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CONSIDERATIONS FOR MEANS-PLUS-FUNCTION CONSTRUCTIONS IN POST-GRANT PROCEEDINGS

BY MICHELLE ASPEN

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I. INTRODUCTION

In post-grant proceedings before the Patent Trials and Appeals Board (“PTAB”), if a limitation of a challenged claim falls under 35 U.S.C. § 112(f) (“§ 112(f”),¹ a petitioner “must identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function.”² *Williamson v. Citrix* expanded the application of this statute when it clarified that a claim term triggers the application of § 112(f) when a proponent of applying § 112(f) “demonstrates that the claim term fails to ‘recite sufficiently definite structure’ or else recites ‘function without reciting sufficient structure for performing that function.’”³ This article offers indicators to consider when determining whether a limitation triggers the statute, even when the word “means” is not present.

However, construing these terms is often unnecessary to resolve the ultimate issue of obviousness in post-grant proceedings. Further, adequate structure is not always disclosed in the specification, particularly in the context of software claims requiring an algorithm.⁴ There should be an avenue to argue obviousness in such contexts, as a claim may be both indefinite and obvious.⁵ Therefore, this article proposes circumstances in which an incomplete construction of a means-plus-function limitation should not preclude analyzing a claim’s obviousness.

II. HISTORICAL AND LEGAL FRAMEWORK

A. Origin of § 112(f)

The means-plus-function provision appeared in the 1952 patent statute in response to the Supreme Court’s ruling in *Halliburton v. Walker*.⁶ In *Halliburton*, a claim was held invalid for describing a “crucial element” by what it did rather than its physical characteristics or arrangement within an apparatus, using “conveniently functional language at the exact point of novelty.”⁷ *Halliburton*’s rationale itself was sound: claiming every means of doing something would frustrate reasonable design-around efforts, give inventors the right to exclude structures and processes they never considered, and stifle the development of non-equivalent solutions to problems.

1. For ease of reference, I refer to the current parenthetical structure of the statute. Earlier forms were referred to as § 112, ¶ 6, and in some cases cited herein, the court may have applied this notation. Regardless, the substantive application is the same.

2. 37 C.F.R. § 42.104(b)(3) (2019).

3. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015) (*en banc*) (quoting *Watts v. XL Sys., Inc.*, 232 F.3d 877, 880 (Fed. Cir. 2000)).

4. *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008).

5. *Samsung Elecs. Co. v. Prisia Eng’g Corp.*, 948 F.3d 1342, 1355 (Fed. Cir. 2020).

6. *Williamson*, 792 F.3d at 1357–58 (Reyna, J., concurring-in-part, dissenting-in-part).

7. *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1, 8-9 (1946) (internal quotations omitted).

The new statutory provision was not a workaround of the maxim applied in *Halliburton*, but a cure addressing the practical reality that structure is often more easily described in figures and the specification than in a run-on claim.⁸ Thus, the statute permits functional claiming, not functional exclusion. The language of § 112(f) has remained substantively unchanged since 1952:

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.⁹

More than sixty years after this first iteration of § 112(f), *Williamson* created a standard for assessing whether § 112(f) applies to a claim limitation. This standard can be understood as a three-step process. *First*, one must identify the claimed function.¹⁰ Without a function, § 112(f) will not apply even if a limitation recites “means.”¹¹ *Second*, one must determine whether the limitation recites sufficiently definite structure for performing the claimed function.¹² If so, § 112(f) will not apply.¹³ For this step, *Williamson* confirms the existence of a presumption-based framework: the statute is presumed inapplicable if the limitation does not use the word “means.”¹⁴ The presumption is overcome if the terms recited to perform the claimed function fail to “recite sufficiently definite structure” or else recite “function without reciting sufficient structure for performing that function.”¹⁵ *Third*, the court must determine the structure disclosed in the specification that covers the claimed function.¹⁶ If inadequate structure is disclosed, then the claim is unpatentable as indefinite.¹⁷

Williamson prevents patent owners from circumventing the statute by substituting the word “means” with nonspecific technical jargon. But jurisprudence regarding when a term is a generic placeholder or a “nonce” word

8. Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co., 520 U.S. 17, 28 (1997).

9. 35 U.S.C. § 112(f); *see also* 35 U.S.C. § 112 (1982) (enacted by the Patent Act of 1952, Pub. L. No. 82-593, 66 Stat. 792 (1952)).

10. *Williamson*, 792 F.3d at 1351.

11. *Wenger Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1232 (Fed. Cir. 2001); *see also* Pat. & Trademark Off., US. Dept. of Commerce, Manual of Patent Examining Procedure (“M.P.E.P.”), § 2181 (9th ed., rev. 10.2019, last revised Jun. 2020) (“The mere use of the term ‘means’ with no associated function rebuts the presumption that 35 U.S.C. 112(f) is invoked.”).

12. *Williamson*, 792 F.3d at 1348.

13. *Id.* at 1349; *see also* *In re Katz Interactive Call Processing Pat. Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011). As examples, some words take their meaning from the function they perform, such as a “brake” for stopping or a “clamp” for holding something in place; using these terms with their corresponding functions does not result in the invocation of § 112(f) under current jurisprudence. *See, e.g., Greenberg*, 91 F.3d at 1583.

14. *Williamson*, 792 F.3d at 1349. Less controversially, the statute is presumed to apply if the word “means” is used.

15. *Id.* (internal quotations omitted).

16. *Id.* at 1351–52.

17. *Id.* at 1352.

is continually being developed.¹⁸ Under the current presumption-based procedural framework, the entity arguing for application of the statute may be faced with the challenge of proving a negative: that the word or phrase is *not* commonly used to connote a structure performing the claimed function.¹⁹ However, as Section III proposes, indicators in the intrinsic record could help overcome the presumption.

B. Functional Claiming in the Software Context

When courts first considered computer-related claims reciting functional elements, it appeared that the disclosure of a “general purpose digital computer, together with a disclosure of programming for operating the computer” to perform the claimed function would be sufficient to avoid a rejection under § 112.²⁰

Later Federal Circuit cases established that simply disclosing a general-purpose computer using “appropriate programming” to reach a desired result, without more, was insufficient structure. Rather, means-plus-function claims are limited to *a special-purpose computer* programmed to carry out a particular algorithm disclosed in the specification.²¹ Such an algorithm can take a variety of forms, including a “mathematical formula, in prose, or as a flow chart,” as long as it is not simply a result, but the means of accomplishing the result.²² With the advent of *Williamson*, the requirement to provide algorithms in the specification applies to claims not originally intended to invoke § 112(f).²³

18. The U.S. Patent and Trademark Office (“PTO”) assesses whether § 112(f) applies by determining whether a “generic placeholder” is used. MPEP § 2181. If it is unclear whether § 112(f) applies, a claim may be rejected under § 112(b) for indefiniteness. *Id.*

19. Some may object to this framing of the issue. But as *Williamson* itself points out, something is a nonce word if it is “nothing more than a verbal construct.” *Williamson*, 792 F.3d at 1350. This requires either proving that it is commonly used as a construct without a defined structural connotation, as would often be the case in software patents, or proving that it has never been used to connote structure for the claimed function before and, therefore, is just a verbal construct in the context of the claim.

20. Stephen A. Becker, *Means-Plus-Function Claims in Computer Related Patent Applications within the United States*, 5 COMPUT./L.J. 25, 38 (1984) (collecting cases).

21. *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333–34 (Fed. Cir. 2008) (citing *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339 (Fed. Cir. 1999)).

22. *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1312 (Fed. Cir. 2012) (quoting *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008)).

23. There is a limited exception to the algorithm-requirement: a microprocessor or general-purpose computer may be sufficient structure on its own, but only when the claims “recite basic functions of a microprocessor,” and “[a]ll other computer-implemented functions require disclosure of an algorithm.” *Eon Corp. IP Holdings LLC v. AT & T Mobility LLC*, 785 F. 3d 616, (Fed. Cir. 2015) (discussing *Katz*, 639 F.3d at 1316). This is consistent with the idea presented in both *Williamson* and *Greenberg*, 91 F.3d 1580, that some devices are just the name for the function they perform.

III. INDICATORS OF § 112(F) ELEMENTS IN THE INTRINSIC RECORD

In general, it seems that in the context of post-grant proceedings, often the most persuasive evidence that a word is a generic placeholder for “means,” other than a previous opinion addressing the word, is corroborated testimony from those of skill in a particular field that the word does not represent structure. However, the intrinsic record may provide indicators that may be enough to shift the burden to the party arguing against the application of § 112(f). Below, three intrinsic indicators are proposed, but this list is not exhaustive. As the law develops and new fact patterns arise, more reliable indicators in the intrinsic record may be discovered.

A. The Point of Novelty

Perhaps the strongest argument for applying § 112(f) to a functional claim limitation exists when the limitation goes to a point of novelty. After all, the driver for the provision’s enactment was caselaw prohibiting functional claiming for crucial elements that went to the point of novelty.²⁴ Some district courts have cited the point of novelty as a factor in the means-plus-function determination, but there is no binding precedential guidance confirming its relevance.²⁵

Whether a limitation goes to a point of novelty can be discerned from the specification itself or an applicant’s arguments and actions made during prosecution. The summary of the invention may identify a concept as new over the prior art. Functional amendments added to circumvent the prior art during prosecution, or limitations argued to be novel over cited art, may be considered points of novelty. Examiner statements of reasons for allowance may also be helpful in this regard.

B. Agent Nouns

It is easy enough to see why “module,” “code,” “component,” “assembly,” “mechanism,” and similar words are considered nonce-substitutes for the words “means.” They are universally used because they have broad, non-specific definitions. But often, patent prosecutors create new nonce words to denote some non-specific means for performing some function.²⁶

24. Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co., 520 U.S. 17, 28 (1997).

25. See *Erfindergemeinschaft UroPep GbR v. Eli Lilly & Co.*, No. 2:15-CV-1202-WCB, 2016 WL 6138124, *6 (E.D. Tex. Oct. 21, 2016) (Bryson, J., sitting by designation) (finding that a method claim did not invoke § 112(f) where the element at issue did not go to the point of novelty, noting that the kind of “flaw that led to the enactment of” § 112(f) was using conveniently functional language at the exact point of novelty); see also *Genuine Enabling Tech. LLC v. Sony Corp.*, 1:17-cv-00135, 2020 WL 1140910, *12 (D. Del. Mar. 9, 2020) (weighing fact that inventor identified functional limitation as “unique and novel” during prosecution in favor of overcoming presumption against applying the statute).

26. This understanding is consistent with the definition of “nonce,” which refers to something used or made only once for an occasion or purpose. See *nonce*, MERRIAM-WEBSTER.COM DICTIONARY,

One common technique in software or computer-hardware patents is to denote a given software component or script using an agent noun, particularly one ending in -er or -or. An agent noun is a word that denotes the performer of an action.²⁷ In the context of software claims, agent nouns are abstractions that indicate no more structure than the function they perform.

In some examples, these agent nouns may refer to a generic component that must be programmed to perform a given function. So, while computers compute and processors process, these components must be specially programmed to perform specific operations. So even though these components evoke a structural component, they would not be sufficiently definite for a specialized task.²⁸

An agent noun's use in a functional limitation is an indicator that § 112(f) applies. If a given agent noun has a well-known definition in programming or engineering (e.g., “browser,” “analog-to-digital converter”), one should be able to find its use in a dictionary or technical literature existing at the time of the patent with relative ease. If such literature showed that the claimed function is consistent with the definition of the term itself, then § 112(f) would not apply.²⁹

For example, in *Blackboard, Inc. v. Desire2Learn, Inc.*, the “manager” described in the specification was held to be insufficient structure for a “means for assigning.”³⁰ It logically follows from *Blackboard* that if the manager had been claimed instead of a “means for assigning,” § 112(f) would have applied. And § 112(f) *should* apply in such circumstances: agent nouns like “manager,” referring to someone or something that manages, do not connote a specific piece of hardware or well-known algorithm on its own, but the *idea* of an algorithm. The mere idea of an algorithm is no better than the outdated practice of referring to “appropriate programming” generally.

By their nature, agent nouns are purely functional terms. In cases where an agent noun is used in a functional limitation, the proponent for applying § 112(f) should merely point out its use in a functional limitation. Then, the burden should shift to the party arguing against applying § 112(f) to identify at least one example of the term's use in either technical texts or in common parlance in a manner consistent with the claimed function. This avoids requiring the proponent for applying § 112(f) to essentially prove a negative—that they could *not* find a contemporary software-related definition for agent noun.

<https://www.merriam-webster.com/dictionary/nonce> (last visited October 1, 2021) [<https://perma.cc/HR3B-QFW8>].

27. “Agent noun,” Merriam-Webster.com Dictionary, <https://www.merriam-webster.com/dictionary/agent%20noun> (last visited Oct. 1, 2021) [<https://perma.cc/5EBA-EMEZ>].

28. *Eon Corp.*, 785 F.3d at 621-23 (a “microprocessor” was insufficient structure for specialized tasks even if they were relatively simple to implement).

29. *Greenberg*, 91 F.3d at 1583–84.

30. 574 F.3d 1371, 1382 (Fed. Cir. 2009).

C. Past Means-Claiming in the Prosecution History

An applicant may attempt to avoid the application of § 112(f) by amending claims to avoid reciting “means for” during prosecution. In *Tek Global, S.R.L. v. Sealant Sys. Int’l, Inc.*, this was seen as a factor against overcoming the presumption.³¹ However, such a reading could result in allowing an inventor’s subjective intent to undermine the standard set by *Williamson*. The prosecution history may be an indicator against overturning the presumption, but it could also show that the language adopted by an inventor was literally a substitute for the word “means,” particularly if there is no reason to believe that the substitute limitation would be less narrow than if the limitation had just said “means.” Since an inventor’s self-serving subjective intent is typically irrelevant to claim construction, express attempts to avoid the means-plus-function statute should be taken with a grant of salt if an amendment removing the use of the word “means” did nothing to narrow the claimed structure.

IV. WHEN FORMAL CONSTRUCTION OF MPF TERMS IS UNNECESSARY

For means-plus-function claims “to be construed” in a post-grant proceeding, a petitioner “**must** identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function.”³² This rule is not jurisdictional, but a petitioner’s failure to satisfy the rule’s requirement may cause the panel, acting on behalf of the Director, to exercise its discretion not to institute.³³ Most panels have treated the rule as requiring complete constructions for all means-plus-function terms.³⁴ Others have interpreted the rule as applying only if a construction for a means-plus-function term is needed to resolve a dispute between the parties.³⁵ The latter approach is more practical for two reasons.

31. 920 F.3d 777 (Fed. Cir. 2019).

32. 37 C.F.R. § 42.104(b)(3) (emphasis added).

33. *HTC Corp. et al. v. Flashpoint Tech., Inc.*, IPR2014-01249, Paper 12, 3–4 (P.T.A.B. Mar. 10, 2015) (denying rehearing) (“[T]he panel has the discretion to determine if the trial might stray into grounds outside of the statutory authority provided for *inter partes* review proceedings.”).

34. *See, e.g.*, *Intel Corp. v. Alacritech, Inc.*, 817 F. App’x 1014 (Fed. Cir. Jul. 17, 2020) (holding that a panel may not issue a final written decision holding that means-plus-function claims are indefinite because petitioner had “affirmative duty” to identify specific structure in the patent); *Apple Inc. v. Immersion Corp.*, IPR2016-01372, Paper 7, 13–20 (P.T.A.B. Jan. 11, 2017) (declining to institute on certain claims because the Board could discern no structure in the specification for means-plus-function limitations); *CallMiner, Inc. v. Mattersight Corp.*, IPR2020-00272, Paper 8, 6-14 (P.T.A.B. Jun. 18, 2020) (denying institution where Petitioner only provided string-cites to portions of the specification where structure might exist); *Facebook, Inc. v. Sound View Innovations, LLC*, IPR2017-01006, Paper 14, 6–16 (P.T.A.B. Aug. 29, 2017) (denying institution); *Zscaker Inc. v. Symantec Corp.*, IPR2018-00916, Paper 41, 32 (P.T.A.B. Nov. 14, 2019) (dismissal after institution on the grounds that because the petitioner failed to identify corresponding structure in the specification for means-plus-function terms, the panel was “unable to determine obviousness” of the challenged claims).

35. *See, e.g.*, *Huawei Techs. Co. v. WSOU Invs., LLC*, IPR2021-00226, Paper 10, 22 (P.T.A.B., June 10, 2021) (deciding that construction of means-plus-function terms was unnecessary to assess obviousness at the institution stage); *see also* *Unified Patents Inc. v. S.I.SV.EL. Societa Italiana Per Lo Sviluppo Dell’elettronica S.p.A.*, IPR2019-00471, Paper 10 (P.T.A.B. Jul. 24, 2019) (declining to decide

First, construction of a claim term is generally only required for terms “that are in controversy, and only to the extent necessary to resolve the controversy.”³⁶ There does not appear to be a practical reason why this maxim is abandoned for means-plus-function terms in the context of AIA trials. Parties may agree about what the structure must at least include (or, in the case of algorithms, what it at most includes), and there may be no reasonable dispute that a prior art’s disclosure is at least an equivalent to the scope of the claimed structure, whatever it may be. Therefore, unless a construction is needed to assess patentability over the prior art, the lack of a proposed construction should not prevent a panel from assessing patentability of a means-plus-function claim.

Put another way, a formal construction should not be necessary where there is no contention that (a) the limitation at issue goes to a point of novelty, or (b) that the prior art does not cover equivalent structures under any reasonable construction. For example, in cases where the means-plus-function limitation is drafted to include admitted prior art structures (and the prior art cited in a petition includes those structures), obviousness should not turn on an exact construction of the limitation.³⁷ § 112(f) expressly leaves room for the structure to cover non-disclosed “equivalents.” In these circumstances, it would be a waste of resources to adhere to a rigid application of the rule for construing means-plus-function terms, especially at the pre-institution stage.³⁸

Second, the current standard of requiring a construction for every challenged means-plus-function claim falls apart when § 112(f) applies to a given limitation, but inadequate structure is disclosed in the specification. The idea that a claim can be both indefinite and obvious is not new, and the idea that obviousness cannot be ascertained for structurally defective means-plus-function claims misses the point of § 112(f).³⁹ The problem with purely functional claiming is not that the claims are ambiguous or indistinct, but that they are so broad that they capture more than what the inventor could

whether terms were governed under § 112(f) at institution stage where neither party proposed that the terms were governed under § 112(f)).

36. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 2000) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”); *cf. Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs.* in the context of an *inter partes* review proceeding).

37. *See, e.g., Clearstream Wastewater Sys., Inc. v. Hydro-Action, Inc.*, 206 F.3d 1440, 1446 (Fed. Cir. 2000) (finding that means-plus-function claim incorporated prior art structures in the specification, distinguishing claims at issue from case where the means-plus-function element necessarily excluded specific prior art structure which was incapable of performing claimed function).

38. This is not to suggest that Petitioners should be able to circumvent the rule altogether. For example, to avoid presenting new arguments, Petitioners would need to preserve the argument that the prior art covers at least equivalent structures under any reasonable construction.

39. *Prisua*, 948 F.3d at 1355 (“Even though the validity of the challenged claims may be subject to question for IPXL-type indefiniteness, that is simply another ground on which the claims might be challenged in an appropriate forum . . . It does not necessarily preclude the Board from addressing the patentability of the claims on section 102 and 103 grounds.”).

have regarded as the invention.⁴⁰ Means-plus-function claims found to be defective for lacking adequate structure should be interpreted as having the broad scope claimed for the purpose of analyzing obviousness in PTAB proceedings, even if such scope may be broader than what the applicant would be entitled to claim in an infringement action in district court.⁴¹

This is not to suggest that the Board may simply presume that the defective means-plus-function limitation is obvious—a Petitioner still has the burden of showing that the prior art performs the claimed function in an analogous context.⁴² Consider the partial-institution in *Apple v. Immersion*.⁴³ There, the parties did not propose § 112(f) constructions for any term; however the Board performed a *Williamson* analysis *sua sponte* and concluded that the statute applied to some claims.⁴⁴ The Board found that the specification only disclosed a general-purpose computer for claimed functions performed by a “drive module.”⁴⁵ However, it was clear enough that the prior art, which itself recited computer code, also disclosed a general-purpose computer for performing the claimed functions. In that instance, where the disclosed structure was not narrow enough, and the prior art disclosed at least as much structure as the patent itself as well as the claimed function, the claims were likely both indefinite *and* obvious.

Instituting review of defective means-plus-function claims will be a productive use of resources where the PTO institutes review of claims that

40. See, e.g., *Holland Furniture Co. v. Perkins Glue Co.*, 277 U.S. 245, 257–58 (1928) (“[T]he attempt to broaden product claims by describing the product exclusively in terms of its use or function is subject to the same vice as is the attempt to describe a patentable device or machine in terms of its function. As a description of the invention, it is insufficient, and, if allowed, would **extend the monopoly beyond the invention.**”) (emphasis added); see also *Heidbrink v. McKesson*, 290 F. 665, 667 (6th Cir. 1923) (“We are compelled to think that [claims 1 and 2] are invalid because [they are] functional. **They are apparently most deliberately and skillfully drafted to cover any means which any one ever may discover of producing the result;** that is, to accomplish the one thing while avoiding the other.”) (emphasis added). Some may argue that the non-precedential holding in *Alacritech* contradicts this argument, but it does not appear that *Alacritech* addressed whether means-plus-function claims could also be obvious, instead affirming the Board’s finding that the petitioner did not meet regulatory requirements in claim construction. 817 F. App’x at 1019. The point of this article is that those regulatory requirements should not be applied so rigidly, because even if a precise construction cannot be made, the claim may be understood well enough to assess obviousness over written prior art.

41. See *In re Collier*, 397 F.2d 1003, 1004–06 (C.C.P.A. 1968) (affirming rejection holding claims unpatentable under both § 112, for “failing distinctly to claim what appellant in his brief insists is his actual invention” and under § 103 “based on obviousness in view of the prior art which cannot be separated from the question of what limitations are and are not included in the claim.”). Less clear is whether anticipation could be determined under these circumstances, as current jurisprudence holds a claim cannot be both indefinite and anticipated. *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1332 (Fed. Cir. 2010).

42. See *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970) (“All words in a claim must be considered in judging the patentability of that claim against the prior art. If no reasonably definite meaning can be ascribed to certain terms in the claim, the subject matter does not become obvious — the claim becomes indefinite.”). Note that *Wilson* does not conflict with *Prisua*, 948 F.3d 1342, regarding simultaneous obviousness and indefiniteness. In *Wilson*, the Board erred because did not address the patentability of a limitation it deemed indefinite, but instead assumed it was obvious because “there is no basis for concluding unobviousness.” 424 F.2d at 1385.

43. *Immersion*, IPR2016-01372, Paper 7, 13–20.

44. *Id.* at 13–14.

45. *Id.* at 14–20.

do not contain defective means-plus-function limitations, as it must review all claims in such circumstances anyway.⁴⁶ Further, it would give patent owners the opportunity to cure structural deficiencies in motions to amend. Thus, the nuanced approach proposed herein—construing means-plus-function limitations only to the extent necessary to resolve a dispute and applying plain-meaning constructions to structurally deficient limitations—would enable the Board to analyze the obviousness of over-broad means-plus-function claims under their plain meaning, even if the claim would likely fail in an action for infringement.

V. CONCLUSION

Since *Williamson*, § 112(f) will be applied to software claims at a greater rate than before. While proving that § 112(f) applies to a claim often requires extrinsic testimony, indicators in the intrinsic record may also be helpful in overcoming the presumption.

However, the absence of a precise construction need not always prevent analysis of the obviousness of a means-plus-function claim in an AIA proceeding. Given the adversarial nature of these proceedings, if there is no dispute (a) regarding the obviousness of a claim limitation or (b) that the prior art structures are equivalents to whatever claimed structures exist, then a formal construction is unnecessary. Additionally, where a claim is indefinite for lack of adequate structure, adjudicators should default to the limitation's plain meaning for assessing obviousness. If these principles were adopted, parties and panels would be able to assess seemingly complicated means-plus-function terms more easily and focus more comprehensively on the substance of the underlying issues of obviousness without having to define the exact boundaries of the claims that are irrelevant to the overall dispute.

46. *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018). Of course, a panel could still decline to institute without reaching the issue of whether the claims are obvious. *See, e.g., HTC*, IPR2014-01249, Paper 12 at 3–4. Instituting review would be less practical where all challenged claims are tainted with defective means-plus-function limitations because in those cases, a district court could readily reach a conclusion in a claim construction order.