

**From:** Daniel Nazer  
**Sent:** Monday, April 15, 2013 6:59 PM  
**To:** SoftwareRoundtable2013  
**Subject:** Comments of the Electronic Frontier Foundation

I have attached comments from the Electronic Frontier Foundation in response to the request Regarding the Enhancement of Quality of Software-Related Patents, Docket No. PTO-P-2012-0052.

Best regards,  
Daniel

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Daniel Nazer  
Staff Attorney

Electronic Frontier Foundation  
415-436-9333 x149  
[daniel@eff.org](mailto:daniel@eff.org)

<https://www.eff.org/join>

PLEASE NOTE OUR NEW ADDRESS:  
815 Eddy Street  
San Francisco, CA 94109



**IN THE MATTER OF REQUEST FOR COMMENTS AND NOTICE OF  
ROUNDTABLE EVENTS FOR PARTNERSHIP FOR  
ENHANCEMENT OF QUALITY OF SOFTWARE-RELATED PATENTS**

**Docket No. PTO–P–2012–0052**

**COMMENTS OF THE ELECTRONIC FRONTIER FOUNDATION**

The Electronic Frontier Foundation (“EFF”) welcomes this opportunity to respond to the Request by the United States Patent and Trademark Office (“PTO”) for Comments for Enhancement of Quality of Software-Related Patents, Docket No. PTO–P–2012–0052, published January 3, 2013 (“RFC”). EFF participated in the February 12, 2013 Roundtable that the PTO hosted at Stanford University for this RFC (“Roundtable”).

The Electronic Frontier Foundation is a non-profit civil liberties organization that has worked for more than 20 years to protect consumer interests, innovation, and free expression in the digital world. Founded in 1990, EFF represents more than 20,000 contributing members. EFF and its members have a strong interest in promoting balanced intellectual property policy that serves both public and private interests. Through litigation, the legislative process, and administrative advocacy, EFF seeks to promote a patent system that facilitates, and does not impede, “the Progress of Science and useful Arts.”

**I. Problems With Software Patents Have Reached Crisis Proportions**

**A. The Amount of Patent Litigation Has Been Drastically Increasing,  
Particularly Cases Brought By NPEs and Litigation Surrounding Software  
Patents**

In recent years, the amount of patent litigation has dramatically increased. Chris Barry et al., PricewaterhouseCoopers, *2012 Patent Litigation Survey* 6 (2012).<sup>1</sup> There were 4,015 patent actions filed in 2011, compared to fewer than 3,000 such actions filed in in 2009. *Id.* In particular, patent cases brought by non-practicing entities (NPEs), also known as patent assertion entities (PAEs), patent monetizers, or colloquially, “patent trolls,” have significantly increased. *Id.* at 7. As Judge Posner of the Seventh Circuit Court of Appeals put it, NPEs “are companies that acquire patents not to protect their market for a product they want to produce—patent trolls are not producers—but to lay traps for producers, for a patentee can sue for infringement even if

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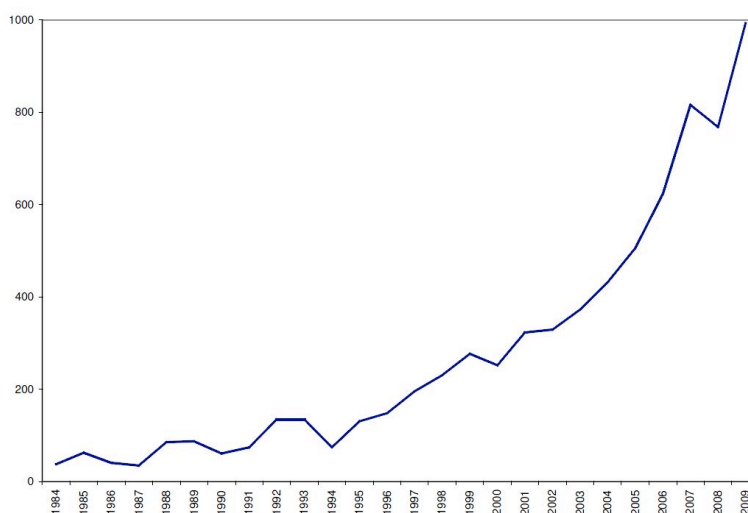
<sup>1</sup> Available at <http://www.pwc.com/us/en/forensic-services/publications/2012-patent-litigation-study.jhtml>.

it doesn't make the product that it holds a patent on.” Richard A. Posner, *Why There Are Too Many Patents in America*, *The Atlantic* (July 12, 2012).<sup>2</sup>

NPEs accounted for only about five percent of patent litigation in 2000-2002. James Bessen, Jennifer Ford & Michael Meurer, *The Private and Social Costs of Patent Trolls* 6-7 (Boston Univ. School of Law, Working Paper No. 11-45, 2011) (“Bessen 2011”).<sup>3</sup> This figure increased to about 22 percent in 2007, and then to almost 40 percent in 2011. Sara Jeruss, Robin Feldman & Joshua Walker, *The America Invents Act 500: Effects of Patent Monetization Entities on US Litigation*, 11 *Duke L. & Tech. L. Rev* 357, 361, 381 (2012).<sup>4</sup> In 2012, sixty-one percent of new patent actions were brought by NPEs. Colleen V. Chien, *Patent Assertion Entities*, presentation to the December 10, 2012 DOJ/FTC Hearing on PAEs, slides 23-24.<sup>5</sup>

Not coincidentally, litigation involving software patents has also rapidly increased. James Bessen, *A Generation of Software Patents* 19 (Boston Univ. School of Law, Working Paper No. 11-31, 2011).<sup>6</sup>

Figure 3. Number of patent lawsuit filings involving software patents



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<sup>2</sup> Available at <http://www.theatlantic.com/business/archive/2012/07/why-there-are-too-many-patents-in-america/259725/>.

<sup>3</sup> Available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1930272](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1930272).

<sup>4</sup> Available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2158455](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2158455).

<sup>5</sup> Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2187314](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2187314). As slide 24 points out, because of the September 2011 passage of the America Invents Act, the 2011-2012 figures might be somewhat inflated. There has still been a drastic increase since five years ago.

<sup>6</sup> Available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1868979](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1868979).

## B. Patent Litigation Imposes a Disproportionate Burden on Technology Firms, Especially Small Innovators

This explosion of litigation has been costly. According to a congressional study, NPEs activity cost defendants and licensees \$29 billion in 2011, a 400 percent increase over \$7 billion in 2005, and the losses are mostly deadweight, with less than 25 percent flowing to innovation and at least that much going towards legal fees. Brian T. Yeh, Cong. Research Serv., R42668, *An Overview of the "Patent Trolls" Debate*, at Summary and 2 (2012) ("Yeh")<sup>7</sup> (citing James Bessen & Michael Meurer, *The Direct Costs from NPE Disputes* 2, 18-19, (Boston Univ. School of Law, Law and Economics Research Paper No. 12-34, 2012) ("Bessen 2012")).<sup>8</sup> The research shows that that "NPE lawsuits are associated with half a trillion dollars of lost wealth to defendants from 1990 through 2010. During the last four years the lost wealth has averaged over \$80 billion per year." Bessen 2011 at 2. Even assuming *arguendo* that some of that transferred wealth is not "deadweight," it at least is clear that the funds are being transferred from innovative companies to their non-innovative counterparts. And, in what has become a theme, the high-tech industry bears the large percentage of the costs. As the congressional study noted:

Experts attribute the proliferation of PAEs over the past 10 to 15 years to the explosion of the information technology (IT) industry and patent law's struggle to adapt to the unique issues presented by this new frontier of innovation. They indicate that the PAE business model is not about licensing patents generally but *high-tech* patents in particular, including those on software and business methods or processes related to software, as well as computers and electronics.

Yeh at 8 (footnotes omitted).

The litigation explosion particularly burdens small companies. Litigation-based legal expenses can kill small startups entirely, and the mere threat of those expenses can chill innovation. In a small company, key management and engineers must deal with an NPE claim. Colleen Chien, *Startups and Patent Trolls* 10-13 (Santa Clara Univ. School of Law, Legal Studies Research Paper Series, Accepted Paper No. 09-12, 2012), at 10-13.<sup>9</sup> Professor Chien noted:

Although large companies tend to dominate patent headlines, most unique defendants to PAE suits are small. Companies with less than \$100M annual revenue represent at least 66% of unique defendants and the majority of them make much less than that: at least 55% of unique defendants in PAE suits make under \$10M per year. Suing small companies appears [to] distinguish PAEs from operating companies, who sued companies with less than \$10M of annual revenue only 16% of the time, based on unique defendants.

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<sup>7</sup> Available at [https://www.eff.org/sites/default/files/R42668\\_0.pdf](https://www.eff.org/sites/default/files/R42668_0.pdf) and <http://www.fas.org/sgp/crs/misc/R42668.pdf>.

<sup>8</sup> Available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2091210](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2091210).

<sup>9</sup> Available at <http://ssrn.com/abstract=2146251>.

*Id.* at 1-2. This results in small cash-poor companies becoming vulnerable targets that lack leverage to deal with an NPE claim, leaving them stuck paying nuisance settlements regardless of the merits of the underlying claim. *Id.* at 3. With small- and medium-sized companies making up 90 percent of the defendants in NPE suits, Bessen 2012 at 11, such nuisance settlements are widespread.

### **C. Software Patent Litigation Is a Particular Problem Due to NPE Assertions and Overbroad Claiming**

Sixty-two percent of NPE lawsuits feature software patents that are “notoriously difficult to interpret.” Bessen 2012 at 7. Stanford Professor Mark Lemley notes:

A related problem is the uncertainty associated with the meaning and scope of a software patent. Unlike chemistry and biotechnology, where we have a clear scientific language for delineating what a patent claim does and doesn’t cover, there is no standard language for software patents. Accordingly, no one can really know what a software patent covers until the court has construed the language of the patent claims.

Mark A. Lemley, *Software Patents and the Return of Functional Claiming* 24-25(Stanford Public Law Working Paper No. 2117302, 2012), (forthcoming in *Wisconsin Law Review*) (“Lemley”) (footnote omitted).<sup>10</sup>

In other words, “software patents have ‘fuzzy boundaries’: they have unpredictable claim interpretation and unclear scope . . . and the huge number of software patents granted makes thorough search to clear rights infeasible, especially when the patent applicants hide claims for many years by filing continuations. This gives rise to many situations where technology firms inadvertently infringe.” Bessen 2011 at 24. This lack of clarity directly feeds into the NPE business model and, consequently, the recent increase in both NPE and software patent litigation. Specifically, “there is a business opportunity based on acquiring patents that can be arguably read to cover existing technologies and asserting those patents, litigating if necessary in order to obtain a licensing agreement. . . . the patent troll business model only makes economic sense when there is such inadvertent infringement.” *Id.*

## **II. Section 112(f) Should Be Diligently Applied to Limit Overbroad Functional Software Patents**

EFF urges the PTO to diligently apply the methodology of Professor Lemley’s *Software Patents and the Return of Functional Claiming* to limit overbroad, functional software patents using 35 U.S.C. § 112(f) (formerly § 112, ¶ 6). Lemley at 4, 38-43. Professor Lemley discussed that methodology at the Roundtable.

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<sup>10</sup> Available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2117302](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2117302).

## A. Overview of Professor Lemley’s “Functional Claiming” Analysis

Historically, patent holders were making “widespread” use of broad functional claiming by 1940. *Id.* at 5-10. The Supreme Court effectively outlawed the practice in *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1 (1946). Congress *partially* reinstated functional claiming in the Patent Act of 1952 by enacting § 112(f):

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.

35 U.S.C. § 112(f). This statute does not permit “unfettered” functional claiming. Lemley at 12. Rather, means-plus-function claim elements are interpreted by (1) determining the particular structure in the patent’s specification that performs the claimed function, and (2) limiting the element to that structure and its equivalents. *Id.* at 13-14.

While the statute has traditionally been applied to apparatus claims, its express language makes clear that it covers method claims as well. For instance, the statute refers to “structure, material, or *acts* in support” of the function, and construes the claim as limited to “the corresponding structure, material, or *acts* described in the specification and equivalents thereof.” 35 U.S.C. § 112(f) (emphasis added). “Acts” clearly refers to method or process claims. Lemley at 14.

Although Congress intended § 112(f) to apply to method claims, in practice that has not stopped patentees from trying to seek broad, functional claims, particularly in software and business method patents. Lemley at 15-16. Professor Lemley rightly concludes that “[s]oftware patents, then, have brought back functional claiming as it existed before 1952.” *Id.* at 20. This broad claiming results in many of the problems noted in Section I of these comments. *See* Lemley at 24-32. Taking § 112(f) “seriously,” as Professor Lemley argues, *id.* at 40-45, will solve many of the problems with broad software and business method patents.

## B. The PTO Should Apply § 112(f) to Method Claims<sup>11</sup>

### 1. Identification of Claim Elements Subject to § 112(f)

To begin, the Federal Circuit has recognized that § 112(f) applies to steps in a method claim. *O.I. Corp. v. Tekmar Co. Inc.*, 115 F.3d 1576, 1582-83 (Fed. Cir. 1997) (the “combination” in the statute applies to “steps in a process claim”); *Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1373 (Fed. Cir. 2003) (agreeing with *O.I. Corp.*). While these cases did not apply § 112(f) to their facts, the Court has provided guidance on when that section should

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<sup>11</sup> Many of the issues raised by this request for comments overlap with those raised in the Request for Comments Regarding the Preparation of Patent Applications, published January 15 [Docket No. PTO–P–2011–0046]. Thus, many of our comments in Part II & III of this response overlap with our response to that Request (submitted March 15, 2013).

apply. See *Seal-Flex, Inc. v. Athletic Track & Court Constr.*, 172 F.3d 836, 848-50 (Fed. Cir. 1999) (Rader, J., concurring). To understand, one must look first to *O.I. Corp.*:

Of course, [§ 112, ¶ 6] is implicated only when means *plus function* without definite structure are present, and that is similarly true with respect to steps, that the paragraph is implicated only when steps *plus function* without acts are present. The statute thus in effect provides that an element in a combination method or process claim may be recited as a step for performing a specified function without the recital of acts in support of the function.

*O.I. Corp.*, 115 F.3d at 1583; *Seal-Flex*, 172 F.3d at 849 (emphasis in original). The question then becomes: how does one tell if claim elements without express step-plus-function language fall within the statute? (Unlike structural “means-plus-function” claim elements, step-plus-function claim elements don’t neatly use a phrase such as “means for.”) As Chief Judge Rader explains in his concurring opinion in *Seal-Flex*, method claim elements fall within § 112(f) “if they merely claim the underlying function without recitation of acts for performing that function.” *Id.* Specifically:

In general terms, the “underlying function” of a method claim element corresponds to *what* that element ultimately accomplishes in relationship to what the other elements of the claim and the claim as a whole accomplish. “Acts,” on the other hand, correspond to *how* the function is accomplished. Therefore, claim interpretation focuses on what the claim limitation accomplishes, *i.e.*, its underlying function, in relation to what is accomplished by the other limitations and the claim as a whole. If a claim element recites only an underlying function without acts for performing it, then § 112, ¶ 6 applies even without express step-plus-function language.

*Id.* at 849-50 (emphasis in original). So if a functional claim element recites its ultimate goal (what that element accomplishes), but does *not* contain an explanation for “how the function is accomplished,” then § 112(f) will apply. The PTO should instruct Examiners to apply these already existing principles to identify method claims subject to § 112(f). In many cases, software patent claim elements recite a function or goal, but contain no detail on how to accomplish the function, so the statute will apply. MPEP ¶ 7.34.21 (or some other section) can be amended to incorporate the above procedure.

**Example.** To illustrate this methodology, consider U.S. Patent No. 6,351,736. The ‘736 patent is apparently owned by Mobile Transformation LLC, a shell company/NPE which asserts that the patent covers showing a video next to a static advertisement. Mike Masnick, *Patent Troll Claims That Showing A Video With A Static Ad Next To It Infringes*, Techdirt (Aug. 8, 2012)<sup>12</sup> (noting that Mobile Transformation has filed numerous lawsuits over the ‘736 patent); Jeff

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<sup>12</sup> Available at <http://www.techdirt.com/articles/20120806/01272619938/patent-troll-claims-that-showing-video-with-static-ad-next-to-it-infringes.shtml>.

Roberts, *Patent troll tries to saw BuzzFeed over video ads*, Gigaom (Aug. 3, 2012).<sup>13</sup> Claim 64 is representative:

64. A method for presenting data of a first data type and presenting advertising data of a second data type, comprising the steps of:
- (a) downloading the data of a first data type;
  - (b) downloading the advertising data of the second data type;
  - (c) generating a first command for the presentation of the data of the first data type;
  - (d) presenting the data of the first data type;
  - (e) generating a second command for the presentation of the advertising data of the second data type based on at least one of the first command and the presentation of the data of the first data type; and
  - (f) presenting the advertising data of the second data type.

Each of these method steps (a)-(f) recite functions such as “downloading,” “generating,” or “presenting” various aspects of the alleged invention. However, none of the steps (except possibly step (e)) provides any information about *how* the function is accomplished. Thus, § 112(f) plainly applies to at least five of claim 64’s method steps.

## 2. Examination of § 112(f) Claim Elements

If an examiner determines that a claim limitation is a mean-plus-function limitation subject to § 112(f), he or she should then consider whether the specification discloses sufficient structure corresponding to the related structures or acts. Software patents containing claim limitations subject to § 112(f) that “do not detail actual algorithms implementing those functional steps are invalid for indefiniteness.” *Aristocrat Techs. Australia v. Int’l Game Tech.*, 521 F.3d 1328, 1333-34, 1337-38 (Fed. Cir. 2008); *Ergo Licensing, LLC v. Carefusion 303, Inc.*, 673 F.3d 1361, 1363-65 (Fed. Cir. 2012).

Should a § 112(f) claim element not disclose sufficient structure in support of its acts, the Examiner should reject the claim under § 112(b) & (f). *See* MPEP ¶ 7.34.18. For example, claim 64 of the ‘736 patent (discussed above) is clearly invalid as indefinite. The patent does not disclose any algorithms—it only describes a “wish list” of the desired broad functions. Figure 1 of the ‘736 patent just depicts a general purpose computer connected to a generic server. Figure 2 contains a mere list of the recited functions with no algorithms whatsoever. Those are the only two figures in the specification, and the skimpy text is not illuminating either: it merely describes

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<sup>13</sup> Available at <http://gigaom.com/2012/08/03/patent-troll-tries-to-saw-buzzfeed-over-video-ads>.



Fig. 1's generic computer and runs through Fig. 2's steps. '736 patent, col. 5, line 12 to col. 7, line 30. The patent even broadly asserts that it applies to "any type of suitable data processor" with an operating system, with its application "written in substantially any suitable programming language." '736 patent, col. 3, line 44 to col. 4, line 9. Claim 64 is thus plainly invalid under *Aristocrat Techs.* and *Ergo Licensing*. These cases confirm that a "general purpose computer" is not sufficient structure to comply with § 112(f). *Aristocrat Techs.*, 521 F.3d at 1336-37; *Ergo Licensing*, 673 F.3d at 1365. More structure is required than simply a general purpose computer.

If (unlike the '736 patent) a § 112(f) claim element discloses sufficient structure in support of its acts so that it is not indefinite, the Examiner would then interpret and apply the claim—limited to the actual algorithms disclosed in the specification and their equivalents—in the usual manner. *See* Lemley at 43. As discussed in Section III below, the claim should also be closely examined to make sure that it complies with the written description requirements of § 112(a). The Examiner would also conduct a prior art search and issue any rejections that are appropriate under §§ 102 and 103.

### **3. Response by Applicant**

Importantly, when responding to an office action that relies on § 112(f), the applicant should be strictly required to state whether the applicant agrees or disagrees that § 112(f) applies. *See* MPEP ¶ 7.34.21. Plainly, this is required so that the PTO's record is clear as to the scope of the claim. If the Examiner and the applicant agree that § 112(f) applies, then the public will have proper notice of the scope of the claims.

Equally importantly, if the claim is limited under § 112(f), then the scope of the Examiner's prior art search for a functional claim element will be directed to references disclosing the actual algorithms disclosed in the specification and their equivalents. If the claim is *not* limited by § 112(f) but instead just claims a broad function, a far greater range of prior art will apply. An applicant should not be permitted to have a claim examined for prior art purposes in the PTO under a *narrow* interpretation (§ 112(f)), and then turn around in litigation and argue that the claim is *not* so limited, and instead broadly claims a mere function. This unwarranted outcome would unfairly permit applicants to obtain overbroad patents that were never properly examined under their full scope. Thus, it is very important that the applicant be strictly required to state whether the applicant agrees that § 112(f) applies.

If the applicant does *not* agree that § 112(f) applies, then the applicant should be required to do one or more of the following: (1) present arguments and evidence why § 112(f) does not apply, (2) rewrite the claim, or (3) appeal the rejection. *See, e.g.*, MPEP ¶¶ 7.34.16, 7.34.18, 7.34.19, 7.34.20, 7.34.21. Should the applicant convince the Examiner (or ultimately the PTO Trial and Appeal Board) that § 112(f) does *not* apply, then the case must be returned to the Examiner for an additional prior art search and possible additional rejections under §§ 102 and 103. If § 112(f) is found later not to apply, the Examiner's original prior art search would have been too narrow.

If the applicant does not convince the Examiner that § 112(f) does not apply, then the Examiner should repeat that interpretation of the claim, so the PTO record is clear that the statute

does apply for all purposes. The applicant can then respond to any rejections (under §§ 102, 103, 112, etc.) to the properly interpreted § 112(f) claim.

### III. The PTO Should Diligently Apply the Written Description Requirements to Computer Software

In addition to applying § 112(f), the PTO should diligently apply the written description requirements of § 112(a) to software patents. Doing so will also help prevent overclaiming of broad functions that are not supported by the specification.

At the Roundtable, at least one speaker expressed the view that there should be the same rules for software as for other technologies, that is, that the PTO's rules should be technology neutral. *See* comments of Horacio Gutierrez of Microsoft Corp., slide 2.<sup>14</sup> While EFF does not agree with this general proposition, at minimum the existing written description requirements for biotechnologies should be applied to software. It appears that the PTO *may* have recognized this proposition in the current version of MPEP ¶ 2161.01, but only very recently.<sup>15</sup>

There is a well-established body of law that strictly applies the written description requirement to biotechnological inventions. In *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc), the Federal Circuit held “that § 112, first paragraph, contains a written description requirement separate from enablement.”

In *Boston Scientific Corp. v. Johnson & Johnson*, 647 F.3d 1353 (Fed. Cir. 2011), the Federal Circuit stated that a patent can't broadly claim a genus when the specification doesn't disclose any specific examples of species that would show that the written description requirement is met. The district court had invalidated the patents for lack of an adequate written description, reasoning that under Federal Circuit precedent, “a “definition by function” does not suffice to define or describe the genus’ even if it allows one of skill to ‘guess and check’ what analogs could potentially work.” *Id.* at 1361. The Federal Circuit affirmed. It stated:

Section 112, paragraph 1, requires that the specification contain a written description of the invention. 35 U.S.C. § 112, ¶ 1. “[T]he hallmark of written description is disclosure.” *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). A specification adequately describes an invention when it “reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Id.* at 1351. “A

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<sup>14</sup> Available at [http://www.uspto.gov/patents/init\\_events/software\\_horacio\\_gutierrez.pptx](http://www.uspto.gov/patents/init_events/software_horacio_gutierrez.pptx)

<sup>15</sup> Compare the existing MPEP ¶ 2161.01, available at <http://www.uspto.gov/web/offices/pac/mpep/s2161.html#d0e213447>, with the next most recent version in MPEP (8th ed. rev. 8 July 2010), available at [http://www.uspto.gov/web/offices/pac/mpep/old/mpep\\_E8R8.htm](http://www.uspto.gov/web/offices/pac/mpep/old/mpep_E8R8.htm). The July 2010 version of MPEP ¶ 2161.01 does not contain the lengthy discussion of “Determining Whether There Is Adequate Written Description For A Computer-Implemented Functional Claim Limitation” that is present in the current version.

‘mere wish or plan’ for obtaining the claimed invention is not adequate written description.” *Centocor Ortho Biotech, Inc. v. Abbott Labs*, 636 F.3d 1341, 1348 (Fed. Cir. 2011).

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“A written description of an invention involving a chemical genus, like a description of a chemical species, ‘requires a precise definition, such as by structure, formula, [or] chemical name,’ of the claimed subject matter sufficient to distinguish it from other materials.” *Eli Lilly*, 199 F.3d at 1568 (quoting *Fiers v. Revel*, 984 F.2d 1164, 1171 (Fed. Cir. 1993)).

We have “held that a sufficient description of a genus requires the disclosure of either a representative number of species falling within the scope of the genus or structural features common to the members of the genus so that one of skill in the art can ‘visualize or recognize’ the members of the genus.” *Ariad*, 598 F.3d at 1350.

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Although it is true that functional claim language can meet the written description requirement when there is an established correlation between structure and function, Appellants fail to establish any such correlation.

647 F.3d at 1361-62, 1363, 1366. *See also Ariad*, 598 F.3d at 1349 (“The problem is especially acute with genus claims that use functional language to define the boundaries of a claimed genus. In such a case, the functional claim may simply claim a desired result, and may do so without describing species that achieve that result. But the specification must demonstrate that the applicant has made a generic invention that achieves the claimed result and do so by showing that the applicant has invented species sufficient to support a claim to the functionally-defined genus.”).

Applying these principles to software patents, then the written description requirement is not met if *any* of the following is true:

- (1) the patent claims are directed to a problem (or “mere wish or plan”) without a specific solution to the problem;
- (2) the patent claims cover a generalized function but the specification does not disclose any specific structure that implements the claimed function;
- (3) any such specific structure is not clearly correlated to the claimed function.

Under *Ariad*, any of these deficiencies would disqualify a patent even if the specification is enabling, and even if a person having ordinary skill in the art could write a program to implement the generalized functions. *Ariad* holds that the written description requirement is

separate from, and in addition to, enablement (which asks whether a person of ordinary skill could write a program based on a mere disclosure of broad functions). Thus, if any of the above conditions are not met, Examiners should reject the claims under § 112(a). MPEP ¶ 706.03(c) should explicitly make clear these grounds for rejection.

Again returning to our example, claim 64 of the '736 patent would be invalid for failure to comply with the written description requirement. It merely discloses a generalized function or “mere wish” with no specific structure to implement its generalities.

EFF urges the PTO to diligently apply these written description requirements for the examination of computer software patents. In the recently amended MPEP ¶ 2161.01—which postdates *Ariad*—it appears the PTO intends to do so. However, the PTO should amend related MPEP sections to make sure that these grounds for rejection are clear (including MPEP ¶¶ 706.03(c), 7.34.18, 7.34.19, and 7.34.20).

#### **IV. The PTO should require the submission of working code for each claim.**

Similar functionality can be implemented with a variety of algorithms. In other words, there are typically several ways to accomplish any given task. As is explained in the previous sections, we believe that a patentee should be limited to the specific algorithmic functions that she explicitly claims and equivalents thereof and nothing more. Indeed, that is what 35 U.S.C. § 112(f) requires.

As a practical matter, the only way to limit a patentee to her actual claimed invention is to require that the applicant provide working code for each claim. While the current law does not require working code, it does require that applicants describe an algorithm using “any understandable terms including as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure.” *Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1385 (Fed. Cir. 2011) (citation and quotation marks omitted).

To meet this standard, an applicant may be required to provide an instance of working code, written in a list of acceptable programming languages, such as Java, C, C++, PHP, Python, Perl, or Ruby. Such a list may be based on the languages most widely used by engineers. If the applicant did not or could not provide the code in one of those languages, he must at least be required to provide well-documented code in another language with line-by-line inline comments. That applicant should then also be required to include an additional file that explains what the program is doing and what would be needed to run and properly execute the program. For example, an applicant may state that she needs an SQL database. In that case, the applicant might provide an .sql file that automatically creates the database structure and populates it, or explain how one would set it up. This information must be provided in a manner understandable by one skilled in the art and, indeed, by a patent examiner with basic coding skills.

Moreover, such a submission could be (and should be) incorporated by reference into any issued patent’s specification. Doing so would not only ensure that the patent maintain its proper scope under the law, but it would put third parties—particularly software engineers—on notice of the patent’s true metes and bounds.

## V. Future Discussion Topics

EFF recommends the following future topics relevant to enhancing the quality of software related patents:

- Obviousness and software-related patents: Software is a field characterized by rapid change—with regular small improvements over the existing art. Thus, many software-related developments will be *novel* without meriting patent protection. The PTO should consider whether § 103 is being applied too leniently to software-related patent applications. *See generally* John Duffy, *Let's Get Rid of Kludgy Patent Fixes and Define the Non-Obvious*, *Wired* (Nov. 16, 2012)<sup>16</sup>; Michael Abramowicz & John Duffy, *The Inducement Standard of Patentability*, 120 *YALE L.J.* 1590 (2012).<sup>17</sup>
- Escalating fees: As discussed above, the explosion in NPE litigation is fueled by software patents. Moreover, as compared to operating companies, NPEs assert patents much later in the patent term. *See* Brian Love, *An Empirical Study of Patent Litigation Timing: Could a Patent Term Reduction Decimate Trolls Without Harming Innovators?* (August 30, 2011).<sup>18</sup> There is little or no social value—in terms of technology transfer and development—in NPEs asserting patents at the very end of their term. The PTO should consider using its fee-setting authority under the Leahy-Smith America Invents Act (AIA), Pub. L. 112-29, Section 10, to implement sharply escalating fees to deter this practice. *See generally* Brian Love, *Let's Use Patent Fees to Stop the Trolls*, *Wired* (Dec. 20, 2012).<sup>19</sup>
- Record and transcribe examiner interviews: The work of the PTO—especially arguments presented by applicants and responses from examiners—must be public. Interview Summary form PTOL 413 is no substitute for a complete interview record. Summaries are often too vague and brief to provide meaningful notice to the public. The lack of a full record means that applicants can make arguments in interviews without facing the estoppel issues that would accompany a written filing. The PTO should record all examiner interviews.
- Improve prior art searching for software-related patents: A number of factors—such the absence of standardized language and widely scattered, non-patent art—

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<sup>16</sup> Available at <http://www.wired.com/opinion/2012/11/lets-get-rid-of-kludgy-patent-fixes-and-define-the-non-obvious>.

<sup>17</sup> Available at <http://www.yalelawjournal.org/images/pdfs/974.pdf>.

<sup>18</sup> Available at <http://ssrn.com/abstract=1917709> (forthcoming in *University of Pennsylvania Law Review*).

<sup>19</sup> Available at <http://www.wired.com/opinion/2012/12/how-to-stop-patent-trolls-lets-use-fees>.

make prior art searching challenging for software. In EFF's view, this has contributed to many low-quality software patents being issued. By allowing third-party submissions, the AIA has the potential to massively expand examiners' access and review of prior art. EFF applauds efforts such as the PTO's crowdsourcing initiative with Stack Exchange. *See* Press Release, 12-60, USPTO Encourages Third Parties to Participate in Review of Pending Patent Applications (Sept. 20, 2012).<sup>20</sup> The PTO should continue such efforts and consult extensively with the software community to maximize the benefit of third-party submissions.

EFF would be glad to provide more information about any of these topics if the PTO issues a request for comments.

Respectfully submitted,

/s/

Electronic Frontier Foundation

Julie P. Samuels

Staff Attorney and The Mark Cuban Chair to Eliminate Stupid Patents

Daniel Nazer

Staff Attorney and Policy Analyst

Michael Barclay, Reg. No. 32,553

EFF Fellow

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<sup>20</sup> Available at <http://www.uspto.gov/news/pr/2012/12-60.jsp>.