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## The Written Description Gap

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## The Written Description Gap

Timothy R. Holbrook\*

*Within patent law, there are two primary mechanisms that attempt to afford the appropriate balance between patent owners and subsequent inventors. First are the disclosure doctrines: a patent applicant cannot claim more than what she has actually disclosed in the patent application. A claim that is overly broad because it lacks adequate support in the patent specification is invalid. There is a clear link between the extent of the patent disclosure and the permissible scope of the claims contained therein. The second constraint on a patentee's ability to obtain claim scope is the prior art. A claimed invention must be both novel and non-obvious to be patent eligible. If a patent claim runs into the prior art because it is anticipated or obvious, then the patent applicant will have to narrow the scope of the claim to avoid the prior art.*

*Generally, issues of the sufficiency of the disclosure and validity vis-à-vis the prior art are considered in isolation. However, every litigated patent is also a potential piece of prior art. Because it is the disclosure of the patent that controls its impact as a piece of prior art, and not the particular claims in the patent, there is a relationship between patent disclosure and the prior art doctrines. A patent is good for what it teaches as a piece of prior art, not for what it claims. In this regard, the Federal Circuit's approach to disclosure law, and the written description requirement in particular, creates the potential for a "patent free" zone, which I have dubbed the "written description gap." As further elaborated below, the Federal Circuit has held that, if a patent discloses a variant of the invention that would render*

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*the particular claim obvious, such disclosure nevertheless is insufficient to satisfy the written description requirement. That particular applicant would be unable to claim that version of the invention.*

*But what happens once the original patent is now used as prior art against a subsequent applicant? If the later patent claims the obvious variant, then the subsequent applicant also is unable to obtain patent coverage. No one will be able to obtain patent protection for that particular variant, and it effectively falls into the public domain. This Essay elaborates the operation of this gap and assesses whether it is normatively good or bad as a matter of patent policy. I ultimately conclude that, by creating an incentive to enhance patent disclosures, the gap is good, notwithstanding that some potentially important variants could fall into the public domain.*

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#### INTRODUCTION

One of the central tensions in patent law relates to patent scope. In order to offer proper incentives to inventors, a patent must provide sufficient scope; otherwise, the patent could easily become a “hollow

and useless thing.”<sup>1</sup> If a patent owner is afforded overly broad protection, however, she could potentially stifle downstream innovators who may want to build upon and improve her invention.<sup>2</sup> These later-comers may be the ones who transform the invention from a nascent idea into a commercially viable product.

Within patent law, there are two primary mechanisms that attempt to afford the appropriate balance between patent owners and subsequent inventors. The disclosure doctrines provide the first mechanism: a patent applicant cannot claim more than what she has actually disclosed in the patent application.<sup>3</sup> Under section 112(a) of the Patent Act, an inventor must disclose in the application both a written description of her invention and how to make and use the invention.<sup>4</sup> These disclosure obligations are known as the written description and enablement requirements, respectively. The extent of the disclosure limits how broadly a patent applicant can claim.<sup>5</sup> For example, if an applicant has disclosed a particular vaccine for an RNA virus, she may be entitled to claim the vaccine for that particular virus but likely cannot claim *all* vaccines for RNA viruses (which would include the HIV virus).<sup>6</sup> A

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1. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607 (1950).

2. *See, e.g.*, Timothy R. Holbrook, *Equivalency and Patent Law's Possession Paradox*, 23 HARV. J.L. & TECH. 1, 37–46 (2011) (discussing incentives for inventors and subsequent improvers).

3. *See, e.g.*, *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1353–54 (Fed. Cir. 2010) (en banc) (“[T]he purpose of the written description requirement is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor’s contribution to the field . . .” (internal quotations omitted)).

4. 35 U.S.C. § 112(a) (2012). The patentee is also obligated to disclose the best mode of practicing the invention, though this obligation is rather toothless because failure to disclose the best mode is no longer a basis of invalidating a patent claim. *See id.* § 282(b)(3)(A) (providing invalidity as a defense “except that the failure to disclose the best mode shall not be a basis on which any claim of a patent may be canceled or held invalid or otherwise unenforceable”). This change is found in section 15(a) of the America Invents Act. Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 15(a), 125 Stat. 284, 328 (2011) (codified in scattered sections of 35 U.S.C.).

5. *See* Timothy R. Holbrook, *Possession in Patent Law*, 59 SMU L. REV. 123, 157–59 (2006) (stating that a “patent reward should be commensurate with the scope” of the invention because “[o]therwise, the patentee would be unduly rewarded for his invention through the granting of broad patent rights and might preclude others from reaping the benefit of subsequent innovations”); Jeffrey A. Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L.J. 1141, 1182 (2008) (“The limits on a patent’s scope essentially derive from only two sources: the prior art at the time of the invention, and the inventor’s disclosure.”).

6. *See In re Wright*, 999 F.2d 1557, 1561–64 (Fed. Cir. 1993) (affirming denial of patent application that included claim for “*any and all* live, non-pathogenic vaccines, and processes for making such vaccines, which elicit immunoprotective activity in *any* animal toward *any* RNA virus” where applicant had merely developed a specific avian recombinant virus vaccine).

claim that is overly broad because it lacks adequate support in the patent specification is invalid.<sup>7</sup> As a result, the scope of the disclosure acts as a limit on the possible breadth of the claims.

The second constraint on claim scope is the prior art. A claimed invention must be both novel and non-obvious over the prior art to be patent eligible.<sup>8</sup> The lack of novelty, known as anticipation, arises when the claimed invention is disclosed in a single prior art reference, be it a physical act of creation or disclosure in a patent or printed publication.<sup>9</sup> Obviousness requires that the claimed invention be more than a trivial improvement over the state of the art.<sup>10</sup> If a patent claim during the application process is found invalid as anticipated or obvious, then the applicant will have to narrow the scope of the claim to avoid

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7. See, e.g., *Ariad*, 598 F.3d at 1358 (invalidating claim under written description requirement); *Auto. Techs. Int'l v. BMW of N. Am., Inc.*, 501 F.3d 1274, 1285 (Fed. Cir. 2007) (invalidating claim under enablement requirement). In theory, the court could use the extent of the disclosure more robustly to limit claim scope through claim construction. There is a canon of claim construction that a claim should be construed to maintain its validity if reasonably possible. See *Modine Mfg. Co. v. U.S. Int'l Trade Comm'n*, 75 F.3d 1545, 1557 (Fed. Cir. 1996) (“When claims are amenable to more than one construction, they should when reasonably possible be interpreted so as to preserve their validity.”); *Tex. Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 871 F.2d 1054, 1065 (Fed. Cir. 1989) (“Ambiguous claims, whenever possible, should be construed so as to preserve their validity.”); see also KIMBERLY A. MOORE, TIMOTHY R. HOLBROOK & JOHN F. MURPHY, *PATENT LITIGATION AND STRATEGY* 371 (4th. ed. 2013). Under this canon, if the disclosure fails to support a broader interpretation of a claim, the court could construe the claim more narrowly to preserve its validity. The Federal Circuit, however, has suggested that this canon is of little import. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1327–28 (Fed. Cir. 2005) (en banc) (“While we have acknowledged the maxim that claims should be construed to preserve their validity, we have not applied that principle broadly, and we have certainly not endorsed a regime in which validity analysis is a regular component of claim construction. Instead, we have limited the maxim to cases in which “the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous.” (citation omitted)). But see Timothy R. Holbrook, *Patents, Presumptions, and Public Notice*, 86 IND. L.J. 779, 803 (2011) [hereinafter Holbrook, *Patents, Presumptions*] (“[I]nvalidity judgments have a public-good aspect because third parties can free ride on an invalidity determination by another without incurring the costs of litigation. Thus, it would seem more appropriate, if we do value patents, for the courts to err on the side of offering narrower claim constructions that may result in noninfringement, but nevertheless preserve validity.”); Holbrook, *supra* note 5, at 157–59 (arguing for more robust use of this canon).

8. 35 U.S.C. §§ 102, 103.

9. *Id.* § 102; see also *K-TEC, Inc. v. Vita-Mix Corp.*, 696 F.3d 1364, 1377 (Fed. Cir. 2012) (noting, as a matter of law, that it would have been easy to modify a blending container to include a handle as there are a number of prior art references that disclose blending containers with handles).

10. *Cf. Graham v. John Deere Co.*, 383 U.S. 1, 14 (1966) (“An invention which has been made, and which is new in the sense that the same thing has not been made before, may still not be patentable if the difference between the new thing and what was known before is not considered sufficiently great to warrant a patent.”).

the relevant prior art.<sup>11</sup>

The prior art also acts as a constraint on the permissible scope of a patent under the doctrine of equivalents. The doctrine of equivalents allows the patent to cover devices that, while not literally covered by the claim, are nevertheless considered close enough—equivalent—to the claimed invention.<sup>12</sup> Prior art directly limits the doctrine because patentees cannot use it to cover subject matter already within the prior art.<sup>13</sup> The prior art indirectly limits the availability of equivalents through prosecution history estoppel: if a patent applicant narrows the scope of a claim in response to a rejection, often based on prior art, by the patent examiner, she may be precluded from arguing the doctrine of equivalents as to that limitation.<sup>14</sup> The prior art, therefore, profoundly impacts the available scope of a patent.

Generally, courts or the United States Patent and Trademark Office (“USPTO”) consider the sufficiency of the disclosure and validity vis-à-vis the prior art in isolation. The focus of the court or USPTO is whether the patent at issue satisfies the obligations under section 112(a) or whether the relevant claims are invalid in light of the prior art. Every patent, however, is also a potential piece of prior art against a later

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11. Cf. *In re Youman*, 679 F.3d 1335, 1343 (Fed. Cir. 2012) (noting that applicants will “cancel[] or amend[] . . . the original claim in order to overcome prior art”).

12. See *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997) (“Under this doctrine, a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is ‘equivalence’ between the elements of the accused product or process and the claimed elements of the patented invention.”). As the Supreme Court explained:

One who seeks to pirate an invention . . . may be expected to introduce minor variations to conceal and shelter the piracy. . . . [Limiting the patentee to literal infringement] would deprive him of the benefit of his invention and would foster concealment rather than disclosure of inventions . . . .

The doctrine of equivalents evolved in response to this experience.

*Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607–08 (1950). Such non-literal infringement affords the patentee greater protection. See generally Christopher A. Cotropia, “After-Arising” Technologies and Tailoring Patent Scope, 61 N.Y.U. ANN. SURV. AM. L. 151, 157 (2005) (explaining that “the scope of protection afforded to a patent . . . does not stop with the literal boundaries defined by the claim language”); Holbrook, *supra* note 2, at 5–6 (explaining that patent law affords “constructive possession,” providing that “even though the patentee does not actually ‘possess’ the invention at issue, we consider her to possess the invention for various policy reasons”).

13. *Wilson Sporting Goods Co. v. David Geoffrey & Assocs.*, 904 F.2d 677, 683–84 (Fed. Cir. 1990).

14. See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 733–34 (2002) (“When, however, the patentee originally claimed the subject matter alleged to infringe but then narrowed the claim in response to a rejection, he may not argue that the surrendered territory comprised unforeseen subject matter that should be deemed equivalent to the literal claims of the issued patent.”); *Warner-Jenkinson*, 520 U.S. at 30–31.

patent. Because it is the disclosure of the patent that controls its impact as a piece of prior art and not the particular claims in the patent, there is a relationship between patent disclosure and the prior art doctrines. A patent is good as a piece of prior art for the content of its disclosure and the expansiveness of what it teaches.<sup>15</sup> The scope of the claims is generally not relevant when the patent is used as prior art. It is error—one frequently made by my students—to compare the claims of the prior art patent with the claims of the patent at issue to assess novelty and non-obviousness. Instead, the proper comparison is between the disclosure of the prior art patent and the claims of the relevant patent.

In this regard, the Federal Circuit's approach to disclosure law, and the written description requirement in particular, creates the potential for a "patent free" zone, which this Essay dubs the "written description gap." As further elaborated below, the Federal Circuit has held that a disclosure that renders a claim within that patent obvious—but does not specifically disclose the variant in the claim—is insufficient to satisfy the written description requirement, and the claim is invalid.<sup>16</sup> The patent applicant would not be able to claim that variant in that application.<sup>17</sup> In litigation, the claim would simply be invalid. That particular applicant would be unable to claim the obvious variant of the invention.

Suppose, however, that a subsequent patent applicant wants to now patent that obvious variant. In other words, what happens once the original patent is now used as prior art against a subsequent applicant? Even though the claim was invalidated, this does not undermine the role of the disclosure in serving as prior art. As a result, if the later patent claims an obvious variant as well, then the subsequent applicant also is unable to obtain patent coverage of that version of the invention. Ultimately, no one will be able to obtain patent protection for that particular variant, and it will effectively fall into the public domain. Of course, whether this written description gap is a good or a bad thing is an entirely different issue.<sup>18</sup>

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15. Cf. *Beckman Instruments, Inc. v. LKB Produkter AB*, 892 F.2d 1547, 1551 (Fed. Cir. 1989) ("Even if a reference discloses an inoperative device, it is prior art for all that it teaches.").

16. See *infra* Part I.B.

17. The patent applicant could file a new application or a continuation-in-part that adds the variant to the disclosure, but the applicant will forfeit the filing date as to that new matter. See *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1571–72 (Fed. Cir. 1997) ("Entitlement to a filing date does not extend to subject matter which is not disclosed, but would be obvious over what is expressly disclosed. It extends only to that which is disclosed."). If any intervening prior art arises, the applicant would be unable to patent that variant.

18. See *infra* Part III.

This Essay further elaborates on the operation of this gap. Part I discusses the written description doctrine and the rule that a disclosure that renders a claim obvious is insufficient to show possession of the invention. Importantly, this Essay fills a gap in the literature, which up to this point has failed to address the appropriateness of the “obvious variant” standard for written description. Part II explains the law of non-obviousness and elaborates on how any subsequent inventor would be precluded from claiming that subject matter, creating the gap. Finally, Part III explores whether such a patent-free zone is normatively desirable or problematic.

## I. THE LAW OF WRITTEN DESCRIPTION AND THE OBVIOUS VARIANT DOCTRINE

The law of written description has recently—and controversially<sup>19</sup>—evolved. This Part briefly explores the evolution of the written description doctrine, its culmination in the *Ariad* decision,<sup>20</sup> and the articulation of the “obvious variant” doctrine.<sup>21</sup> It concludes with a critique of the “obvious variant” rule.<sup>22</sup>

### A. *The Evolution and Current State of Written Description Law*

Although the true origins of the written description requirement are historically murky,<sup>23</sup> the statutory basis for the requirement is found in section 112(a) of the Patent Act, which requires that a patent application “contain a written description of the invention.”<sup>24</sup> The role of this provision historically was to prevent the addition of new matter to a patent application.<sup>25</sup> A patent application is generally limited to the

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19. See *Ariad Pharm., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1361–62 (Fed. Cir. 2010) (en banc) (Rader, J., dissenting in part and concurring in part) (cataloguing judicial critiques); Holbrook, *supra* note 5, at 162 nn.218–20 (cataloguing academic critiques).

20. See *infra* Part I.A.

21. See *infra* Part I.B.

22. See *infra* Part I.C.

23. Mark Janis, *On Courts Herding Cats: Contending with the “Written Description” Requirement (and Other Unruly Patent Disclosure Doctrines)*, 2 WASH. U. J.L. & POL’Y 55, 63–64 (2000). The Federal Circuit has traced the origins of a separate written description requirement to *In re Ruschig*, 379 F.2d 990 (C.C.P.A. 1967). See *Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 922 (Fed. Cir. 2004) (“[O]ur precedent clearly recognizes a separate written description requirement [in *In Re Ruschig*].”).

24. 35 U.S.C. § 112(a) (2012). Prior to the adoption of the American Invents Act, this provision was generally referred to as § 112, ¶ 1. This Essay refers to the current statute.

25. See, e.g., *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1158 (Fed. Cir. 1998) (“For a claim in a later-filed application to be entitled to the filing date of an earlier application under 35 U.S.C. § 120 (1994), the earlier application must comply with the written description requirement of 35 U.S.C. § 112, ¶ 1 (1994).”); *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1560 (Fed. Cir. 1991)



subject matter disclosed in a non-provisional application, and an applicant is not permitted to supplement the disclosure with material discovered after filing.<sup>26</sup> If an applicant were able to update the application, the applicant would be able to cover later-developed improvements while retaining the earlier filing date.<sup>27</sup> The patent applicant could then avoid having her application compared to post-filing prior art that could invalidate the claims, including the new material.<sup>28</sup> Amended claims in the original application or new claims in subsequent applications must therefore have support in the specification of the original application to be entitled to rely upon that earlier filing date.

If the applicant wishes to add new matter, she can file a continuation-in-part application (“CIP”).<sup>29</sup> The CIP permits the applicant to continue to prosecute the application, but she will not be entitled to the filing date of her earlier application for the new matter. The result of filing a CIP is that the application has two filing dates: (1) the filing date of the original application from which the later application claims priority and (2) the filing date of the CIP for the new matter.<sup>30</sup> In litigation, forfeiture of the earlier filing date can be problematic because there may be intervening prior art that renders the later-claimed subject matter invalid as anticipated or obvious.<sup>31</sup>

The Federal Circuit and one of its predecessor courts, the Court of Customs and Patent Appeals (“CCPA”), evaluated the adequacy of the

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(“The cases indicate that the ‘written description’ requirement most often comes into play where claims not presented in the application when filed are presented thereafter. Alternatively, patent applicants often seek the benefit of the filing date of an earlier-filed foreign or United States application . . .”). See generally JANICE M. MUELLER, PATENT LAW 144–46 (4th ed. 2013).

26. 35 U.S.C. § 132(a) (“No amendment shall introduce new matter into the disclosure of the invention.”).

27. MUELLER, *supra* note 25, at 145 (“Without written description of the invention scrutiny, a later-presented or amended claim not truly entitled to the earlier filing date of the application would be improperly examined against a smaller universe of prior art than is legally available.”).

28. *Id.*

29. See Hal Mitton & James P. Bonnamy, *CIP Practice Under and Beyond the Proposed Rule Changes for Continuations*, 88 J. PAT. & TRADEMARK OFF. SOC’Y 801, 803 (2006) (explaining the process of filing a “continuing” patent application). The various forms of continuing applications are authorized under 35 U.S.C. § 120. See generally Mark A. Lemley & Kimberly A. Moore, *Ending the Abuse of Continuing Applications*, 84 B.U. L. REV. 63, 68 (2004) (explaining that a continuation application can be filed at any time before the PTO issues the patent or prior to the applicant abandoning the application. Applications can be filed after a rejection or after an allowance). The USPTO has implemented CIP applications in 37 C.F.R. § 1.53(d)(2).

30. Mitton & Bonnamy, *supra* note 29, at 803.

31. See, e.g., *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1158 (Fed. Cir. 1998).

disclosure under a “possession” test: a patent could claim priority if the earlier application demonstrated that the inventor was in possession of the subject matter in the later application.<sup>32</sup> In this context, a court compares what was claimed in the later application to the disclosure of the patent from which priority was sought.<sup>33</sup> If there is an antecedent basis for the subject matter, the claim is entitled to the earlier filing date.<sup>34</sup> The particular subject matter does not have to be identically disclosed to establish adequate support.<sup>35</sup> For originally filed claims, however, there would not be a new matter problem. Because claims are part of the specification,<sup>36</sup> the subject matter claimed was necessarily in the original patent document and not new matter by definition.<sup>37</sup>

Over time, the Federal Circuit began to expand the role of the written description doctrine beyond policing new matter. Initially starting with biotechnology-related inventions<sup>38</sup> and later expanding into other fields,<sup>39</sup> the Federal Circuit began to apply written description doctrine as a tool for combating claim scope, regardless of whether new matter

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32. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991) (“[T]he applicant must also convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention.” (emphasis omitted)); *In re Kaslow*, 707 F.2d 1366, 1375 (Fed. Cir. 1983); *In re Herschler*, 591 F.2d 693, 700 (C.C.P.A. 1979); see also *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1320 (Fed. Cir. 2003) (“The test for compliance with § 112 has always required sufficient information in the original disclosure to show that the inventor possessed the invention at the time of the original filing.”).

33. See, e.g., *Tronzo*, 156 F.3d at 1158 (explaining that “the disclosure of the earlier application, the parent, must reasonably convey to one of skill in the art that the inventor possessed the later-claimed subject matter at the time the parent application was filed”).

34. *Vas-Cath*, 935 F.2d at 1558–60.

35. *Kaslow*, 707 F.2d at 1375 (“The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language.” (quoting the Board of Patent Appeals and Interferences)).

36. 35 U.S.C. § 112(b) (2012) (“The specification shall conclude with one or more claims . . . .”); see also *Markman v. Westview Instruments*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc) (“Claims must be read in view of the specification, of which they are a part.”), *aff’d*, 517 U.S. 368 (1996).

37. Janice M. Mueller, *The Evolving Application of the Written Description Requirement to Biotechnological Inventions*, 13 BERKELEY TECH. L.J. 615, 633–34 (1998).

38. See, e.g., *Regents of the Univ. of Cal. v. Eli Lilly*, 119 F.3d 1559, 1568–69 (Fed. Cir. 1997). See generally Mueller, *supra* note 37, at 633–52 (discussing in depth the written description requirements as applied to biotechnological subject matter).

39. See, e.g., *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336, 1344–47 (Fed. Cir. 2005) (applying written description requirement of 35 U.S.C. §112 to software-related invention); *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1321 (Fed. Cir. 2003) (applying the written description requirement to method of processing eggs).

was introduced into the patent.<sup>40</sup> This new doctrine applied to originally filed claims as well as later-submitted or amended claims.<sup>41</sup>

The en banc Federal Circuit resolved the controversy and uncertainty surrounding this doctrine in *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*<sup>42</sup> The technology at issue involved methods for regulating gene expression in order to reduce harmful symptoms of various diseases.<sup>43</sup> The claims were broad genus claims, covering the use of all substances that “achieved the desired result of reducing the binding” of the relevant protein to particular sites.<sup>44</sup> The claims actually contained a single step: reducing the activity of the relevant protein.<sup>45</sup> Unfortunately for Ariad, the specification only hypothesized how that step was to be performed. Specifically, it only offered three hypothetical classes of compounds that inhibit gene expression, but nothing in the specification suggested that the inventor identified any particular molecules that actually worked.<sup>46</sup> The court concluded that this thin disclosure failed the written description requirement and invalidated the claims.<sup>47</sup>

The en banc court explained the rationale for the written description requirement: the doctrine helps to combat “genus claims that use functional language to define the boundaries of a claimed genus.”<sup>48</sup> These broad claims may “simply claim a desired result, and may do so without describing species that achieve that result,”<sup>49</sup> which would disrupt the appropriate quid pro quo between inventors and the public.<sup>50</sup>

#### *B. Obvious Variants are Not Considered within the Possession of the Inventor*

*Ariad* confirmed that the written description requirement can be used to invalidate overly broad claims regardless of concerns of priority. Determining what disclosure is sufficient to satisfy the written

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40. *Moba*, 325 F.3d at 1319–20 (discussing two variants of written description law). See generally Holbrook, *Patents, Presumptions*, *supra* note 7, at 794–95 (discussing the expansion of the doctrine). There is a rich literature discussing the written description requirement’s evolution. See *id.* at 792–93 n.86.

41. *Regents of the Univ. of Cal.*, 119 F.3d at 1568–69 (applying doctrine to originally filed claims).

42. 598 F.3d 1336 (Fed. Cir. 2010) (en banc).

43. *Id.* at 1340.

44. *Id.* at 1341.

45. *Id.* at 1354.

46. *Id.*

47. *Id.* at 1357–58.

48. *Id.* at 1349.

49. *Id.*

50. *Id.* at 1345.

description requirement, however, is a different challenge. Even the court in *Ariad* candidly admitted that “[t]he term ‘possession[]’ . . . has never been very enlightening” when assessing the written description requirement.<sup>51</sup>

The court thereafter offered a few “broad principles” to help guide a fact finder in assessing the sufficiency of a patent disclosure.<sup>52</sup> Drawing upon the priority cases, the court noted that

the written description requirement does not demand either examples or an actual reduction to practice;<sup>53</sup> a constructive reduction to practice that in a definite way identifies the claimed invention can satisfy the written description requirement.<sup>54</sup> Conversely, we have repeatedly stated that actual “possession” or reduction to practice outside of the specification is not enough. Rather, as stated above, it is the specification itself that must demonstrate possession.<sup>55</sup>

Importantly for this Essay, the court also addressed the specificity with which a particular embodiment must be disclosed for adequate support to exist. The court noted that, to satisfy the written description requirement, the specification does not have to “recite the claimed invention *in haec verba*.”<sup>56</sup> Nevertheless, the court made clear that “a description that merely renders the invention obvious does not satisfy the requirement.”<sup>57</sup>

This exclusion of obvious variants has its genesis in slightly older Federal Circuit cases, although the rule is not a venerable one of considerable age. While recent panels have recited the rule, both before and after *Ariad*,<sup>58</sup> the origin of the rule traces back to *Lockwood v.*

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51. *Id.* at 1351.

52. *Id.* at 1352.

53. *Id.*; *Fox Grp., Inc. v. Cree, Inc.*, 700 F.3d 1300, 1305 (Fed. Cir. 2012). “Reduction to practice” is a term of art in patent law, where the inventor has created a physical embodiment of the invention that works for its intended purpose. *Fox Grp., Inc.*, 700 F.3d at 1305.

54. *Ariad*, 598 F.3d at 1352; *see also* *Solvay S.A. v. Honeywell Int’l, Inc.*, 622 F.3d 1367, 1376 (Fed. Cir. 2010) (further discussing actual reduction versus constructive reduction practice). A constructive reduction to practice occurs when an applicant files an application that satisfies the disclosure requirements of 35 U.S.C. § 112(a), which include providing an adequate written description and an enabling disclosure. Thus, an inventor can file an application even if she has not physically constructed a working embodiment (i.e., actually reduced the invention to practice).

55. *Ariad*, 598 F.3d at 1352 (citations omitted).

56. *Id.*

57. *Id.*

58. *See, e.g.*, *Research Corp. Techs. Inc. v. Microsoft Corp.*, 627 F.3d 859, 870 (Fed. Cir. 2010) (“Entitlement to a filing date extends only to subject matter that is disclosed; not to that which is obvious.” (internal citations omitted)); *In re Meyer Mfg. Corp.*, 411 Fed. Appx. 316, 319 (Fed. Cir. 2010) (describing the difference between the obviousness principle and the written

*American Airlines, Inc.*<sup>59</sup> The court in *Lockwood* confronted a traditional priority issue where the patent holder claimed priority to an earlier application.<sup>60</sup> In the case, there were a series of applications prior to the one that eventually issued as the patent at issue.<sup>61</sup> The law is clear that, “[i]n order to gain the benefit of the filing date of an earlier application, . . . each application in the chain leading back to the earlier application must comply with the written description requirement.”<sup>62</sup> The patent holder suggested that an earlier application would render the claimed invention obvious, entitling the patent holder to rely on the earlier filing date to avoid intervening prior art.<sup>63</sup> The Federal Circuit rejected this argument:

Entitlement to a filing date does not extend to subject matter which is not disclosed, but would be obvious over what is expressly disclosed. It extends only to that which is disclosed. While the meaning of terms, phrases, or diagrams in a disclosure is to be explained or interpreted from the vantage point of one skilled in the art, all the limitations must appear in the specification. The question is not whether a claimed invention is an obvious variant of that which is disclosed in the specification. Rather, a prior application itself must describe an invention, and do so in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.<sup>64</sup>

The court reasoned further that “[o]ne shows that one is ‘in possession’ of the invention by describing the invention, with all its claimed limitations, not that which makes it obvious.”<sup>65</sup> Other cases

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description principle); *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008) (requiring that the written description actually or inherently disclose the claim element); *Regents of the Univ. of Cal.*, 119 F.3d at 1567 (explaining that a specification which only provides a general method of producing human insulin cDNA and a description of the human insulin A and B chain amino acid sequences which it encodes does not provide a proper written description of that human insulin cDNA).

59. 107 F.3d 1565 (Fed. Cir. 1997).

60. *Id.* at 1571.

61. *Id.*

62. *Id.*

63. *Id.*

64. *Id.* at 1571–72.

65. *Id.* at 1572 (emphasis omitted). The court has also taken pains to distinguish enablement from written description by noting that “[i]t is ‘not a question of whether one skilled in the art might be able to construct the patentee’s device from the teachings of the disclosure . . . . Rather, it is a question whether the application necessarily discloses that particular device.’” *Martin v. Mayer*, 823 F.2d 500, 505 (Fed. Cir. 1987) (quoting *Jepson v. Coleman*, 314 F.2d 533, 536 (C.C.P.A. 1963) (emphasis omitted)); *see also Hyatt v. Boone*, 146 F.3d 1348, 1353–54 (Fed. Cir. 1998) (same). *But see* Brief for Mark D. Janis & Timothy R. Holbrook as Amici Curiae In Support of Neither Party at 6–13, *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336 (Fed. Cir.

have subsequently embraced this approach to assessing whether a claim satisfies the written description requirement.<sup>66</sup>

Nevertheless, this “obvious variant” rule creates an odd wrinkle for patent applicants—one that is often overlooked. An applicant need not identically describe a particular embodiment to satisfy the written description requirement; disclosure of an equivalent is sufficient.<sup>67</sup> But a description that renders a variant obvious—likely because an aspect of the claimed invention has not been expressly disclosed—is not enough to show possession. For example, a disclosure that describes a screw likely provides sufficient support for a claim including a limitation for a nail. But a disclosure that omits any discussion of the screw, even if the person having ordinary skill in the art (“PHOSITA”) would view the use of a screw or nail as obvious, would not be sufficient. What would constitute equivalent and sufficient versus obvious and insufficient is a difficult line to draw, if there even is a difference.<sup>68</sup>

C. *Critique of the Obvious Variant Rule—if Obvious, Why Not “In Possession?”*

Interestingly, the obvious variant rule has received virtually no scholarly attention or criticism. This dearth of discussion is particularly surprising given the amount of attention the written description requirement has received generally.<sup>69</sup> It is even more surprising when

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2010) (en banc) (No. 2008-1248), 2009 WL 3657814 (arguing that enablement can police both scope and priority).

66. See, e.g., *PowerOasis, Inc. v. T-Mobile, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008); *In re Huston*, 308 F.3d 1267, 1277 (Fed. Cir. 2002); *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1158 (Fed. Cir. 1998).

67. *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997) (“Although the exact terms need not be used *in haec verba*, the specification must contain an equivalent description of the claimed subject matter.” (internal citation omitted)).

68. Assuming the court intended “equivalent” to draw upon ideas underlying the doctrine of equivalents, both the Federal Circuit and commentators have suggested that obviousness and equivalency are essentially the same. See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 493 F.3d 1368, 1380 (Fed. Cir. 2007) (“But there is a strong argument that an equivalent cannot be both non-obvious and insubstantial.”); *Roton Barrier, Inc. v. Stanley Works*, 79 F.3d 1112, 1128 (Fed. Cir. 1996) (Nies, J., additional views) (“A substitution in a patented invention cannot be both nonobvious and insubstantial.”); Alan L. Durham, *Patent Symmetry*, 87 B.U. L. REV. 969, 993–94 (2007) (noting similarity between obviousness and equivalency). But see *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 750 F.2d 1569, 1580 (Fed. Cir. 1984) (rejecting rule that separate patent precludes finding of equivalency).

69. See, e.g., Holbrook, *Patents, Presumptions*, *supra* note 7, at 795; Janis, *supra* note 23; Duane M. Linstrom, *Spontaneous Mutation: A Sudden Change in the Evolution of the Written Description Requirement as It Applies to Genetic Patents*, 40 SAN DIEGO L. REV. 947, 970 (2003); Janice M. Mueller, *The Evolving Application of the Written Description Requirement to Biotechnological Inventions*, 13 BERKELEY TECH. L.J. 615, 615–51 (1998); Harold C. Wegner,

one reviews the *Lockwood* decision, because it offers no justification for the rule. In short, why isn't an obvious variant viewed as showing that the inventor was in possession of the claimed invention? This Section discusses the advantages and disadvantages of the obvious variant rule.

### 1. Arguments Against the Obvious Variant Rule

The efficacy of this rule is questionable because the patent system does not permit an applicant to obtain a patent on obvious variations in the state of the art.<sup>70</sup> In some sense, therefore, an obvious invention is already within the grasp of the PHOSITA.<sup>71</sup> An obvious variant, therefore, is within the possession of the public. From a validity perspective, therefore, it seems theoretically inconsistent to treat an invention as being within the possession of the inventor for purposes of the obviousness doctrine but not within the possession of the applicant for purposes of written description doctrine.

Patent law has used obviousness to measure possession in other contexts as well. Under the 1952 Patent Act, an applicant can demonstrate an earlier invention date by showing she had created a version of the invention that would render any subsequent piece of prior art obvious. In this context, the applicant is able to antedate a potential prior art reference by showing she came up with her invention before the reference. Specifically, in *In re Stryker*, the CCPA held that if the inventor can demonstrate that she invented something that would render the claim obvious, the applicant could antedate the reference.<sup>72</sup> The applicant had proven he had reduced a variant of the invention to practice prior to the date of an issued patent, but what the applicant had created did not contain all of the limitations in his actual claim.<sup>73</sup> Nevertheless, the court concluded that because what he had reduced to practice would render the prior art patent obvious, the applicant had effectively antedated the reference and removed it as a piece of prior

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*When a Written Description Is Not a "Written Description": When Enzo Says It's Not*, 12 FED. CIR. B.J. 271, 274 (2002).

70. See 35 U.S.C. § 103 (2012) ("A patent for a claimed invention may not be obtained . . . if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art . . .").

71. See Holbrook, *supra* note 5, at 169–73 (discussing relationship between enablement, obviousness, and possession); Timothy R. Holbrook, A Possession-Based Approach to Patent Validity (2013) (unpublished manuscript) (draft on file with author) (offering a possession-based theory of obviousness).

72. *In re Stryker*, 435 F.2d 1340, 1341–42 (C.C.P.A. 1971).

73. *Id.* at 1341.

art.<sup>74</sup> In this context, therefore, the court used obviousness to demonstrate that the inventor was sufficiently in possession of the invention to justify antedating the reference.<sup>75</sup>

The written description doctrine could operate very similarly in these circumstances. If the variant is obvious in light of the disclosure, it is highly likely that the specification would enable one of ordinary skill in the art to make it. If one of skill in the art could actually make and use the device, then one would think that the inventor had demonstrated sufficiently that she was in possession of the claimed invention.<sup>76</sup>

## 2. Arguments in Favor of the Obvious Variant Rule

There are other patent law doctrines, however, that could support the obvious variant rule by analogy. In these circumstances, the law treats obvious variants as beyond the reach of an applicant. The issue of a sufficient disclosure is similar to that of the public dedication rule. The public dedication rule effectively precludes a patent owner from covering any embodiment of the invention that she disclosed in the application but failed to claim.<sup>77</sup> In particular, the patentee cannot use the doctrine of equivalents to cover disclosed but unclaimed embodiments of the invention.<sup>78</sup> This doctrine necessarily raised the issue of what disclosure is sufficient to trigger the public dedication rule.<sup>79</sup> Relevant to the written description gap, the question is whether the public dedication rule would be triggered if the specification did not disclose the precise device accused of infringement but instead only rendered it obvious.

Although the Federal Circuit has not squarely addressed the issue, the likely answer is that obvious variants are not considered to be dedicated

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74. *Id.* at 1341–42.

75. *See also In re Spiller*, 500 F.2d 1170, 1177 (C.C.P.A. 1974) (“The question, then, is whether the rule of *Stryker* ought to be extended to a situation where the [showing of prior invention] is not fully commensurate with the reference but renders the claimed invention obvious. We think *Stryker* is controlling in this situation as well . . .”).

76. *See Holbrook*, *supra* note 5, at 161–63 (arguing that enablement, not written description, is the best way to demonstrate possession).

77. *See Johnson & Johnston Assocs. Inc. v. R.E. Serv. Co., Inc.*, 285 F.3d 1046, 1054 (Fed. Cir. 2002) (en banc) (“Application of the doctrine of equivalents to recapture subject matter deliberately left unclaimed would ‘conflict with the primacy of the claims in defining the scope of the patentee’s exclusive right.’” (quoting *Sage Prods. Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1424 (Fed. Cir. 1997))).

78. *Id.*

79. *See Mark D. Janis & Timothy R. Holbrook*, *Patent Law’s Audience*, 97 MINN. L. REV. 72, 107–11 (2011) (discussing the disclosure-dedication rule and other specification-based doctrines of surrender).



to the public. If the specific embodiment is not actually disclosed, then the rationale underlying the rule—that the inventor should have claimed the variant<sup>80</sup>—is greatly undermined. The courts only view the subject matter disclaimed if it is expressly listed in the patent document.<sup>81</sup> It would be a harsh rule indeed if the patentee were deemed to have dedicated not only disclosed embodiments but also all obvious embodiments if they were not expressly claimed. Such a rule could severely curtail the availability of the doctrine of equivalents.

Another area in which patent law, at present, does not treat possession and obviousness interchangeably is under the new first-inventor-to-file regime provided by the America Invents Act (“AIA”). Under the AIA, prior art is defined relative to the filing date: if the invention is described in a patent or printed publication, or is offered for sale or used publicly before the application date, then it is invalid.<sup>82</sup> One exception to this rule, however, is when the applicant can show that she disclosed the subject matter claimed in the patent prior to such acts, or when a third party who derived the subject matter from her disclosed the subject matter before those acts.<sup>83</sup>

The question that arose is if that earlier disclosure with its origins from the applicant does not identically disclose the subject matter but instead renders it obvious, would that be sufficient to remove the piece of prior art, in a manner akin to *Stryker*? As a preliminary matter, the USPTO suggested in its preliminary guidelines implementing the AIA that such disclosures would not exclude the prior art: only a disclosure of the identical subject matter can be used to antedate a prior art reference.<sup>84</sup> The preliminary guidelines noted that

[e]ven if the only differences between the subject matter in the prior art disclosure that is relied upon under 35 U.S.C. 102(a) and the subject matter publicly disclosed by the inventor before such prior art disclosure are mere insubstantial changes, or only trivial or *obvious*

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80. Holbrook, *supra* note 2, at 22.

81. See, e.g., *Toro Co. v. White Consol. Indus., Inc.*, 383 F.3d 1326, 1333–34 (Fed. Cir. 2004) (discussing sufficiency of disclosure to trigger public dedication rule); *PSC Computer Prods., Inc. v. Foxconn Int'l*, 355 F.3d 1353, 1360 (Fed. Cir. 2004) (same).

82. Pub. L. No. 112-29, § 3, 125 Stat. 284, 285–86 (2011) (codified at 35 U.S.C. § 102(a)(1)).

83. *Id.* at 286 (codified at 35 U.S.C. § 102(b)(1)(B)). For examples of how the AIA prior art provisions work, see MOORE, HOLBROOK & MURPHY, *supra* note 7, at 691–98.

84. Examination Guidelines for Implementing the First-Inventor-to-File Provisions of the Leahy-Smith America Invents Act, 77 Fed. Reg. 43,759, 43,767 (July 26, 2012) (to be codified at 37 C.F.R. pt. 1).

*variations*, the exception under 35 U.S.C. 102(b)(1)(B) does not apply.<sup>85</sup>

In this context, an obvious variant—like the written description rule—is not considered as demonstrating possession by the applicant. The USPTO promulgated final rules guidelines seem to step back slightly from this strict rule. There is no longer a reference to “obvious variations,” though the USPTO insists that the earlier disclosure must still be identical.<sup>86</sup> In any event, the USPTO lacks substantive rule-making authority, and therefore, it remains to be seen whether the courts agree with this approach to the new section 102.<sup>87</sup>

Aside from these comparisons, a number of policies arguably support the exclusion of obvious variants from the scope of a patent’s written description. The Federal Circuit has emphasized, both in the written description context and others, the primacy of the patent disclosure.<sup>88</sup> For example, the court in *Ariad* emphasized that possession can only be demonstrated by the patent document.<sup>89</sup> Evidence that the applicant had *actually* reduced the invention to practice in a lab is irrelevant to the written description analysis unless the reduction to practice is memorialized in the patent document itself.<sup>90</sup> The court therefore hoped to channel more information into the patent document to aid in public notice and fulfilling the disclosure function of the patent system.

The exclusion of obvious variants from the written description rule complements these public notice and disclosure functions. If the patent applicant wants to claim certain variations of the invention, then she

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85. *Id.* (emphasis added).

86. Examination Guidelines for Implementing the First Inventor To File Provisions of the Leahy-Smith America Invents Act, 78 Fed. Reg. 11,059, 11,061, 11,065–68, (Feb. 14, 2013) (to be codified at C.F.R. pt. 1). The USPTO still requires identical subject matter but permits that the earlier disclosure need not be “a verbatim or *ipsissimis verbis* disclosure.” *Id.* at 11,077.

87. *See* Ass’n for Molecular Pathology v. U.S. Patent and Trademark Office, 689 F.3d 1303, 1344 (Fed. Cir. 2012) (Moore, J., concurring) (discussing the patentability of DNA from the human body), *aff’d in part, rev’d in part sub nom.* Ass’n for Molecular Pathology v. Myriad Genetics, Inc., 133 S.Ct. 2107 (2013); David Orozco, *Administrative Patent Levers*, 117 PENN. ST. L. REV. 1, 7 (2012) (stating that “the PTO, unlike most administrative agencies, lacks substantive rule-making authority, and its foray into substantive rulemaking will likely be reviewed by the federal courts”).

88. *See* *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (noting sufficiency of written description is satisfied by the four corners of the patent alone and not extrinsic evidence); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (en banc) (emphasizing intrinsic evidence in claim construction); *see also* Holbrook, *Patents, Presumptions*, *supra* note 7, at 808–25 (advocating use of presumptions to emphasize importance of intrinsic evidence while balancing views of the PHOSITA).

89. *Ariad*, 598 F.3d at 1351.

90. *Id.* at 1351–54.

needs to disclose them expressly (or equivalently) in the patent specification.

Permitting a patent applicant to claim obvious variants necessarily would involve consideration of information outside of the patent document itself. In the validity context, the obviousness inquiry is highly fact-intensive, involving consideration of a variety of factors, such as the knowledge of the PHOSITA and the scope and content of the prior art.<sup>91</sup> To properly analyze whether the variant is obvious in light of the specification, therefore, would require the court to venture outside of the four corners of the patent document itself, comparing the state of the art to the disclosure to divine what the PHOSITA would know. The court, by adopting the obvious variant rule, in essence has concluded that the loss of certainty and the added cost of performing such an investigation are simply not worth the effort when the patentee could have simply disclosed the variant. In other words, the applicant should be overly inclusive in what she chooses to disclose in the initial application. The patent drafter is the lowest cost avoider in this situation.

*D. Evaluation of the Exclusion of Obvious Variants from Satisfying the Written Description Requirement*

The Federal Circuit adopted the rule that a specification that renders a particular embodiment obvious does not satisfy the written description requirement, and did so with little explanation or consideration of the benefits and disadvantages of such a rule. The rule is arguably inconsistent with a possession-based view of the patent disclosure. It does, however, serve the laudable interest in incentivizing more robust and timely disclosures in the initial application. Although I disagree with this rule, particularly on theoretical grounds, I will take the rule as a given for the remainder of this Essay.

II. THE INTERSECTION OF WRITTEN DESCRIPTION LAW AND  
OBVIOUSNESS—THE WRITTEN DESCRIPTION GAP

When discussing the written description doctrine, courts necessarily are concerned with the issue before it—whether the relevant claims are adequately supported by the specification. What courts do not (and should not) take into account is the possible future use of that patent (now with invalid claims) as a piece of prior art to be used against future patent applicants.

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91. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Issued patents qualify as prior art under sections 102(a), (b), and (e) of the 1952 Patent Act<sup>92</sup> and under § 102(a) of the AIA.<sup>93</sup> Moreover, because issued patents are published, they would also qualify as a printed publication.<sup>94</sup> Invalid claims in a patent application have no impact on the application's status as prior art because it is the patent *disclosure* that is relevant, not the claims. Prior art can be nearly anything,<sup>95</sup> so long as it was publicly accessible before the relevant date.<sup>96</sup> The standard is therefore capacious.

Because invalidating a patent claim does not eliminate a patent as a form of prior art, any issued patent, even one that contains a claim that is invalid for lack of adequate support in the specification, can also be a form of prior art. It could be used to invalidate a later patent claim as lacking novelty<sup>97</sup> or being obvious.<sup>98</sup> It is this latter use that creates the odd wrinkle in the relationship between the written description law and obviousness.

A patent claim is invalid if it would be obvious to one of skill in the art.<sup>99</sup> In order to assess obviousness, a court considers the scope and

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92. 35 U.S.C. §§ 102(a), (b), (e) (2012).

93. Pub. L. No. 112-29, § 3, 125 Stat. 284, 285–86 (2011) (codified at 35 U.S.C. § 102(a)).

94. *See id.* (AIA); 35 U.S.C. §§ 102(a), (b) (1952 Patent Act).

95. *In re Epstein*, 32 F.3d 1559, 1562–63, 1567–68 (Fed. Cir. 1994) (using a database product brochure and seminar book as prior art); MPEP § 901.06 (8th ed. Aug. 2001), *available at* [http://www.uspto.gov/web/offices/pac/mpep/old/E8R0\\_900.pdf](http://www.uspto.gov/web/offices/pac/mpep/old/E8R0_900.pdf) (“All printed publications may be used as references . . .”).

96. *In re Lister*, 583 F.3d 1307, 1316 (Fed. Cir. 2009) (concluding that manuscript became “accessible” when it was included in searchable online databases, which occurred after the critical date); *Bruckelmyer v. Ground Heaters, Inc.*, 445 F.3d 1374, 1378–79 (Fed. Cir. 2006) (finding that a diagram in a Canadian patent application, but not in the issued patent, was sufficiently publicly accessible to constitute printed publication); *In re Klopfenstein*, 380 F.3d 1345, 1350–51 (Fed. Cir. 2004) (determining that a slide presentation constituted a printed publication because it was sufficiently publicly accessible). *See generally* Sean B. Seymore, *The “Printed Publication” Bar after Klopfenstein: Has the Federal Circuit Changed the Way Professors Should Talk About Science?*, 40 AKRON L. REV. 493, 494–95 (2007) (explaining how the *Klopfenstein* decision will affect science professors discussing their research).

97. § 3, 125 Stat. at 285–87 (codified at 35 U.S.C. § 102) (AIA); 35 U.S.C. § 102 (1952 Patent Act).

98. 35 U.S.C. § 103.

99. The timing element of the obviousness inquiry—i.e., at what time do we assess whether a claim is obvious—has shifted under the America Invents Act. Under the 1952 Patent Act, the statute required that obviousness be assessed “at the time the invention was made.” *Id.* § 103(a). Judicial gloss made it clear, however, that obviousness was truly made as of the critical date—i.e., the date one year prior to the application's filing date. *See In re Foster*, 343 F.2d 980, 990 (C.C.P.A. 1965); *see also* Timothy R. Holbrook, *The More Things Change, the More They Stay the Same: Implications of Pfaff v. Wells Electronics, Inc. and the Quest for Predictability in the On-Sale Bar*, 15 BERKELEY TECH. L.J. 933, 962–66, 984–91 (exploring use of on-sale bar for obviousness purposes and rejecting the “ready for patenting” test in the obviousness context).

content of the prior art, the differences between the prior art and the claimed invention, the level of ordinary skill in the art, and any other relevant secondary considerations, such as the commercial success of the invention, the failure of others, and long-felt but unsolved needs in the market.<sup>100</sup> The obviousness requirement, codifying earlier Supreme Court precedent,<sup>101</sup> precludes an inventor from patenting something that, while technically new, is merely a trivial improvement on the state of the art.<sup>102</sup>

The obviousness inquiry therefore has significant implications for the written description doctrine. If a claim is held to fail the written description requirement because it merely claims something obvious in light of the specification, the patentee is precluded from claiming that embodiment. When that patent, however, is then used as prior art against a subsequent application that is also claiming that variant, then necessarily it would be obvious as well. The improvement would merely be a trivial advancement in the state of the art.

The consequence of this dynamic is that the “obvious variant” rule creates a gap in patent protection. The original applicant is unable to claim the variant because she did not provide adequate support in the specification. If obvious variants were viewed as falling within the possession of the original inventor, she would be able to claim patent protection for it. But, under the current rule, she cannot, absent potentially filing a CIP at the cost of the earlier filing date. Subsequent innovators, however, cannot claim the variant either because the original application renders that variant obvious as well. Neither the original inventor nor subsequent applicants can claim that variation.

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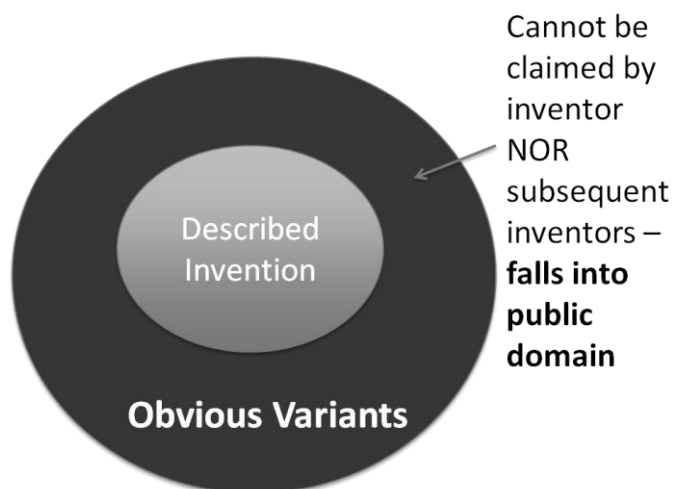
Under the AIA, the timing for the obviousness inquiry is “before the effective filing date of the claimed invention.” § 3, 125 Stat. at 287–88 (codified at 35 U.S.C. § 103).

100. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18; *see also* *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349–55 (Fed. Cir. 2012) (finding presumption of obviousness rebutted by secondary considerations).

101. *See Hotchkiss v. Greenwood*, 52 U.S. 248, 267 (1850) (“[F]or unless more ingenuity and skill in applying the old method of fastening the shank and the knob were required in the application of it to the clay or porcelain knob than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention.”); *see also Graham*, 383 U.S. at 3–4 (noting that § 103 is a codification of *Hotchkiss*).

102. *See* Christopher A. Cotropia, *Nonobviousness and the Federal Circuit: An Empirical Analysis of Recent Case Law*, 82 NOTRE DAME L. REV. 911, 915–16 (2007) (stating the process for determining nonobviousness); Christopher A. Cotropia, *Patent Law Viewed Through an Evidentiary Lens: The “Suggestion Test” as a Rule of Evidence*, 2006 BYU L. REV. 1517, 1524–25 (arguing that “[t]he nonobviousness doctrine . . . [ensures] that patent protection is not given to inventions in those instances where others would have developed the idea even without the incentive of a patent” (internal quotation marks omitted)).

Necessarily, it falls into the gap and enters into the public domain. This gap is what this Essay refers to as the written description gap, and it is graphically demonstrated below:



This gap in protection could be viewed as comparable to a similar gap in protection created by the utility doctrine as it relates to chemical compounds.<sup>103</sup> If a scientist discovers how to make a new compound, but does not know of the compound's utility, she cannot obtain protection on it because an invention must have utility to be patentable.<sup>104</sup> Moreover, if that discovery—of how to make the new compound—constitutes a form of prior art (for example, if the original inventor used it in public or disclosed the method of making the compound in a printed publication), then *no one* can obtain protection over the compound.<sup>105</sup> The Supreme Court has expanded that rule even more, holding that the method of making a chemical with no known use

103. For a critique of current utility law, see Sean B. Seymore, *Making Patents Useful*, 98 MINN. L. REV. (forthcoming 2014), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2228956](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2228956).

104. 35 U.S.C. § 101; see also *In re Fisher*, 421 F.3d 1365, 1369–72 (2005) (discussing requirements for demonstrating utility); Timothy R. Holbrook, *The Expressive Impact of Patents*, 84 WASH. U. L. REV. 573, 600–09, 618–21 (2006) (discussing and criticizing the normative aspect of the utility doctrine).

105. *Brenner v. Manson*, 383 U.S. 519, 528–29 (1966); see Sean B. Seymore, *Rethinking Novelty in Patent Law*, 60 DUKE L.J. 919, 933 & n.62 (2011) (explaining that enablement for anticipation purposes only requires the prior art to teach how to make, not how to use).

is also unpatentable for lack of utility.<sup>106</sup> Subsequent innovators who discover uses for the compound, however, cannot patent the compound itself. Because the prior art taught how to make the compound, any claim to the compound is anticipated by the prior art. As a result, claims to chemical compounds can fall through the cracks and be ineligible for patent protection.

Of course, subsequent innovators can patent methods of making or using known compounds, assuming these inventions are novel and nonobvious. And utility rarely has much impact in areas other than chemistry and biotechnology.

In contrast, written description and the obvious variant rule could apply in more technological areas. Moreover, the obviousness rule tends to be more robust than utility, which means potentially more subject matter could fall into the public domain.

The written description gap is similar to the dynamic between obviousness and the now relatively moribund best mode requirement, discussed by professors Lee Petherbridge and Jason Rantanen.<sup>107</sup> Prior to the evisceration of the best mode requirement by the AIA,<sup>108</sup> Petherbridge and Rantanen suggested that the interaction between the best mode and obviousness would create spaces of public domain information that “limit the patentability of modest incremental improvements, the patenting of which may adversely impact the incentive structure imposed by the patent laws. The best mode requirement, in other words, cooperates with nonobviousness doctrine to protect the public domain.”<sup>109</sup> In their analysis, the disclosure of a best mode reduces the possibility of a patent on any improvement: “Because of the way that the best mode requirement cooperates with the nonobviousness doctrine, embodiments similar or predictable in view of what the best mode disclosure adds to the prior art are also barred from future patenting.”<sup>110</sup> The authors, therefore, bemoaned the loss of best mode because the failure to make these disclosures will allow greater downstream patenting and reduce the public domain.<sup>111</sup>

The written description gap here works somewhat differently: the

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106. *Brenner*, 383 U.S. at 530–36.

107. Lee Petherbridge & Jason Rantanen, *In Memoriam Best Mode*, 64 STAN. L. REV. ONLINE 125 (2012), available at <http://www.stanfordlawreview.org/sites/default/files/online/articles/64-SLRO-125.pdf>.

108. 35 U.S.C. § 112(a) (2006).

109. Petherbridge & Rantanen, *supra* note 107, at 128.

110. *Id.* at 129.

111. *Id.* at 129–30.

public domain is enhanced when the patent disclosure renders the claimed variant obvious, invalidating the claim. In contrast, Petherbridge's and Rantanen's approach depends on the patent applicant making a sufficient disclosure of the best mode. Nevertheless, the relationship between the disclosure and the obviousness doctrine creates a gap through which the obvious variant falls into the public domain.

### III. IS THE WRITTEN DESCRIPTION GAP NORMATIVELY GOOD OR BAD?

The existence of the gap does not answer the question of whether the gap is normatively desirable in patent law. Perhaps, as suggested by Petherbridge and Rantanen, practitioners like the gap. The gap allows certain information to be forced into the public domain. Others are immediately free to rely upon and use that information as it is free from patent protection.<sup>112</sup> Additionally, there is an easy way to avoid the gap: the patent applicant could merely include the obvious variant in the initial disclosure. As between the applicant and the public, we favor the public because the applicant is the lowest cost avoider. The gap reduces the incentive for an applicant to attempt to game the system by holding back obvious variants or, worse, trying to capture later-developed-yet-obvious variants within the literal scope of the patent. The harsh penalty of the gap will incentivize disclosure. Consequently, from an access and incentive viewpoint, the gap might be desirable.

But the gap could create problems. In a manner similar to the utility-chemical compound dynamic, certain embodiments that fall into the gap might be those that are the most valuable. Although anyone is free to use the obvious variant, the lack of a patent may create a barrier to anyone actually commercializing and bringing the invention to market. If a firm cannot exclude others from making that embodiment, then it may not find it cost effective to commercialize it, even if it is superior. Additionally, the written description gap is in tension with the idea of obviousness demonstrating possession: arguably the PHOSITA would see the original patent applicant as having the variant within her possession given that it is a trivial improvement. Nevertheless,

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112. This assumes that the patent owner is unable to cover the obvious variant under the doctrine of equivalents somehow. Given that the patent owner attempted to claim the variant literally, but that claim is invalid, then it would seem that access to the doctrine of equivalents would be precluded. *But see* *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 609 (1950) (allowing use of doctrine of equivalents to cover embodiment covered in invalidated claim); *Johnson & Johnston Assocs. Inc. v. R.E. Serv. Co., Inc.*, 285 F.3d 1046, 1053 (Fed. Cir. 2002) (en banc) (explaining this aspect of *Graver Tank*).



ultimately no one is able to claim that version of the invention, regardless of its value.

Overall, given that applicants can easily protect themselves by including an express description of the obvious variant, the gap advances the interest in patent law by encouraging disclosure in the patent document itself. The rule operates like an information-forcing default penalty: an inventor who should possess a variant (because it is obvious) can forfeit patent protection by failing to adequately disclose that variant. Moreover, subsequent inventors cannot claim the variant either. Such an information-forcing role facilitates public notice. Additionally, resorting to sources extrinsic to the patent document increases the cost of assessing patent scope and reduces certainty. Finally, the risk of a highly commercially viable embodiment falling into the gap is just that—a risk. Such a scenario would seem rather unlikely, although not impossible. As such, ultimately the written description gap appears to be a positive, if previously unappreciated, aspect of the Federal Circuit's written description jurisprudence.

#### CONCLUSION

This Essay has explored a previously unrecognized dynamic between the written description requirement and obviousness. By holding that obvious variants are insufficient to satisfy the written description requirement, the Federal Circuit has created a gap in patent protection. Those variants will fall into the public domain, free to be copied by third parties. This gap in protection could be viewed favorably as providing a zone of freedom for competitors to evaluate an invention, and potentially to compete with the patent holder, free of the shadow of patent liability. Moreover, the gap should incent patent applicants to be more thorough in their initial disclosures to be sure they have disclosed the obvious variants expressly. On the other hand, this gap in protection could leave valuable and important innovations on the laboratory floor if the lack of patent protection precludes commercialization of the obvious variant. This dynamic could be particularly problematic if the obvious variant is a superior version of the invention. The odds of this happening, however, would seem to be rather slim. Ultimately, the written description gap appears to implement a clear patent policy objective: channeling more information into the patent document itself. Nevertheless, this Essay demonstrates that such an objective is not achieved without cost.