203. *World Class Tech. Corp. v. Ormco Corp.*, 769 F.3d 1120, 1126, 112 U.S.P.Q.2d 1633 (Fed. Cir. 2014).

204. 843 F.3d 1315, 1340, 121 U.S.P.Q.2d 1087 (Fed. Cir. 2016).

### 5. Means-Plus-Function Limitations

A means-plus-function limitation covers structure disclosed in the specification for carrying out the stated function, and equivalents of the disclosed structure. The statutory basis for interpreting means-plus function-limitations is section 112, which states:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.<sup>205</sup>

If a claim limitation contains the word “means,” there is a rebuttable presumption that the means-plus-function provision of section 112 applies. The word “means” must appear as a noun, however, and the presumption does not arise for a phrase such as “by means of.”<sup>206</sup>

In *Sage Products, Inc. v. Devon Industries, Inc.*,<sup>207</sup> the Federal Circuit applied this rebuttable presumption to the claim terms “closure means” and “movable closure means.” The claims did not explicitly recite the structure needed to perform these functions. Thus, the Federal Circuit concluded that the means-plus-function limitations “closure means” and “movable closure means” invoked the means-plus-function provision of section 112.

Sitting en banc in *Williamson v. Citrix Online, LLC*<sup>208</sup> to consider this issue, the Federal Circuit held that, while a presumption exists that a claim limitation lacking the word “means” is not a means-plus-function limitation, this presumption should not be characterized as a “strong” presumption. The en banc Federal Circuit thereby overruled a line of cases establishing a strong presumption that limitations lacking the word “means” are not means-plus-function limitations. The en banc Federal Circuit also overruled the requirement that such limitations would be subject to treatment as means-plus-function limitations only upon a showing that the claim limitation is essentially “devoid of structure.” Instead, the proper standard to be applied for the presumption is “whether the words of the claim were understood by persons of ordinary skill in the art to

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205. 35 U.S.C. § 112(f) (2012) (the relevant text of the sixth paragraph of section 112 was unchanged after revisions implemented by the AIA on September 16, 2012).

206. *Robert Bosch, LLC v. Snap-On, Inc.*, 769 F.3d 1094, 1098–99, 112 U.S.P.Q.2d 1617 (Fed. Cir. 2014).

207. 126 F.3d 1420, 1427–28, 44 U.S.P.Q.2d 1103 (Fed. Cir. 1997).

208. 792 F.3d 1339, 1349, 115 U.S.P.Q.2d 1105 (Fed. Cir. 2015).

have a sufficiently definite meaning as the name for structure.” The presumption against treatment as a means-plus-function claim can be overcome by showing that the limitation at issue does not recite structure that is “sufficiently definite” or by showing that the limitation recites function but fails to recite “sufficient structure for performing that function.”<sup>209</sup>

The Federal Circuit held that the claim term “symbol generator” was a means-plus-function limitation because expert testimony indicated that the phrase was not a term of art in the relevant field and, instead, the term was coined for the patent application. The Federal Circuit concluded that the phrase “symbol generator” should be treated as a means-plus-function limitation because the phrase was “simply an abstraction that describes the function being performed (i.e., the generation of symbols)” and “the term ‘symbol generator,’ by itself, does not identify a structure by its function.”<sup>210</sup> Similarly, the claim limitation “cheque standby unit” was treated as a means-plus-function limitation because there was no evidence that the term was reasonably well understood by persons of ordinary skill in the art to refer to a structure or class of structures.<sup>211</sup>

It is improper, however, to determine in conclusory fashion that a limitation with functional language constitutes per se a means-plus-function limitation. Thus, the Federal Circuit held that a district court erred by treating “program” and “user interface code” as means-plus-function limitations without making factual findings regarding whether the terms reflected sufficient structure.<sup>212</sup>

In *Welker Bearing Co. v. PHD, Inc.*,<sup>213</sup> the Federal Circuit applied means-plus-function treatment to the term “mechanism for moving said finger” in claims to a “locating and clamping assembly” used to hold work pieces in place during manufacturing processes. The Federal Circuit held that while some prior cases interpreted “mechanism” in such a way as to escape treatment as a means-plus-function clause, here the term “mechanism” provided no structural context besides its stated function and acted as a “nonce word or a verbal construct that is . . . simply

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209. *Id.*

210. *Advanced Ground Info. Sys., Inc. v. Life360, Inc.*, 830 F.3d 1341, 1348, 119 U.S.P.Q.2d 1526 (Fed. Cir. 2016).

211. *Diebold Nixdorf, Inc. v. Int’l Trade Comm’n*, 899 F.3d 1291, 1302, 128 U.S.P.Q.2d 1391 (Fed. Cir. 2018).

212. *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1007–09, 126 U.S.P.Q.2d 1765 (Fed. Cir. 2018).

213. 550 F.3d 1090, 89 U.S.P.Q.2d 1289 (Fed. Cir. 2008).

a substitute for the term ‘means for.’”<sup>214</sup> The Federal Circuit noted that it might have reached a different result if the applicant had drafted the limitation with structural context to state, for example, “finger displacement mechanism,” a “lateral projection/retraction mechanism,” or a “clamping finger actuator.”<sup>215</sup>

If the specification discloses no structure for carrying out the stated function of a means-plus-function limitation, the claim is invalid as indefinite under the second paragraph of section 112.<sup>216</sup> The Federal Circuit reiterated this principle in *Biomedino, LLC v. Waters Technologies Corp.*<sup>217</sup> The claim at issue recited a “control means,” and it was undisputed that the relevant function was automatically operating valves. The only description of the “control means” in the specification was a plain box labeled “Control” in Figure 6 and a statement that the regeneration process of the invention “may be controlled automatically by known differential pressure, valving and control equipment.” The patentee failed to identify any structure for the box in Figure 6. Although the prior art of record and the testimony of experts suggested that known methods and equipment existed for automatically operating valves, the Federal Circuit explained that the “inquiry is whether one of skill in the art would understand the specification itself to disclose a structure, not simply whether that person would be capable of implementing a structure.”<sup>218</sup> The court held that the claim was invalid because the statement that known techniques or methods could be used was not a disclosure of structure, and nothing in the specification otherwise suggested a structure for the claimed “control means.” The Federal Circuit also found insufficient structure for “cheque standby unit” (treated as a means-plus-function limitation) in a drawing illustrating the cheque standby unit by a pair of vertical lines around two cylinders, where the specification described no corresponding structure.<sup>219</sup> Similarly, the Federal Circuit held that, in a claim drawn to a method for electronic sourcing, the term “means for processing” was indefinite because the specification disclosed “no

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214. *Id.* at 1096 (quoting *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1360, 72 U.S.P.Q.2d 1344 (Fed. Cir. 2004)).

215. *Id.* at 1096–97.

216. *Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1302, 75 U.S.P.Q.2d 1116 (Fed. Cir. 2005).

217. 490 F.3d 946, 83 U.S.P.Q.2d 1118 (Fed. Cir. 2007).

218. *Id.* at 953 (citing *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1212, 68 U.S.P.Q.2d 1263 (Fed. Cir. 2003)).

219. *Diebold Nixdorf, Inc. v. Int’l Trade Comm’n*, 899 F.3d 1291, 1303, 128 U.S.P.Q.2d 1391 (Fed. Cir. 2018).



instruction for using a particular piece of hardware, employing a specific source code, or following a particular algorithm” as structure for carrying out the function of processing.<sup>220</sup>

Similarly, in *Net MoneyIN, Inc. v. VeriSign, Inc.*,<sup>221</sup> the limitation “means for generating an authorization indicia” was held to be invalid as indefinite because the specification merely disclosed a “bank computer” as structure, but disclosed no algorithm for carrying out the recited function. The claims related to a financial transaction system implemented on a “bank computer.” The means-plus-function limitation was part of a clause stating “said first bank computer including means for generating an authorization indicia,” and thereby the claim itself referred to the “bank computer” as the structure carrying out the relevant function. The Federal Circuit found insufficient structure in the specification because no algorithm was disclosed by which the “bank computer” could carry out the relevant function and noted as a general premise that “a means-plus-function claim element for which the only disclosed structure is a general purpose computer is invalid [as indefinite] if the specification fails to disclose an algorithm for performing the claimed function.”<sup>222</sup>

In *Net MoneyIN*, the court relied on *Aristocrat Technologies Australia Pty Ltd. v. International Game Technology*,<sup>223</sup> which similarly held invalid as indefinite a claim to a gaming machine for computer gambling with the limitation “game control means.” The specification in that case disclosed a general-purpose microprocessor, but no corresponding algorithm, and merely stated that it would be well within ordinary skill to appropriately program a computer to carry out the claimed function. The *Aristocrat Technologies* court distinguished *In re Dossel*,<sup>224</sup> wherein the specification referred to “known algorithms” but also disclosed mathematical equations to be solved.<sup>225</sup> The court noted that it was irrelevant to the section 112 means-plus-function issue whether enablement was satisfied, because one should not conflate the enablement requirement with the requirement to disclose sufficient structure for a means-plus-function claim.<sup>226</sup>

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220. *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 519, 105 U.S.P.Q.2d 1190 (Fed. Cir. 2012).

221. 545 F.3d 1359, 88 U.S.P.Q.2d 1751 (Fed. Cir. 2008).

222. *Id.* at 1367 (citing *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1337–38, 86 U.S.P.Q.2d 1235 (Fed. Cir. 2008)).

223. 521 F.3d 1328, 86 U.S.P.Q.2d 1235 (Fed. Cir. 2008).

224. 115 F.3d 942, 42 U.S.P.Q.2d 1881 (Fed. Cir. 1997).

225. *Aristocrat Techs.*, 521 F.3d at 1335–36.

226. *Id.* at 1336.

In *Triton Tech of Texas, LLC v. Nintendo of America, Inc.*,<sup>227</sup> the Federal Circuit held that a claim was invalid for lack of sufficient structure corresponding to the claim limitation “integrator means” where the only corresponding structure in the specification was the phrase “numerical integration,” because “merely using the term ‘numerical integration’ does not disclose an algorithm—i.e., a step-by-step procedure—for performing the claimed function.”

An algorithm need not be disclosed if the recited function is a basic function of a microprocessor, such as processing, receiving, and storing data, because a general-purpose computer can achieve such functions without special programming.<sup>228</sup>

Lack of explicitly disclosed computer code may not be fatal, however, if the specification sufficiently describes how to perform the recited function. In *Typhoon Touch Technologies, Inc. v. Dell, Inc.*,<sup>229</sup> the Federal Circuit held that the limitation “means for cross-referencing” did not render indefinite a claim drawn to a keyboardless computer, despite the lack of corresponding computer code in the specification. The Federal Circuit noted that in the context of means-plus-function claims, the term “algorithm” is given its broad meaning of a step-by-step procedure for accomplishing a given result.<sup>230</sup> The Federal Circuit held that because this broad meaning is not limited to a recitation of computer code, the necessary algorithm could be expressed in the specification in a variety of ways other than computer code, including by mathematical formula, prose, or flow chart, and “the amount of detail that must be included in the specification depends on the subject matter that is described and its role in the invention as a whole, in view of the existing knowledge in the field of the invention.”<sup>231</sup> The specification in *Typhoon Touch* disclosed in prose a series of steps for carrying out the “cross-referencing” function, thereby providing sufficient algorithmic structure.<sup>232</sup> In *Ibormeith IP, LLC v. Mercedes-Benz USA, LLC*,<sup>233</sup> however, the Federal Circuit affirmed that a specification provided insufficient structure for the means-plus-function limitation “computational means” despite the specification containing a

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227. 753 F.3d 1375, 1378–79, 111 U.S.P.Q.2d 1396 (Fed. Cir. 2014).

228. *EON Corp. IP Holdings LLC v. AT&T Mobility LLC*, 785 F.3d 616, 623, 114 U.S.P.Q.2d 1711 (Fed. Cir. 2015).

229. 659 F.3d 1376, 100 U.S.P.Q.2d 1690 (Fed. Cir. 2011).

230. *Id.* at 1384–85.

231. *Id.* at 1385.

232. *Id.* at 1386.

233. 732 F.3d 1376, 108 U.S.P.Q.2d 1643 (Fed. Cir. 2013).

set of tables with mathematical formulas. In considering a claim drawn to a driver sleepiness monitor, the court reasoned that the specification was deficient in failing to disclose “how values are calculated, combined, or weighted” in the mathematical formulas, and that two figures disclosing additional structure at best “provide raw circadian information that a person of ordinary skill in the art *could* use to design his or her own method of weighting.”<sup>234</sup> The Federal Circuit concluded that the specification failed to sufficiently define the disclosed structure to render the scope of the means-plus-function limitation understandable to a skilled artisan.<sup>235</sup>

Practitioners drafting means-plus-function claims should carefully consider whether a means-plus-function limitation refers to more than one function, because the specification must include structure corresponding to each function. For example, the Federal Circuit held a claim to be invalid because the means-plus-function limitation “access means” referred to the functions of “entering, deleting, reviewing, adjusting and processing” data inputs, but the specification failed to disclose corresponding structure for all of those functions.<sup>236</sup> Similarly, the Federal Circuit held a claim to be invalid because a means-plus-function limitation performed four functions but the specification failed to disclose adequate structure for two of the four functions.<sup>237</sup>

A disclosed structure is relevant to a means-plus-function limitation only if the specification links the structure to the claimed function. Thus, the Federal Circuit declined to apply the disclosed structure of “A/D converter” to the means-plus-function limitation “circuit means” because the term “A/D converter” appeared solely in the patent’s abstract and without a stated link to the corresponding “circuit” function.<sup>238</sup> Instead, the Federal Circuit applied the narrower structure of “multiple slope integrating A/D converter.”<sup>239</sup>

Means-plus-function claims are not construed to cover structures disclosed in prior art references cited in the specification, although the title

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234. *Id.* at 1382.

235. *Id.* at 1379.

236. *Noah Sys. Inc. v. Intuit Inc.*, 675 F.3d 1302, 1318–19, 102 U.S.P.Q.2d 1410 (Fed. Cir. 2012).

237. *Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1374–75, 116 U.S.P.Q.2d 1144 (Fed. Cir. 2015).

238. *Mettler-Toledo, Inc. v. B-Tek Scales, LLC*, 671 F.3d 1291, 1296, 101 U.S.P.Q.2d 1619 (Fed. Cir. 2012).

239. *Id.*

of a cited reference could be relied on if the title mentions a structure relevant to the claimed means.<sup>240</sup>

#### 6. Other Claim Construction Principles

The Federal Circuit generally disfavors a claim construction that would exclude a preferred embodiment (“a claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct”).<sup>241</sup>

In a decision that effectively narrowed the scope of product-by-process claims, the Federal Circuit sat en banc in *Abbott Laboratories v. Sandoz, Inc.*<sup>242</sup> to resolve the court’s long-standing split on whether product-by-process claims are limited to products produced by the recited process. The court held that the process limitations do indeed limit product-by-process claims, and thereby followed *Atlantic Thermoplastics Co. v. Faytex Corp.*<sup>243</sup> while overturning *Scripps Clinic & Research Foundation v. Genentech, Inc.*<sup>244</sup> Additionally, the court held that using the phrase, “obtainable by” (instead of, for example, “obtained by”) prior to reciting process steps creates no exception to this rule. Regardless of which phrase is used, the process steps would be treated as limitations for determining infringement.<sup>245</sup>

Before *Abbott Laboratories*, the Federal Circuit had held that to determine validity, process limitations would not limit a product-by-process claim. Furthermore, a product-by-process claim would be invalid if the product were not novel, regardless of whether the product was produced by the claimed process.<sup>246</sup>

Thus, product-by-process claims represent an instance where claims are construed differently for determining validity and infringement. While the century-old patent law tenet “that which [literally] infringes, if

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240. *Pressure Prods. Med. Supplies, Inc. v. Greatbatch Ltd.*, 599 F.3d 1308, 1317, 94 U.S.P.Q.2d 1261 (Fed. Cir. 2010).

241. *EPOS Techs. Ltd. v. Pegasus Techs. Ltd.*, 766 F.3d 1338, 1347, 112 U.S.P.Q.2d 1132 (Fed. Cir. 2014); *Accent Packaging, Inc. v. Leggett & Platt, Inc.*, 707 F.3d 1318, 1326, 105 U.S.P.Q.2d 1745 (Fed. Cir. 2013).

242. 566 F.3d 1282, 90 U.S.P.Q.2d 1769 (Fed. Cir. 2009) (en banc for Section III.A.2).

243. 970 F.2d 834, 842–43, 23 U.S.P.Q.2d 1481 (Fed. Cir. 1992).

244. 927 F.2d 1565, 1583–84, 18 U.S.P.Q.2d 1001 (Fed. Cir. 1991), overturned in part by *Abbott Labs.*, 566 F.3d 1282 (en banc for Section III.A.2).

245. *Abbott Labs.*, 566 F.3d at 1296.

246. *SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1314–15, 78 U.S.P.Q.2d 1097 (Fed. Cir. 2006).

later, would anticipate, if earlier”<sup>247</sup> survives for product-by-process claims (i.e., a product that infringes a product-by-process claim would also anticipate, if earlier), the converse does not. An identical product made by a different process would anticipate a product-by-process claim, if earlier, but would not infringe the same claim, if later.

Claim limitations using past participles of verbs, which thereby convey both structure and manufacturing process, are generally interpreted by their structural connotations rather than as process limitations, absent contrary evidence. Thus, the Federal Circuit relied on disclosures in the specification to interpret the limitation “injection molded” as requiring an integral structure (citing prior cases construing as structural the terms “interbonded,” “chemically engraved,” and “superimposed”).<sup>248</sup>

The Federal Circuit has held that, in construing a claim, a court should consider the accused infringing item:

[A]ny articulated definition of a claim term ultimately must relate to the infringement questions that it is intended to answer. *See Wilson Sporting Goods, Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1326 (Fed. Cir. 2006) (“[T]he legal function of giving meaning to claim terms always takes place in the context of a specific accused infringing device or process.”).<sup>249</sup>

Claims sharing common terms are ordinarily interpreted consistently across patents sharing the same specification, in particular if the patents derived from the same parent application.<sup>250</sup> A claim term in a patent resulting from a continuation-in-part application may be interpreted relying on comments in the specification and prosecution history of the continuation-in-part, even if the exact claim term at issue does not appear in the parent’s claims, provided the comments relate to subject matter common to both patents.<sup>251</sup>

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247. *Lewmar Marine, Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987) (citing *Peters v. Active Mfg. Co.*, 129 U.S. 530, 537 (1899)).

248. *In re Nordt Dev. Co., LLC*, 881 F.3d 1371, 1375, 125 U.S.P.Q.2d 1817 (Fed. Cir. 2018).

249. *E-Pass Techs., Inc. v. 3Com Corp.*, 473 F.3d 1213, 1219, 81 U.S.P.Q.2d 1385 (Fed. Cir. 2007).

250. *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 97 U.S.P.Q.2d 1737 (Fed. Cir. 2011) (citing *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1293, 75 U.S.P.Q.2d 1763 (Fed. Cir. 2005)).

251. *E.I. du Pont De Nemours & Co. v. Unifrax I LLC*, 921 F.3d 1060, 1070 (Fed. Cir. 2019).

The Federal Circuit has stated after *Phillips v. AWH Corp.* that dictionary definitions may be relied on to construe claims, provided “the ultimate construction . . . is grounded in the intrinsic evidence and not based on definitions considered in the abstract.”<sup>252</sup> In *Mangosoft*, the sole issue in the case was construction of “local” memory in a claim drawn to computer networking systems. The court rejected the argument that the district court, in deciding the case prior to *Phillips*, had relied too much on dictionary definitions to construe “local.” The court cited *Phillips* and post-*Phillips* cases approving of reliance on dictionaries and noted that the intrinsic evidence supported the district court’s construction in agreement with a dictionary definition.<sup>253</sup>

In *Ultimax Cement Manufacturing Corp. v. CTS Cement Manufacturing Corp.*,<sup>254</sup> a case during which *Phillips* was decided between the district court and the Federal Circuit decisions, the Federal Circuit reversed a district court’s claim construction that had erroneously relied on “expert testimony and a single dictionary definition to the exclusion of other dictionary definitions, and, most importantly, the context in which the term was used within the claim and the specification.” The district court had primarily relied on a dictionary definition of “anhydride” to construe “soluble [calcium sulfate] CaSO<sub>4</sub> anhydride” to mean a combination of CaSO<sub>4</sub> and another compound formed from an acid by removal of water. The Federal Circuit held that the context of the specification, and another dictionary definition indicating that “anhydride” could refer to compounds other than acid from which water was removed, required construing “soluble CaSO<sub>4</sub> anhydride” to mean CaSO<sub>4</sub> that is anhydrous (i.e., free of water).<sup>255</sup>

If the intrinsic evidence provides no guidance regarding the plain meaning of a claim term, a district court may rely on dictionaries, or other extrinsic evidence, “for context—to aid in arriving at the plain meaning of a claim term.”<sup>256</sup> The claims in *Helmsderfer* related to a vandalism-resistant baby-changing station that is wall-mounted, and the limitation at issue was “partially hidden from view” relating to a “platform top surface” of the

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252. *Mangosoft, Inc. v. Oracle Corp.*, 525 F.3d 1327, 1330, 86 U.S.P.Q.2d 1939 (Fed. Cir. 2008) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1318, 75 U.S.P.Q.2d 1321 (Fed. Cir. 2005) (en banc)).

253. *Id.* at 1333.

254. 587 F.3d 1339, 92 U.S.P.Q.2d 1865 (Fed. Cir. 2009).

255. *Id.* at 1347–48.

256. *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382, 87 U.S.P.Q.2d 1216 (Fed. Cir. 2008).

baby-changing station. The Federal Circuit rejected the patentee's argument that this could cover a baby-changing station having a platform top surface that was totally hidden from view. The court concluded that the ordinary and customary meaning of "partially" excludes "totally," based on dictionary definitions and the context of the claim itself. The term "partially" was absent from the specification (and thus undefined) and the prosecution history. The Federal Circuit noted that "ordinary and customary" meaning is established as of the effective filing date of the application, and thus a dictionary from that time frame should be used.<sup>257</sup>

Generally "a" or "an" in a claim means "one or more," but an exception can arise when the context indicates otherwise. In *Baldwin Graphic Systems, Inc. v. Siebert, Inc.*,<sup>258</sup> the Federal Circuit emphasized that this was "a rule, rather than merely [] a presumption or even a convention," with exceptions only where the intrinsic evidence indicates clear intent to limit "a" or "an" to "one." Here, in a claim to a cleaning system for printing press cylinders, the limitation at issue was "a pre-soaked fabric roll." The Federal Circuit held that the district court erred in concluding that the singular was intended because the claim later recited "said fabric roll," where the intrinsic record contained no other basis to support the district court's construction.<sup>259</sup>

The Federal Circuit reiterated this point in construing "a location server computer . . . including a location facility" as allowing for multiple location facilities distributed among more than one location server computer. The Federal Circuit held that a district court erred in ruling that the specification and the prosecution history showed disclaimer of a broader interpretation, because the intrinsic evidence was at most ambiguous on this issue, and such ambiguity falls short of the clear intent needed to overcome the general rule that "a" means "one or more."<sup>260</sup>

Demonstrating an exception to this rule, the Federal Circuit in *TiVo, Inc. v. EchoStar Communications Corp.*<sup>261</sup> construed the limitation "an MPEG stream" as referring to a single MPEG stream in a lawsuit over TiVo's digital video recorder (DVR) patents. The Federal Circuit noted that "the question whether 'a' or 'an' is treated as singular or plural

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257. *Id.* at 1383 n.3.

258. 512 F.3d 1338, 1342–43, 85 U.S.P.Q.2d 1503 (Fed. Cir. 2008).

259. *Id.* at 1343.

260. 01 Communique Lab., Inc. v. LogMeIn, Inc., 687 F.3d 1292, 1297, 108 U.S.P.Q.2d 1408 (Fed. Cir. 2012).

261. 516 F.3d 1290, 85 U.S.P.Q.2d 1801 (Fed. Cir. 2008).

depends heavily on the context of its use”<sup>262</sup> and the “general rule does not apply when the context clearly evidences that the usage is limited to the singular.”<sup>263</sup> The court held that statements in the specification and the context of the claim itself, which stated “wherein said Output Section assembles said video and audio components into an MPEG stream,” made clear that a single MPEG stream was involved.<sup>264</sup>

In construing the word “one” flexibly, however, the Federal Circuit in another case cautioned against ignoring the context of the claim in which a word appears.<sup>265</sup> In construing a claim drawn to networked gaming devices, the Federal Circuit declined to construe the limitation “issuing a command over the network to one of said preselected gaming devices” to mean “issuing only one command . . . to . . . only one of said preselected gaming devices.” The court rejected the argument that the word “one” should limit the number of devices that could receive a command; instead, it reasoned that the plain meaning of the surrounding text indicated that while any given command could only go to a single device, more than one command could be issued such that more than one device could receive a command.<sup>266</sup>

The word “and” between two claim limitations will normally not be interpreted to mean “or” instead of “and.” In *Medgraph, Inc. v. Medtronic, Inc.*,<sup>267</sup> the Federal Circuit held that the phrase “from a remote computer . . . and from an ordinary telephone” required both a computer and a telephone. The Federal Circuit distinguished *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*,<sup>268</sup> which involved a claim limitation using “and” to join features that were mutually exclusive; this compelled interpretation of “and” to mean “or” as the only meaningful possibility. In contrast, the specification at issue in *Medgraph* supported both interpretations of “and” because the features in the phrase “from a remote computer . . . and from an ordinary telephone” were not mutually exclusive; thus, the specification did not compel interpreting “and” to mean “or.”<sup>269</sup>

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262. *Id.* at 1303 (citing *Norian Corp. v. Stryker Corp.*, 432 F.3d 1356, 1359, 77 U.S.P.Q.2d 1242 (Fed. Cir. 2005)).

263. *Id.* (citing *Baldwin Graphic Sys.*, 512 F.3d at 1343).

264. *Id.* at 1303–04.

265. *IGT v. Bally Gaming Int’l, Inc.*, 659 F.3d 1109, 1117, 100 U.S.P.Q.2d 1524 (Fed. Cir. 2011).

266. *Id.* at 1116–17.

267. 843 F.3d 942, 949–50, 121 U.S.P.Q.2d 1007 (Fed. Cir. 2016).

268. 520 F.3d 1358, 86 U.S.P.Q.2d 1196 (Fed. Cir. 2008).

269. *Medgraph*, 843 F.3d at 949–50.



Drafters of patent applications often use the term “about” in expressing numerical values. In *Cohesive Technologies, Inc. v. Waters Corp.*,<sup>270</sup> the Federal Circuit applied a functional approach to construe “about” by introducing numerical limits that the court determined based on a physical property described as critical in the specification. The court considered this approach necessary because “deliberate imprecision” in the word “about” made numerical construction impossible.<sup>271</sup> The claims were directed to a high-performance liquid chromatography (HPLC) apparatus, and a corresponding process, with “rigid” particles of average diameter “greater than about 30 [micrometers]  $\mu\text{m}$ ” or “not less than about 30  $\mu\text{m}$ .” The Federal Circuit found benchmarks in the specification for construing “about” using disclosed numerical values.<sup>272</sup> For example, to construe “about 30  $\mu\text{m}$ ,” the Federal Circuit reasoned that because the specification treated 42.39  $\mu\text{m}$  as qualifying as 50  $\mu\text{m}$  (a 15.22 percent variance), then the same variance (15.22 percent) should apply to construe “about 30  $\mu\text{m}$ .” Accordingly, the minimum variance would be 25.434  $\mu\text{m}$ , or 15.22 percent less than 30  $\mu\text{m}$ . The specification disclaimed 20  $\mu\text{m}$ , so the court treated  $20 + 15.22 \text{ percent} = 23.044$  as the lower limit. The specification lacked guidance, however, for values between 23.044 and 25.434, so the court adopted a functional limit, wherein the claim includes only those particles that can attain turbulence when in a column. To justify adopting this functional limit, the court pointed to the statement in the specification that “it is believed that the turbulence engendered by . . . high speed flow enhances the loading of the solute molecules onto the derivatized surfaces in the pores of the particles in the column.”<sup>273</sup> The Federal Circuit took a much simpler approach in *Allergan, Inc. v. Sandoz Inc.*<sup>274</sup> and interpreted “about 7.3” as including 7.2 merely because the difference was “only one decimal place.”

“About” may be interpreted based on a reference cited in the specification. In *Monsanto Technology LLC v. E.I. DuPont de Nemours & Co.*,<sup>275</sup> the Federal Circuit held that “4% linolenic acid” disclosed in a prior art reference satisfied the limitation “about 3% or less linolenic acid content” in a claim drawn to a method of crossing soybean lines to change the linolenic acid content of the resulting soybean seeds. The Federal Circuit

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270. 543 F.3d 1351, 88 U.S.P.Q.2d 1903 (Fed. Cir. 2008).

271. *Id.* at 1370.

272. *Id.* at 1368–70.

273. *Id.* at 1369–70.

274. 796 F.3d 1293, 1311, 115 U.S.P.Q.2d 2012 (Fed. Cir. 2015).

275. 878 F.3d 1336, 1342, 125 U.S.P.Q.2d 1242 (Fed. Cir. 2018).

relied on an embodiment in the specification identified as the “C1640 line” with citation to a technical article describing the C1640 line as having linolenic acid content of 2.3 percent to 4.1 percent. Based on these disclosures, the Federal Circuit concluded that “about 3% linolenic acid” was reasonably interpreted to include 4 percent linolenic acid. Notably, the Federal Circuit treated the technical article cited in the specification as intrinsic evidence.

Claims should not be interpreted to reintroduce a claim limitation that was removed during prosecution. In *Laryngeal Mask Co. v. Ambu*,<sup>276</sup> the Federal Circuit declined to interpret the limitation “backplate” in a claim to a laryngeal-mask airway device as requiring a tube joint, despite repeated mention of a tube joint in the specification, because the applicants had removed “tube joint” from the claims during prosecution.

A method claim is generally not construed to require that its steps be carried out in the same order as written, but a method claim will be construed to require such an ordering of steps if the claim language “as a matter of logic or grammar” requires performance in the same order as written, or if the specification directly or implicitly requires such an order.<sup>277</sup>

The claim term “adapted to” may be interpreted to mean “capable of” or “suitable for” but “adapted to” may also be given a narrower meaning if the written description clearly indicates that structural features were intended. Thus, in *In re Giannelli*,<sup>278</sup> the Federal Circuit held that “adapted to” in a claim describing an exercise machine is properly construed to mean that the claimed device “is designed or constructed to be used as a rowing machine whereby a pulling force is exerted on the handles” in view of detailed structural features described in the specification.

A claim term expressing a relative feature may be interpreted by importing process conditions found in an Example, if this is the only objective measure found in the specification. Thus, the Federal Circuit held that it is appropriate to construe the claim term “efficient mixing” to include conditions used in an example, because that example “is not merely the only disclosed *embodiment* of efficient mixing—it is the only *description* of efficient mixing in the patents in suit that casts light on what

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276. 618 F.3d 1367, 1372–73, 96 U.S.P.Q.2d 1757 (Fed. Cir. 2010).

277. *Mformation Techs., Inc. v. Research in Motion Ltd.*, 764 F.3d 1392, 1398, 112 U.S.P.Q.2d 1125 (Fed. Cir. 2014).

278. 739 F.3d 1375, 1379, 109 U.S.P.Q.2d 1333 (Fed. Cir. 2014).

efficient mixing is and that enables one of ordinary skill in the art to achieve the objects of the claimed invention.”<sup>279</sup>

Using different words to express the same concept in a claim may result in a different construction for each word. In a method claim to a method of using a mixing machine including a “nozzle oriented towards the splash shield” and a “splash shield positionable to shield the opening,” the court construed “oriented” to mean “pre-positioned” and not manually adjustable, and the court construed “positionable” to permit movement.<sup>280</sup>

While perhaps not generally considered a classic claim construction principle, the Federal Circuit has applied the “printed matter doctrine” to assess whether limitations relating to information, whether actual printed matter or mental steps, should be given patentable weight in a claim. Thus, the Federal Circuit held that “[c]laim limitations directed to printed matter are not entitled to patentable weight unless the printed matter is functionally related to the substrate on which the printed matter is applied” and “[b]ecause claim limitations directed to mental steps may attempt to capture informational content, they may be considered printed matter lacking patentable weight.”<sup>281</sup> Thus, in a claim drawn to administering nitric oxide, a step of providing information regarding recommended dose and patient risk factors were not given patentable weight because in merely requiring the physician to “think about it” there was no functional relationship with the remainder of the claim.<sup>282</sup>

#### ***D. The PTO Applies BRI***

The PTO, unlike courts interpreting claims in patent litigation, gives patent claims their BRI when examining them for patentability. As explained by the Federal Circuit in an early case adopting the reasoning of its predecessor court, the Court of Customs and Patent Appeals, this approach helps prevent issued claims from being interpreted to have excessively broad scope, while allowing the applicant to amend the

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279. *Meds. Co. v. Mylan, Inc.*, 853 F.3d 1296, 1309, 122 U.S.P.Q.2d 1217 (Fed. Cir. 2017).

280. *Hamilton Beach Brands, Inc. v. freal Foods, LLC*, 908 F.3d 1328, 1340, 128 U.S.P.Q.2d 1637 (Fed. Cir. 2018).

281. *Praxair Distribution, Inc. v. Mallinckrodt Hosp. Prods. IP Ltd.*, 890 F.3d 1024, 1031–32, 126 U.S.P.Q.2d 1749 (Fed. Cir. 2018).

282. *Id.* at 1033–34.

claims as needed to appropriately cover the invention.<sup>283</sup> This approach is not warranted in district courts, however, because the patentee cannot amend the claims:

The PTO broadly interprets claims during examination of a patent application since the applicant may “amend his claims to obtain protection commensurate with his actual contribution to the art.” This approach serves the public interest by reducing the possibility that claims, finally allowed, will be given broader scope than is justified. Applicants’ interests are not impaired since they are not foreclosed from obtaining appropriate coverage for their invention with express claim language. An applicant’s ability to amend his claims to avoid cited prior art distinguishes proceedings before the PTO from proceedings in federal district courts on issued patents. When an application is pending in the PTO, the applicant has the ability to correct errors in claim language and adjust the scope of claim protection as needed. This opportunity is not available in an infringement action in district court.<sup>284</sup>

The Federal Circuit has consistently relied on this reasoning in later cases.<sup>285</sup> One commentator has noted that in district court litigation, while the patentee may not amend the claims, the parties may introduce a broad range of evidence, including testimony by legal experts (disfavored), technical experts, and inventors, to support proffered claim construction.<sup>286</sup>

For interpreting claims in IPR and post-grant review (PGR) proceedings, and in proceedings under the transitional program for covered business method patents (CBM), the PTO applies the *Phillips* standard used in district court litigation (for IPR, PGR, and CBM petitions filed on or after November 13, 2018).<sup>287</sup> For these proceedings the PTO revised applicable regulations to change the claim construction standard from the BRI standard to the *Phillips* standard, relying on the Supreme Court’s

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283. *In re Yamamoto*, 740 F.2d 1569, 1571–72, 222 U.S.P.Q. 934 (Fed. Cir. 1984) (citing *In re Prater*, 415 F.2d 1393, 1404–05, 162 U.S.P.Q. 541, 550 (C.C.P.A. 1969)).

284. *Id.* at 1572 (citations omitted).

285. *See, e.g., In re Bigio*, 381 F.3d 1320, 1325, 72 U.S.P.Q.2d 1209 (Fed. Cir. 2004); *In re Hyatt*, 211 F.3d 1367, 1372, 54 U.S.P.Q.2d 1664 (Fed. Cir. 2000); *Burlington Indus. v. Quigg*, 822 F.2d 1581, 1583, 3 U.S.P.Q.2d 1436 (Fed. Cir. 1987); *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 83 U.S.P.Q.2d 1746 (Fed. Cir. 2007); *In re Trans Tex. Holdings Corp.*, 498 F.3d 1290, 83 U.S.P.Q.2d 1835 (Fed. Cir. 2007).

286. Edward M. O’Toole, *How to Prepare for and Conduct Markman Hearings 2006*, 873 PLI/PAT. 175 (2006).

287. *See* 83 Fed. Reg. 51,340 (Oct. 11, 2018); 37 C.F.R. §§ 42.100(b), 42.200(b), 42.300(b) (2020).

decision in *In re Cuozzo Speed Technologies, LLC*.<sup>288</sup> The Supreme Court had ruled that the relevant statute “allows the Patent Office to issue rules ‘governing inter partes review,’ . . . and the broadest reasonable construction regulation is a rule that governs inter partes review.”<sup>289</sup>

Reexamination and reissue proceedings for issued patents allow the patentee to amend the claims, so the BRI standard is justified on the same basis as in the initial examination of applications.<sup>290</sup> For interference proceedings, the PTO also applies the BRI standard to an interference count, albeit for a different reason:

Counts in interference are given a broad interpretation, because when an applicant selects language which is somewhat broad in scope, he takes the risk that others with specifically different structures may be able to meet the language selected; he will not be permitted to later urge that the selected language should only be read in light of his disclosure merely because the language originated with him.<sup>291</sup>

The PTO does not, however, apply the BRI standard for reexamination of an expired patent. In such cases, PTO examiners must construe claims pursuant to *Phillips*<sup>292</sup> rather than applying the BRI because the patentee of an expired patent may not amend the claims.<sup>293</sup> This exception is consistent with the policy basis for examining claims under the BRI where applicants may amend the claims as needed to cover their invention. This exception also applies to a patent that was pending when reexamination was initiated and then expired during the reexamination proceedings.<sup>294</sup>

There are, however, limits to the BRI approach used by the PTO. Thus, the BRI “is not simply an interpretation that is not inconsistent with the specification. It is an interpretation that corresponds with what

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288. 136 S. Ct. 2131, 119 U.S.P.Q.2d 1065 (2016).

289. *Id.* at 2142.

290. *See, e.g., In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 U.S.P.Q.2d 1827 (Fed. Cir. 2004) (reexamination); *In re Yamamoto*, 740 F.2d 1569, 1571–72, 222 U.S.P.Q. 934 (Fed. Cir. 1984) (reexamination); *In re Sneed*, 710 F.2d 1544, 1548, 218 U.S.P.Q. 385 (Fed. Cir. 1983) (reissue).

291. *Woods v. Tsuchiya*, 754 F.2d 1571, 1578 n.5, 225 U.S.P.Q. 11 (Fed. Cir. 1985) (“It is well settled that counts should be given their broadest interpretation . . .”).

292. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 U.S.P.Q.2d 1321 (Fed. Cir. 2005).

293. PTO, MANUAL OF PATENT EXAMINING PROCEDURE § 2258.I.G. (9th ed. Rev. Aug. 2017).

294. *In re CSB-Sys. Int’l, Inc.*, 832 F.3d 1335, 1342–43, 123 U.S.P.Q.2d 1684 (Fed. Cir. 2016).

and how the inventor describes his invention in the specification, i.e., an interpretation that is ‘consistent with the specification.’”<sup>295</sup>

For example, where a specification provided four definitions of the phrase “human tissue plasminogen activator,” the Federal Circuit held that three were “hopelessly overbroad” and therefore it would have been unreasonable for the PTO to have relied on any of those three definitions during examination.<sup>296</sup> The PTO’s interpretation must not be so broad that it is inconsistent with the specification, taken as a whole<sup>297</sup> or in view of specific definitions therein.<sup>298</sup>

The Federal Circuit reversed as unreasonable the PTO’s construction of “material for finishing the top surface of the floor” to include any layer above the floor, not just the top or final layer.<sup>299</sup> The Federal Circuit stated, “The broadest-construction rubric coupled with the term ‘comprising’ does not give the PTO an unfettered license to interpret claims to embrace anything remotely related to the claimed invention.”<sup>300</sup> Similarly, it is improper for the PTO to interpret a limitation by “referencing the dictionaries cited by the parties and simply selecting the broadest definition therein.”<sup>301</sup>

While PTO examiners must consider the specification, the PTO instructs examiners to apply the “plain meaning” of claim terms as understood by a person of ordinary skill in the art, and not to narrowly interpret claims based on statements in the specification.<sup>302</sup> PTO examiners must rely, however, on explicit definitions of terms or clearly expressed variance from the normal usage of a term in the relevant field.<sup>303</sup>

The Federal Circuit has held that the PTO must interpret claims narrowly based on the specification or the prosecution history only if these expressly disclaim a broader definition. For example, in *In re Bigio*,<sup>304</sup> the Federal Circuit held that the PTO Board reasonably construed the

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295. *In re Smith Int’l, Inc.*, 871 F.3d 1375, 1383, 124 U.S.P.Q.2d 1210 (Fed. Cir. 2017).

296. *Genentech, Inc. v. Wellcome Found. Ltd.*, 29 F.3d 1555, 1564–65 n.22, 31 U.S.P.Q.2d 1161 (Fed. Cir. 1994).

297. *In re Baker Hughes Inc.*, 215 F.3d 1297, 1303, 55 U.S.P.Q.2d 1149 (Fed. Cir. 2000).

298. *In re Bass*, 314 F.3d 575, 578, 65 U.S.P.Q.2d 1156 (Fed. Cir. 2002); *In re Thrift*, 298 F.3d 1357, 1364, 63 U.S.P.Q.2d 2002 (Fed. Cir. 2002).

299. *In re Suitco Surface, Inc.*, 603 F.3d 1255, 94 U.S.P.Q.2d 1640 (Fed. Cir. 2010).

300. *Id.* at 1260.

301. *PPC Broadband, Inc. v. Corning Optical Commc’ns RE, LLC*, 815 F.3d 747, 752, 118 U.S.P.Q.2d 1056 (Fed. Cir. 2016).

302. PTO, *supra* note 293, § 2106.I–III.

303. *Id.* § 2106.II.C.

304. 381 F.3d 1320, 1325, 72 U.S.P.Q.2d 1209 (Fed. Cir. 2004).