

**THROUGH THE LOOKING GLASS:
LITIGATING SOFTWARE AND BUSINESS METHOD PATENTS
UNDER SECTION 112**

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INTRODUCTION: This paper has been created for the Intellectual Property Owners Association Software and Business Methods Committee to provide background to IPO members regarding litigating software and business method patents. It should not be construed as providing legal advice or as representing the views of IPO.

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I. EVALUATING THE ADEQUACY OF THE WRITTEN DESCRIPTION

A. The Written Description Requirement Generally

The first paragraph of Section 112 of the Patent Act states that “[t]he specification shall contain a written description of the invention.” 35 U.S.C. § 112, ¶ 1. The written description requirement addresses “the need to tell the public what the invention is [separate from] how to make and use it.” *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 433 F.3d 1373, 1375 (Fed. Cir. 2006) (denying rehearing en banc) (Lourie, J., concurring) (“LizardTech II”). What constitutes an adequate written description depends on what is claimed and what is described. *Id.* The written description inquiry is a question of fact. *Falkner v. Inglis*, 448 F.3d 1357, 1363 (Fed. Cir. 2006); *Purdue Pharma LP v. Faulding, Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000).

To satisfy the written description requirement, the patent disclosure must “convey with reasonable clarity to those skilled in the art that, as of the filing date sought,

[the inventor] was in possession of the invention.” *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008) (“T-Mobile”); *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1320 (Fed. Cir. 2003). It is unnecessary to spell out every detail of the invention in the specification. *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336, 1345 (Fed. Cir. 2005) (“LizardTech I”). However, the written description should allow one skilled in the art to “visualize or recognize the identity of the subject matter” by reference to its text, figures or drawings. *Koito Mfg. Co. v. Turn-Key-Tech, LLC*, 381 F.3d 1142, 1154 (Fed. Cir. 2004). Put another way, the claimed subject matter must be at least “inherent” in the patent specification and drawings. *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1564-65 (Fed. Cir. 1991). A showing of obviousness will not suffice to show possession. *T-Mobile*, 522 F.3d at 1306.

B. Less Is More: The Written Description In The Predictable Arts

The Federal Circuit has stated that “[a]n applicant’s disclosure obligation varies according to the art to which the invention pertains.” *In re Hayes Microcomputer Prods., Inc. Patent Litig.*, 982 F.2d 1527, 1534 (Fed. Cir. 1992). In *Hayes*, the Court held that a detailed computer program listing – or source code – was not necessary to satisfy the written description requirement for a software-based invention. The *Hayes* invention related to controlling a modem using an escape sequence that switches the modem from a transparent mode to control mode of operation. *Id.* at 1531. The claims recite a modem including a “timing means.” *Id.* at 1533. The specification states that the “decision making capability” of the modem “preferably resides in a microprocessor,” but does not include a computer program for the microprocessor. *Id.* A firmware listing for the timing means was kept trade secret and not disclosed. *Id.* at 1534. The Court found that the patent disclosure “sufficiently recites the function of the [timing means] firmware,”

and that “[o]ne skilled in the art would know how to program a microprocessor to perform the necessary steps described in the specification.” *Id.*

In other so-called “predictable” arts cases, the Federal Circuit has found broad claims adequately supported by a relatively narrow disclosure. In *Bilstad v. Wakalopulos*, the Court affirmed that disclosure of a species provided sufficient written description support for a later claimed genus. 386 F.3d 1116, 1125 (Fed. Cir. 2004). *Bilstad* claimed a sterilization device that used ionizing radiation without damaging the target objects. The Board of Patent Appeals and Interferences (“Board”) found that the claim limitation “a moveable member manipulating objects in a plurality of directions” was not adequately supported. The Federal Circuit disagreed, stating that:

In the mechanical world – *a fairly predictable field* – it is wholly conceivable that manipulation in a *small* number of directions may convey to one skilled in the art that *Bilstad* indeed described manipulation in a “plurality” of directions.

386 F.3d at 1126 (emphasis added).¹

The Court relied upon a long line of cases finding genus claims supported by disclosure of only a species. *Id.* at 1123-24. The Court also found “nothing in *Bilstad*’s disclosure that disclaims, disavows, or is inconsistent” with construing the term “plurality” to include “a large number or quantity.” *Id.* at 1122. The case was remanded for the factual question whether *Bilstad*’s disclosure reasonably conveyed possession of manipulation in a plurality of directions.

¹ Compare *Carnegie Mellon Univ. v. Hoffmann-La Roche, Inc.*, 541 F.3d 1115, 1124 (Fed. Cir. 2008) (“For inventions in an unpredictable art, adequate written description of a genus which embraces widely variant species cannot be achieved by disclosing only one species within the genus.”) (*quoting* The Guidelines for Examination of Patent Applications under the 35 U.S.C. § 112, ¶ 1, “Written Description” Requirement, 66 Fed.Reg. 10-99 (Jan. 5, 2001)).

C. The Federal Circuit’s Use Of The Written Description Requirement To Limit Claim Scope In The Predictable Arts

Though the predictable nature of the technology is a factor in the written description analysis, the Federal Circuit has used Section 112, ¶ 1 to invalidate broad patent claims in the electrical and mechanical arts. In *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473 (Fed. Cir. 1998), the Court limited the permissible breadth of later-drafted claims based on the original patent disclosure. *Gentry Gallery* involved claims to a sectional sofa with a pair of reclining seats and a control console between the two recliners. The Court found that the inventor “considered the location of the recliner controls on the console to be an essential element of his invention.” *Id.* at 1479. The Court concluded that construing the claims broadly to read on sofas with controls located elsewhere was not adequately supported by the patent disclosure.

In *Tronzo v. Biomet, Inc.*, the Court found that substantial evidence did not support a jury verdict that claims to a hip prosthesis of generic shape were supported by a parent application disclosing only a trapezoidal shape. 156 F.3d 1154, 1159 (Fed. Cir. 1998). The Court concluded that nothing in the patent application “suggest[ed] that shapes other than conical are necessarily a part of the disclosure.” *Id.* at 1159. The specification distinguished prior art shapes as inferior and “tout[ed] the advantage of the conical shape.” *Id.* Accordingly, the Court held that the patent failed to provide the written description necessary to support claims to a generic shape.

In a software patent case, *In re Reiffin*, the Federal Circuit affirmed the Board’s rejection on written description grounds of claims to a computer system capable of executing multiple, concurrently executable threads. 199 Fed. Appx. 965 (Fed. Cir. 2006) (non-precedential). The Federal Circuit agreed with the Board that a “thread” is

“more than just a series of instructions in a program,” and that the disclosed “set of editor instructions” and “set of computer instructions” are not multithread programs. The Court stated:

[D]espite the occasional use of the term “multithreading” in Reiffin’s disclosure, it fails to demonstrate possession of a program that concurrently executes multiple threads.

Id. at 967. The Court found that claims with the multithreading limitation were properly rejected for lack of adequate written description.

In *LizardTech I*, the Federal Circuit invalidated for lack of written description a claim directed to digital image compression. The Court found that because the claim recited no limitations on how to achieve seamless discrete wavelet transforms (DWT), it generically claimed seamless DWT. The Court then invalidated the generic claim because the specification described only one method for creating seamless DWT and that method was recited by another claim. “There is no evidence that the specification contemplates a more generic way of creating a seamless array of DWT coefficients.” *LizardTech*, 424 F.3d at 1344. The Court concluded that the single disclosed embodiment did not support an expansive reading of the claims, and affirmed invalidity under § 112, ¶ 1. In *LizardTech II*, a petition for rehearing *en banc* was denied.

More recently, in companion opinions, *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299 (Fed. Cir. 2008) (“T-Mobile”), and *PowerOasis, Inc. v. Wayport, Inc.*, No. 07-1369 (Fed. Cir. Apr. 11, 2008) (non-precedential), the Federal Circuit affirmed summary judgment of invalidity for lack of written description. In *T-Mobile*, the precedential opinion, the written description issue turned on proper construction of the term “customer interface” in claims directed to a vending machine for selling telecommunications access. The district court adopted PowerOasis’s interpretation that

the “customer interface” may occur on a customer’s laptop, such as the interface to T-Mobile HotSpot Network. The Federal Circuit agreed with T-Mobile that the interface must be located on the vending machine itself. The Court stated that

The Original Application described a vending machine with a “display” or “user interface” as part of the vending machine, rather than a vending machine with a “customer interface” located on a customer’s electronic device.

T-Mobile, 522 F.3d at 1307. The Court also found that none of the alternative embodiments claimed in the Original Application disclosed an interface located on a customer’s laptop or otherwise separate from the vending machine.

In *Energizer Holdings, Inc. v. Int’l Trade Comm’n*, the Federal Circuit affirmed a U.S. International Trade Commission (ITC) decision invalidating for lack of written description all claims of a patent directed to zero-mercury-added alkaline batteries. 275 Fed. Appx. 969 (Fed. Cir. 2008) (non-precedential). The Court affirmed the ITC’s decision in separate opinions by Judge Schall and Judge Linn. Judge Schall found a “fundamental disconnect” between the claims and the specification of the ‘709 patent. On the one hand, the ‘709 patent claims a commercial battery cell in which the anode gel is discharged to a particular parameter. On the other hand, Judge Schall stated:

[T]he specification describes only a test cell—which is not referenced in the claims—being discharged to that parameter. The specification consistently uses the term “anode gel” to refer to the anode of a *test cell*, not to the anode of a *completed battery*.

Energizer Holdings, at 978 (J. Schall) (emphasis in original). In other words, “what is claimed in claim 1 of the ‘709 patent is not what is described in the patent specification.”

Id. Judge Linn concurred with Judge Schall’s result but on the alternative ground that the patent claims failed to comply with § 112, ¶ 2 – the definiteness requirement. *See* discussion below in Section III.

In *Technology Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316 (Fed. Cir. 2008), the Court affirmed the trial court’s finding that the inventor was not in possession of the claimed invention as of the filing date. The patents at issue related to separation of synchronization signals embedded in the composite video signal received by a television. The original patent claims described a sync separator involving two separate clamping operations. In a CIP application, claims involving only a single clamp for recovering sync were added by amendment. The amended claims recited a capacitor and “other circuit” through which the video signal is coupled to establish a level shifted signal.

The written description inquiry centered on whether the “other circuit” limitation could be found in the original patent disclosure. TLC’s position was that the claimed “other circuit” corresponded to two resistors – R21 and R26 – in Figure 3 of the original disclosure. The Federal Circuit found that while the resistors appear in Figure 3, the text of the original disclosure makes no mention of R26 and only briefly refers to R21 in passing. By comparison, the CIP application describes a level-shifting circuit that supports the “other circuit” limitation. The Court stated:

The pertinent question is not whether a person skilled in the art could look at both Figure 3 and Figure 16 [of the CIP application] and determine that the resistors in the former perform a similar function to the resistors in the latter. Rather, *the issue is whether a person skilled in the art would understand from the earlier application alone... that the inventor had possession of the claimed “other circuit.”*

Id. at 1333-34 (emphasis added). The Court found that the trial court did not clearly err in finding that there was not clear and convincing evidence that the inventor was in possession of the “other circuit” as of the original filing date.

D. Litigating The Written Description Requirement

While the Federal Circuit has found the patentee's disclosure obligation to vary according to the art to which the invention pertains, the Court has invalidated claims in the "predictable" arts for lack of written description where claim scope exceeds the disclosed embodiments. As in the *LizardTech* case, the absence of alternative embodiments or other broadening disclosure may be interpreted as the patentee's objective intent to limit the scope of the claims. The key question — for patentees and accused infringers alike — is what level of detail is sufficient to demonstrate that the inventor had possession at the time of the patent filing. *Moba*, 325 F.3d at 1320. Possession may be demonstrated by, among other things, describing an actual reduction to practice, depicting the invention in detailed drawings, or otherwise describing the novel features of the invention.

In litigating software and business method patents, claim construction proposals must be evaluated in view of the written description inquiry and, in particular, the applicant's intended claim scope as evidenced by exemplary, explanatory or limiting embodiments disclosed in the patent specification. However, the written description requirement does not abrogate the fundamental tenet of claim construction not to import limitations from examples or embodiments found in the patent's written description. The Federal Circuits affirmed this basic principle in the *en banc* decision in *Phillips v. AWH Corp*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (*en banc*). This principle holds true "even when a specification describes very specific embodiments of the invention or even describes only a single embodiment." *JVW Enterprises, Inc. v. Interact Accessories*, 424 F.3d 1324, 1335 (Fed. Cir. 2005). Nonetheless, compliance with the written description

requirement should be analyzed in the early stages of patent litigation in the context of claim construction.

II. ENABLING THE ENABLEMENT DEFENSE IN LITIGATION

A. The Enablement Requirement Generally

Section 112 of the Patent Act sets forth the enablement standard in addition to the written description requirement:

The specification shall contain a written description of the invention, *and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same*

35 U.S.C. § 112, ¶ 1 (emphasis added). As discussed above, the enablement requirement is separate and distinct from the written description requirement. *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 963 (Fed. Cir. 2002) (Section 112, ¶ 1 requires a “written description of an invention separate from enablement.”); *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991). Whether a claim satisfies the enablement requirement of 35 U.S.C. § 112, ¶ 1 is a question of law, reviewed de novo, based on underlying facts. *Sitrick v. Dreamworks, L.L.C.*, 516 F.3d 993, 999 (Fed. Cir. 2008) (citing *AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1238-39 (Fed. Cir. 2003)).

The enablement requirement “insure[s] adequate and full disclosure so that upon the expiration of the [patent term] ‘the knowledge of the invention enures to the people, who are thus enabled without restriction to practice it and profit by its use.’” *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 480-81 (1974); *see also AK Steel Corp.*, 344 F.3d at 1244 (“[A]s part of the *quid pro quo* of the patent bargain, the applicant’s specification must enable one of ordinary skill in the art to practice the full scope of the

claimed invention.”). The enablement requirement applies to all types of claim limitations, including those in means-plus-function format. *In re Hyatt*, 708 F.2d 712, 714 (Fed. Cir. 1983).

The enablement requirement makes two demands of patent specifications: (1) the specification must enable one skilled in the art to practice the claimed invention without undue experimentation; and (2) the specification must enable one skilled in the art to practice the full scope of the claimed invention. *Chiron Corp. v. Genentech, Inc.*, 363 F.3d 1247, 1253 (Fed. Cir. 2004). Undue experimentation is based on several factors including (1) the amount of experimentation necessary; (2) the amount of guidance in the specification; (3) whether the specification contains working examples; (4) the nature of the invention; (5) the state of the prior art; (6) how predictable the art of the invention is; (7) the skill level in the relevant art; and (8) the claim breadth. *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988).

1. The “Full Scope” of the Claimed Invention Must be Enabled

In order to fulfill the enablement requirement, the specification must enable the full scope of the claims. *Auto. Techs. Int’l, Inc. v. BMW of N. Am., Inc.*, 501 F.3d 1274, 1285 (Fed. Cir. 2007) (“BMW”). It is not enough that one embodiment or mode of practicing the invention may be enabled if the specification does not enable the full range of embodiments within the scope of the claims. While the Federal Circuit has found that “the artisan’s knowledge of the prior art and routine experimentation can often fill gaps, interpolate between embodiments, and perhaps even extrapolate beyond the disclosed embodiments, depending on the predictability of the art,” it has also held that “[n]ascent technology ... must be enabled with a ‘specific and useful teaching.’” *Chiron Corp.*, 363 F.3d at 1253-54 (quoting *Genentech Inc. v. Novo Nordisk A/S*, 108 F.3d 1361,

1368 (Fed. Cir. 2007) (emphasis added). The specification, not the knowledge of one skilled in the art, must supply the novel aspects of an invention in order to constitute adequate enablement. *Genentech*, 108 F.3d (Fed. Cir. 1997).

2. The Invention Must be Reduced to Practice

The Federal Circuit also has found enablement lacking where the inventor did not actually reduce the invention to practice at the time of filing. In one such case, the inventor attempted but failed to practice his invention in a commercial product. *Ormco Corp. v. Align Tech., Inc.*, 498 F.3d 1307, 1319 (Fed. Cir. 2007).² By contrast, the Court found claims enabled where an inventor “constructively reduced his idea to practice in the patent application, then confirmed that the [invention] could be produced in his later ... designs.” *Liquid Dynamics Corp. v. Vaughan Co.*, 449 F.3d 1209, 1224 (Fed. Cir. 2006). In *Liquid Dynamics*, the Court also relied on expert testimony that a person of ordinary skill in the art could generate the claimed invention without undue experimentation by following the patent’s written description.

B. Recent Federal Circuit Cases Where Enablement Was Found Lacking

In a majority of recent Federal Circuit cases addressing the enablement requirement, the Court ruled that claims were not enabled. Several of those cases involved a patentee arguing for a broad interpretation of the claims. Having won that battle, the patentee was required, but failed, to show that the broad claim scope was fully enabled.

² Although the majority in *Ormco* affirmed the district court’s grant of summary judgment of nonenablement, the Honorable Kathleen M. O’Malley, District Judge, United States District Court for the Northern District of Ohio, sitting by designation, strongly disagreed with the majority’s enablement analysis and would have reversed the district court’s grant of summary judgment. 498 F.3d at 1326-27.

In *Sitrick v. Dreamworks*, the patent involved substituting a user image for a pre-existing character image in a movie or video game. The Court stated that “[b]ecause the asserted claims are broad enough to cover both movies and video games, the patents must enable both embodiments.” 516 F.3d at 1000. The issue was whether the invention was enabled with respect to movies. The Court found that “[e]ven if the claims are enabled with respect to video games ... the claims are not enabled if the patents do not also enable for movies.” *Id.* According to Dreamworks’ experts, “one skilled in the art would not to be able to take the teachings regarding video games and apply them to movies ... because the analysis techniques described in the specification ... [had] no relevance to movies.” *Id.* Sitrick presented no evidence to the contrary, and the Court affirmed summary judgment for lack of enablement.

In *Pharm Res., Inc. v. Roxane Labs., Inc.*, Nos. 2007-1093, 2007-1134, 2007 WL 3151692, at *5 (Fed. Cir. Oct. 26, 2007), the patent involved flocculated suspensions of megestrol acetate formed using surfactants and other agents. The claim at issue recited “the choice of *any* surfactant in *any* concentration,” which encompassed “hundreds” of possibilities. *Id.* at *4 (emphasis added). Despite the “highly unpredictable nature of the invention and the extremely broad scope of the claims,” the patent specification disclosed “only three working examples, utilizing only one new surfactant.” *Id.* The Federal Circuit held that the three working examples did not “provide an enabling disclosure commensurate with the entire scope of the claims.” *Id.* It also noted that “highly relevant” to its decision was the intrinsic evidence that stressed “the criticality of the choice of surfactant and concentration.” *Id.* at *5.

In *Monsanto Co. v. Syngenta Seeds, Inc.*, 503 F.3d 1352 (Fed. Cir. 2007), the patent was directed to technologies for producing transgenic corn. The claim at issue described: “[a] plant gene which comprises ... a promoter sequence which functions in plant cells.” The district court interpreted the claim to require the claimed gene to function in “any plant cell,” including monocotyledons (monocots) and dicotyledons (dicots). The Federal Circuit found that the “patent was filed before transformation of monocot cells was possible.” *Id.* at 1361. However, “those skilled in the art could not transform a monocot plant cell as of the filing date” and therefore could not “determine whether the plant gene could carry out the claimed functions and thus fall within the scope of the claim.” *Id.* Because of the required undue experimentation, the Court ruled that the invention was not enabled.

In the *Ormco* case, the patents related to custom orthodontic appliances. In invalidating the patents for non-enablement, the Federal Circuit rejected the plaintiff’s contention that the determination of enablement should focus only on the specification of its patents and not the patentee’s development work. The court found “strong evidence” of non-enablement in the patentee’s failure to actually enable his invention in a commercial product. *Id.* at 1319.

In the *BMW* case, the patents related to a side-impact vehicle air bag sensors. The district court interpreted the claims to include both mechanical and electronic side impact sensors. The Federal Circuit ruled that the full scope of the claims were not enabled when the specification enabled the mechanical claim limitation, but not the electronic limitation. 501 F.3d at 1285. The court rejected the plaintiff’s argument that “because one embodiment of the invention is enabled, *viz.*, a mechanical side impact

sensor, the enablement requirement is satisfied.” *Id.* at 1281. The court stated that there “must be reasonable enablement of the scope of the range,” which this specification failed to accomplish. *Id.* at 1285 (citing *Liebel-Flarsheim Co. v. Medrad, Inc.*, 481 F.3d 1371, 1380 (Fed. Cir. 2007)).

In *Liebel-Flarsheim*, 481 F.3d 1371, the patent related to a front-loading fluid injector with a replaceable syringe. The Federal Circuit interpreted the claims to include an injector with and without a pressure jacket. The court rejected the plaintiff’s contention that because the specification provided an enabling disclosure of the “preferred embodiment”—the injector *with* a pressure jacket—the specification was enabled for the full scope of the claims, including the injector *without* a pressure jacket. Additionally, the court pointed out that the specification actually teaches away from the invention, and that “such a system could not have been produced at the time of filing.” 481 F.3d at 1380.³

C. Litigating The Enablement Defense

Much like traditional invalidity defenses, the enablement defense serves as a check against a patentee seeking to unduly broaden its patent. Where a patentee seeks and obtains a broad reading of its patent, the patentee may risk the possibility that it did not enable the full scope of its invention. While enablement issues are most likely to arise in nascent or developing technologies, they may still arise in the business method context. For example, enablement may be an issue when a patent describes in fair detail

³ The Federal Circuit found claims not invalid for lack of enabling disclosure in the following recent cases. *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1365-66 (Fed. Cir. 2008); *MEMC Elec. Materials, Inc. v. Mitsubishi Materials Silicon Corp.*, 248 Fed. Appx. 199, 204-5 (Fed. Cir. 2007) (vacating trial court’s grant of summary judgment of invalidity due to lack of enablement); *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1338 (Fed. Cir. 2006); *Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1377 (Fed. Cir. 2007).

a primary embodiment (*e.g.*, a mechanical implementation) but summarily discusses alternative embodiments (*e.g.*, a software implementation).

In general, enablement requires evidence that a particular implementation that is covered by the claims cannot be practiced without undue experimentation. In litigation, the enablement issue will likely become ripe after the claims have been construed. Moreover, an enablement defense will likely require expert evidence that provides the extent of experimentation that would have been required at the time of the invention. The best evidence of enablement (or lack thereof) generally comes directly from the patentee, either through the intrinsic record of the patent or the conduct and admissions of the patentee. Such evidence may include: (1) the patent teaches away from the implementation; (2) the patentee argues that the implementation was not possible at the time of filing; and (3) the patentee is unable to enable the implementation in a commercial product.

III. INVALIDATING CLAIMS FOR INDEFINITENESS

A. Second Paragraph of 35 U.S.C. § 112

Under 35 U.S.C. § 112, paragraph 2, every patent specification must “conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” The second paragraph of Section 112 “requires that the scope of the claims be sufficiently definite to inform the public of the bounds of the protected invention.” *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1249 (Fed. Cir. 2008). Because patent claims serve to put the public on notice of the scope of the invention, the claims must be sufficiently definite. *Id.* “Otherwise, competitors cannot avoid infringement, defeating the public notice function of patent claims.” *Id.* (*citing Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73

F.3d 1573, 1581 (Fed. Cir. 1996)). Whether a claim is sufficiently definite as mandated by section 112, paragraph 2 is a legal inquiry. *Young v. Lumenis, Inc.*, 492 F.3d 1336, 1345 (Fed. Cir. 2007).

A claim is definite under 35 U.S.C. § 112, paragraph 2 only if “one skilled in the art would understand the bounds of the claim when read in light of the specification.” *Allen Eng’g Corp. v. Bartell Indus.*, 299 F.3d 1336, 1348 (Fed Cir. 2002). Patent claims are considered indefinite when they are “not amenable to construction” or “insolubly ambiguous.” *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005) (“[T]he definiteness of claim terms depends on whether those terms can be given any reasonable meaning.”). “If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds.” *Exxon Research & Eng’g Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001). “By finding claims indefinite only if reasonable efforts at claim construction prove futile, we accord respect to the statutory presumption of patent validity” under 35 U.S.C. § 282. *Id.* at 1375. This approach also follows the requirement that clear and convincing evidence be shown to invalidate a patent. *Budde v. Harley-Davidson, Inc.*, 250 F.3d 1369, 1376 (Fed. Cir. 2001).

B. Common Scenarios That Give Rise To Indefiniteness

There are any number of circumstances that could lead a court to find a patent claim invalid for indefiniteness. However, recent Federal Circuit cases reveal several common scenarios applicable to software and business method patents: (A) mixing statutory classes within a single claim; (B) completely subjective claim terms; (C) means-plus-function limitations with no corresponding structure disclosed in the

specification; and (D) lack of proper antecedent basis.⁴ Each of these scenarios is discussed below.

1. Mixing Statutory Classes Within Single Claim Renders Claim Indefinite

In *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, the Federal Circuit affirmed the district court’s finding that claim 25 of U.S. Patent No. 6,149,055 (“the ‘055 patent”) is invalid for indefiniteness because it “attempts to claim both a system and a method for using that system.” 430 F.3d 1377, 1383 (Fed. Cir. 2005). The ‘055 patent relates to a system for executing electronic financial transactions, such as an ATM, by storing “information previously defined by the user” and displaying “that information to the user in a single screen.” *Id.* at 1378-79. IPXL alleged that Amazon’s “1-click system” infringed several claims of the ‘055 patent, including claim 25. *Id.* at 1378. Dependent claim 25 recites in part: “The *system of claim 2* wherein . . . *the user uses the input means* to either change the predicted transaction information or accept the displayed transaction type and transaction parameters.” Dependent claim 2 recites in part: “The system of claim 1 wherein *the system* predicts transaction information that a user of the terminal will desire based on stored data for that user.”

Although this was an issue of first impression for the Federal Circuit, the Board of Patent Appeals and Interferences (“BPAI”) of the Patent and Trademark Office had previously determined “that reciting both an apparatus and a method of using that

⁴ On September 2, 2008, the U.S. Patent and Trademark Office’s Deputy Commissioner for Patent Examination Policy (DCPEP), John Love, issued two memoranda to the Technology Center Directors and Patent Examining Corps relating to indefiniteness rejections. The first Memorandum (Exhibit A) provides “a clarification regarding indefiniteness rejections” in light of several “recent decisions rendered by the Court of Appeals for the Federal Circuit.” The second Memorandum (Exhibit B) more specifically addresses indefiniteness rejections “when examining means (or step) plus function claim limitations” under § 112, ¶ 6.

apparatus renders a claim indefinite under section 112, paragraph 2.” *Id.* at 1384 (citing *Ex parte Lyell*, 17 U.S.P.Q.2d 1548 (B.P.A.I. 1990)). According to the Federal Circuit, this rule “is well recognized and has been incorporated into the PTO’s *Manual of Patent Examination Procedure*.” *Id.* (citing MPEP § 2173.05(p)(II) (7th ed. 1998, rev. 2000)). The Court stated that the “Board correctly surmised that, as a result of the combination of two separate statutory classes of invention, a manufacturer or seller of the claimed apparatus would not know from the claim whether it might also be liable for contributory infringement because a buyer or user of the apparatus later performs the claimed method of using the apparatus.” *IPXL*, 430 F.3d at 1384. The Court found claim 25 invalid under section 112, paragraph 2 because the claim recites “both a system and the method for using that system,” and thus “does not apprise a person of ordinary skill in the art of its scope.” *Id.*⁵

2. Claim Reciting Completely Subjective Claim Term is Indefinite

A claim term must have some objective meaning to be construed. *Datamize*, 417 F.3d at 1351. “The scope of claim language cannot depend solely on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention.” *Id.* at 1350 (finding the claim term “aesthetically pleasing” to be indefinite). As the Federal Circuit has explained, “[w]hile beauty is in the eye of the beholder, a claim term, to be definite, requires an *objective anchor*.” *Id.* (emphasis added). Indeed, some objective standard must be provided in order “to allow the public to determine the

⁵ *But see Microprocessor Enhancement Corp. v. Texas Instruments Inc.*, 520 F.3d 1367, 1374-75 (Fed. Cir. 2008) (“Method claim preambles often recite the physical structures of a system in which the claimed method is practiced ... [A]pparatus claims are not necessarily indefinite for using functional language.”).

scope of the claimed invention.” *Id.* A purely subjective construction of a claim term “would not notify the public of the patentee’s right to exclude since the meaning of the claim language would depend on the unpredictable vagaries of any one person’s opinion.” *Id.* In *Datamize*, the claim phrase-at-issue, “aesthetically pleasing,” was well-known, and dictionary definitions indicated the ordinary and customary meaning of this phrase was “having beauty that gives pleasure or enjoyment.” 417 F.3d at 1346. Nevertheless, the Federal Circuit deemed this claim language indefinite because the patentee “offered no objective definition identifying a standard for determining when an interface screen is ‘aesthetically pleasing.’” *Id.* at 1350.

Datamize sued Plumtree alleging infringement of U.S. Patent No. 6,014,137 (“the ‘137 patent”), entitled “Electronic Kiosk Authoring System.” *Id.* at 1344-45. The ‘137 patent describes “a software program that allows a person to author user interfaces for electronic kiosks.” *Id.* The Abstract of the ‘137 patent describes the authoring system as being “subject to constraints adhering the resulting interface to good standards of aesthetics and user friendliness.” *Id.* Claim 1 of the ‘137 patent is directed to a method “for defining custom interface screens customized for individual kiosks,” including the following limitations:

- providing a plurality of pre-defined interface screen element types . . .
 - wherein each said element type permits limited variation in its on-screen characteristics in conformity with a desired uniform and aesthetically pleasing look and feel for said interface screens on all kiosks of said kiosk system,
- each element type having a plurality of attributes associated therewith,
 - wherein each said element type and its associated attributes are subject to pre-defined constraints providing element characteristics

in conformance with said uniform and aesthetically pleasing look and feel for said interface screens,

....

assigning values to the attributes associated with each of said selected elements consistent with said pre-defined constraints, whereby the aggregate layout of said plurality of selected elements on said interface screen under construction will be aesthetically pleasing and functionally operable for effective delivery of information to a kiosk user.

Id. (quoting ‘137 patent, col. 20, l. 37 – col. 21, l. 23 (emphases added)). During prosecution of the application that resulted in the ‘137 patent, the “aesthetically pleasing” claim language was not discussed by either the inventor or the patent examiner. *Id.* at 1345. However, in a continuation application, which eventually issued as U.S. Patent No. 6,460,040, a pending claim was rejected as being indefinite for using the phrase “aesthetically pleasing.” *Id.* In response the inventor argued the phrase is definite, but deleted the phrase from the claim and stated that the phrase is “superfluous and unnecessary” to the claim. *Id.*

Plumtree moved for summary judgment on the ground that the ‘137 patent is invalid for indefiniteness under section 112, paragraph 2. *Id.* The district court granted Plumtree’s motion with respect to every claim of the ‘137 patent based on the use of the phrase “aesthetically pleasing” in claim 1, the only independent claim of the ‘137 patent. *Id.* at 1345-46. The Federal Circuit affirmed the district court’s grant of summary judgment. *Id.* at 1356.

3. Means-Plus-Function Limitations Without Corresponding Structure

“Once a court concludes that a claim limitation is a means-plus-function limitation, two steps of claim construction remain: 1) the court must first identify the function of the limitation; and 2) the court must then look to the specification and identify the corresponding structure for that function.” *Biomedino, LLC v. Waters Techs. Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007). “If there is no structure in the specification corresponding to the means-plus-function limitation in the claims, the claim will be found invalid as *indefinite*.” *Id.* (emphasis added). For computer-implemented means-plus-function limitations, the corresponding structure must be more than the mere disclosure of a general purpose computer or microprocessor (*i.e.*, the specification must also disclose the corresponding algorithm). *See e.g., WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339 (Fed. Cir. 1999); *Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241, 1253 (Fed. Cir. 2005); Exhibit B at pp. 2-4.

In *Aristocrat Techs. Austl. Pty. Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1332-33 (Fed. Cir. 2008), the Federal Circuit found that computer-implemented “game control means” limitations lacked sufficient structure without disclosure of an algorithm that transformed the recited general purpose computer into “a special purpose computer programmed to perform the disclosed algorithm.” The patent described an electronic slot machine that allows a player to select winning combinations of symbol positions. There was no algorithm at all disclosed in the specification. The Court found that the patentee “disclosed, at most, pictorial and mathematical ways of describing the claimed function of the game control means.” *Id.* at 1335. The Court stated:

Although the examples given in the [patent] might enable one of ordinary skill to make and use the invention, they do not recite the particular structure that performs the function
....

Id. at 1336. While the patentee was not required to produce a listing of source code or a highly detailed description of the algorithm in order to satisfy § 112, ¶ 6, it was required to at least disclose the algorithm to be used to achieve the claimed functions.⁶

The Court rejected the patentee’s arguments which conflated the enablement requirement under §112, ¶ 1, with the requirement to disclose the structure that performs the claimed function under section §112, ¶ 6. The Court stressed that the proper inquiry is to “look at the *disclosure* of the patent and determine if one of skill in the art would have understood that *disclosure* to encompass software [to perform the function].” *Id.* at 1337 (quoting *Medical Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1212 (Fed. Cir. 2003)).

The Federal Circuit similarly rejected pure functional claiming in *Finisar Corp. v. DirecTV Group Inc.*, 523 F.3d 1323 (Fed. Cir. 2008). *Finisar* sued DirecTV for infringement of U.S. Pat. No. 5,404,505 (the “505 patent”) to an information broadcasting system. The district court found some claims, construed under 35 U.S.C. § 112 ¶ 6, were invalid as indefinite. The Federal Circuit agreed that the “505 patent discloses very little about the purported structure corresponding to this claim term.” *Id.* at 1340. For instance, the patent recites that “software 132 (executed by CPU 130) generates a hierarchical set of indices referencing all the data in the information database 112 and embeds those indices in the information database.” *Id.* In short, it provides “nothing more than a restatement of the function, as recited in the claim.” *Id.*

⁶ Coincidentally, five weeks earlier in a different *Aristocrat* case involving the same patent, the Federal Circuit appears to contradict *WMS Gaming, Harris* and *Medical Instrumentation* when it states: “*WMS Gaming*, however, does not require that a particular algorithm be identified if the selection of the algorithm or group of algorithms needed to perform the function in question would be readily apparent to a person of skill in the art.” *Aristocrat Techs. Austl. Pty. Ltd. v. Multimedia Games, Inc.*, 266 Fed. Appx. 942, 947 (Fed. Cir. 2008).

The Federal Circuit stated that “the patent must disclose, at least to the satisfaction of one of ordinary skill in the art, enough of an algorithm to provide the necessary structure under § 112, ¶ 6.” *Id.* A patentee may “express that algorithm in any understandable terms including as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure.” *Id.* The Federal Circuit agreed with the district court that “the structure recited in the ‘505 specification does not even meet the minimal disclosure necessary to make the claims definite.” *Id.*

Similarly, in *Medical Instrumentation*, the Federal Circuit concluded that “a failure to associate software with the [recited] function is a failure to particularly point out and claim that particular structure as a means of performing the function.” 344 F.3d at 1211. The patent at issue related to a system for planning surgical treatment using a presentation of images from multiple scanning sources. The district court construed the function for the “means for converting” limitation to be “converting multiple acquired images into a particular selected digital format” and the “structures corresponding to this function [to be the disclosed] VME bus based framegrabber video display board, the computer video processor (“CVP”) and [s]oftware routines for converting digital-to-digital known to those of skill in the art.” *Id.* at 1209. The Federal Circuit did not find the claims indefinite “because the specification does disclose the framegrabber and CVP as corresponding structures for the function of converting images.” *Id.* at 1211. On the other hand, “[t]here is nothing in the specification or prosecution history that clearly links or associates software with the function of converting images into a selected format.” *Id.*

The plaintiff MIDCO contended that a skilled programmer at the time of the application’s filing could have written a program for digital-to-digital conversion of

images. In addition, MIDCO pointed to a box in Figure 1 of the patent that was labeled “Image Format Conversion” and a corresponding description in the specification.

However, the Court stated:

The correct inquiry is to look at the *disclosure* of the patent and determine if one of skill in the art would have understood that *disclosure* to encompass software for digital-to-digital conversion and been able to implement such a program.

Id. at 1212. The Court concluded that Figure 1 simply referred to a step in the claimed method, not specifically a digital-to-digital conversion. *Id.* at 1214-15. Also, the specification merely described Figure 1, not software that performs digital-to-digital conversion. *Id.* The Court concluded that the district court erred in identifying software as a corresponding structure for the converting function, and that the scope of the claim under section 112, paragraph 6 was limited to the only two structures that were clearly linked to the converting function – the framegrabber and the CVP. *Id.* at 1218-19.

4. Claims May be Indefinite for Lack of Antecedent Basis

“The requirement of antecedent basis is a rule of patent drafting, administered during patent examination.” *Energizer Holdings v. Int’l Trade Comm’n*; 435 F.3d 1366, 1370 (Fed. Cir. 2006). “Sometimes it is unclear whether a particular limitation refers to an element that was previously presented, either in the same claim or a preceding claim.” Exhibit A at p. 3. However, “the failure to provide explicit antecedent basis for terms does not always render a claim indefinite.” *Manual of Patent Examining Procedure*, § 2173.05(e) (8th ed. 2001, rev. May 2004). Of course, the issue of antecedent basis can arise in the context of patent claims directed to any technology, including software and business method patents.

In *Energizer Holdings*, the International Trade Commission (“ITC”) had found independent claim 1 and dependent claims 2-7 of U.S. Patent No. 5,464,709 (“the ‘709 patent”) invalid for lack of antecedent basis. 435 F.3d at 1369. The ITC held claim 1 invalid because “said zinc anode” does not have an antecedent basis since the term “zinc anode” does not appear in the claim before the term “said zinc anode.” *Id.* However, the Federal Circuit “conclude[d] that ‘anode gel’ is by implication the antecedent basis for ‘said zinc anode’” and thus reversed the ITC’s holding of invalidity for indefiniteness. *Id.* at 1371.

C. Claim Construction And Indefiniteness

The interplay between claim construction and any potential indefiniteness issues should be addressed in the early stages of patent litigation. While some district courts may be reluctant to address indefiniteness in the context of a claim construction hearing, preferring to resolve claim construction *before* determining invalidity or infringement issues, several Federal Circuit opinions indicate that indefiniteness is a claim construction issue. *Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1379 (Fed. Cir. 1999) (claim indefiniteness under section 112, paragraph 2 is “inextricably intertwined with claim construction”); *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1319 (Fed. Cir. 2008) (“Indefiniteness is a matter of claim construction, and the same principles that generally govern claim construction are applicable to determining whether allegedly indefinite claim language is subject to construction.”); *Datamize*, 417 F.3d at 1348 (“In the face of an allegation of indefiniteness, general principles of claim construction apply.”); *Bancorp Servs., L.L.C. v. Hartford Life Ins. Co.*, 359 F.3d 1367, 1371 (Fed. Cir. 2004) (“A determination that a patent claim is invalid for failure to meet the definiteness requirement of 35 U.S.C. § 112, ¶ 2 is a conclusion ‘that is drawn from

the court's performance of its duty as the construer of patent claims'") (*quoting Atmel*, 198 F.3d at 1378).

In *Bancorp*, the district court held all of the independent claims of U.S. Patent No. 5,926,792 ("the '792 patent") invalid for indefiniteness because each claim recited the term "surrender value protected investment credits," which the district court deemed fatally indefinite. *Bancorp*, 359 F.3d at 1370. The '792 patent discloses "a system for administering and tracking the value of life insurance policies in separate accounts," including a "computerized means for tracking the book value and market value of the policies and calculating the credits representing the amount the stable value protected writer must guarantee and pay should the policy be paid out prematurely." *Id.* at 1369. Hartford argued that the term in question is indefinite "because the patent does not expressly define the term; because the meaning of the term cannot be inferred from anything in the patent; and because the term does not have a commonly understood meaning to persons of skill in the pertinent fields of art." *Id.* at 1371-72. Bancorp argued that the term "surrender value protected investment credits" means the same thing as "stable value protected investment credits," which is used throughout the patent and understood by persons of skill in the pertinent art. *Id.* at 1372. After reviewing the intrinsic and extrinsic evidence, the district court rejected Bancorp's argument, in part because the two terms appear in close proximity to one another in the independent claims and therefore cannot be synonyms. *Id.* at 1370.

On appeal, the Federal Circuit reversed the district court's judgment of invalidity for indefiniteness and remanded for further proceedings on other issues. *Id.* at 1376. The Federal Circuit determined "'surrender value protected investment credits' is

reasonably discernible and that the asserted claims of the '792 patent [were] therefore not invalid for indefiniteness.” *Id.* at 1372. “[T]he components of the term have well-recognized meanings, which allow the reader to infer the meaning of the entire phrase with reasonable confidence.” *Id.* The Court “conclude[d] that the term ‘surrender value protected investment’ . . . has essentially the same meaning as the term ‘stable value protected investment,’” which the parties agree has a well-understood meaning as used in the ‘792 patent and in the field of stable-value investments.” *Id.*

As in the *Bancorp* case, indefiniteness and claim construction issues are frequently intertwined not only with respect to relevant aspects of the intrinsic evidence, but also extrinsic evidence such as expert testimony and business documents that may also help determine “whether allegedly indefinite claim language is subject to construction.” Moreover, like claim construction issues, indefiniteness is as a matter of law reviewed *de novo* by the Federal Circuit. Indeed, recent patent litigants have successfully invalidated patent claims for indefiniteness frequently enough that the Patent Office issued two memoranda to its examining corps in September 2008 to remind them “of the appropriate use of indefiniteness rejections under 35 U.S.C. 112, second paragraph.” In sum, potential indefiniteness issues should be carefully analyzed at the onset of any patent infringement litigation.