From: Daniel Nazer
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To: QualityApplications_Comments
Subject: Comments of the Electronic Frontier Foundation Regarding Preparation of Patent Applications

Attn: Nicole D. Haines

I have attached comments from the Electronic Frontier Foundation in response to the request Regarding the Preparation of Patent Applications, Docket No. PTO–P–2011–0046.

Best regards,
Daniel

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ELECTRONIC FRONTIER FOUNDATION

IN THE MATTER OF REQUEST FOR COMMENTS AND NOTICE REGARDING PREPARATION OF PATENT APPLICATIONS

Docket No. PTO–P–2011–0046

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 Regarding the Preparation of Patent Applications, Docket No. PTO–P–2011–0046, published January 15, 2013.

EFF is a nonprofit civil liberties organization that has worked for more than 20 years to protect consumer interests, innovation, and free expression in the digital world. EFF and its more than 20,000 dues-paying members have a strong interest in helping the courts and policy-makers in striking the appropriate balance between intellectual property and the public interest. As an established advocate for the interests of consumers and innovators, EFF has a perspective to share that might not be represented by other persons and entities who submit comments in this matter, where such other commentators do not speak directly for the interests of consumers or the public interest generally. As part of its mission, the EFF has often served as amicus in key patent cases, including *Bilski v. Kappos*, 130 S. Ct. 3218 (2010); *Quanta Computer, Inc. v. LG Electronics Inc.*, 553 U.S. 617 (2008); *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007); *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006), *Microsoft v. i4i Ltd. P'ship*, 131 S.Ct. 2238 (2011); and *CLS Bank v. Alice Corp*, No. 2011-1301 (Fed. Cir. 2013).

I. The PTO should act to ensure patent claims provide clearer notice.

As a initial matter, EFF applauds the PTO for working to improve the clarity of patent applications. Vague and overbroad patent claims, especially those relating to software, cause enormous harm. When patent claims are unclear they cannot provide adequate notice to potential infringers. *See generally* US Federal Trade Commission, *The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition* 80-92 (March 2011) ("2011 FTC Report").[1] Patent claims are so unclear that, even after considering expert evidence and extensive briefing, judges routinely disagree as to their meaning. *See* Michael Risch, *The Failure of Public Notice in Patent Prosecution*, 21 HARV. J.L. & TECH. 179, 192 (2007) (noting the 30 percent appellate reversal rate of district court claim construction rulings). Lack of adequate notice means innovators work in the shadow of unavoidable litigation risk. When creators can't adequately

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[1] Available at www.ftc.gov/os/2011/03/110307patentreport.pdf

evaluate their risk, the patent system acts as a disincentive to innovation and creation. *See* 2011 FTC Report *id.* at 75-80.

The lack of clarity in software-related patent claims makes these patents attractive tools for patent assertion entities (PAEs) who can "use vague language … to gain undeserved scope." *See* James Bessen & Michael J. Meurer, PATENT FAILURE 200 (2008). In 2012, more than 50% of patent lawsuits were brought by PAEs. *See* Sarah McBride, *US patent lawsuits now dominated by 'trolls'*, Reuters, Dec. 10, 2012.[2] The explosion in litigation brought by PAEs (most of which involve software patents) can, at least in part, be traced to vagueness problems with patent claims.

While EFF supports new ways to improve claim *clarity*, we urge that these proposals will only improve claim *quality* if they are accompanied by vigorous application of the doctrines that police claim scope. To ensure claim quality, examiners must be diligent in enforcing requirements—such as written description, enablement, and 35 U.S.C. § 112(f)—that prevent applicants from claiming beyond the scope of their disclosure. We discuss these concerns in detail in Part III below.

II.   Responses to the specific proposals.

       1.   Applicants should enter claims into a standardized template where each limitation is entered into a field.

The use of a standardized template for the submission of patent claims will help with both examination and searching of patent claims. Web forms are a basic technology that can easily be used by applicants to divide patent claims into the preamble, transitional phrases, and claim limitations. Without such information it can be difficult to determine which textual elements make up particular limitations. *See* Mark Lemley & Dan Burk, *Quantum Patent Mechanics*, 9 LEWIS & CLARK L. REV. 29, 29 (2005) ("There are no hard and fast standards in the law by which to make the 'right' decision as to either the size of the textual element."). Thus, collecting this information directly from the applicant will make examination easier and, if implemented well, will also make patent claims easier to search.

If the PTO implements this proposal, examiners will need to be vigilant not to let applicants submit long units of text as single limitations that should more properly be divided into multiple limitations. An applicant seeking broad coverage has an incentive to divide claim language into as few limitations as possible. *See id.* at 29 ("Define an element narrowly—limit it to a single word, say—and you will tend to narrow the resulting patent . . . . By contrast, defining an element broadly tends to broaden the patent."). Thus, applicants should not be given the final word on how the text of a claim is best divided into limitations. Any system should allow the examiner to easily modify the applicant's input and keep a clear record of such modifications.

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[2] Available at http://www.reuters.com/article/2012/12/10/patents-usa-lawsuits-idUSL1E8NA55M20121210

The use of a standard template for claims presents an excellent opportunity for the PTO to improve the notice function of patents. If implemented well, the proposal will create a text-searchable, structured database of pending and issued patent claims. A database with a user-friendly interface would be especially useful for those trying to navigate the system without expensive professional help.

To maximize this benefit to the public, PTO should avoid using proprietary software. Instead, data should be available in an open format (such as MySQL, XML, or JSON).[3] Optionally, the PTO could offer an application programming interface that lets developers query the database. At a minimum, however, patent claim data should be easily accessible and downloadable as structured data in an open standard format. This will allow the public to easily search patent claims and will allow comprehensive analysis of claim data.

2. The PTO should require applicants to identify support for each claim limitation.

EFF strongly supports this proposal. Linking claim limitations to support in the specification will make the prosecution history of each patent far more informative. Those seeking to understand a claim will immediately be able to locate the most relevant passages from the specification. And, as the call for comments notes, this will be especially helpful where the applicant amends or adds new claims. Both the examiner and the public will far more easily be able to judge whether an amended claim is sufficiently enabled and described.

Implementation of this proposal would be straightforward. The template used to input claims would include an additional field associated with each claim limitation. The applicant would input the support from the specification into that field by simply entering any diagram numbers plus the page and paragraph numbers where support can be found in the specification (applicants should number paragraphs in the specification pursuant to 37 C.F.R. 1.52(b)(6)).

Some may argue that this proposal is too burdensome for applicants. But applicants should be able to quickly and easily locate support for each claim limitation. If they cannot, then the claim is highly likely to be invalid under 35 U.S.C. § 112(a) for failure to provide an adequate written description. The inventor is best placed to know what parts of the specification support particular claim limitations and should not be allowed to push this (often very challenging) task onto examiners and the public. Moreover, this information will help courts properly limit patent scope to what the inventor has claimed and disclosed.

3. Requiring applicants to indicate whether examples are limiting will only assist if 35 U.S.C. § 112(a) is applied diligently.

There is currently no clear test for whether an example in the specification is limiting. *See Retractable Technologies, Inc. v. Becton, Dickinson & Co.*, 659 F.3d 1369, 1370 (Fed. Cir. 2011), *cert. denied*, 133 S.Ct. 833 (Jan. 7, 2013) (Moore, J., dissenting from denial of rehearing

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[3] The World Wide Web Consortium (W3C) has published a helpful guide on publishing open government data at http://www.w3.org/TR/gov-data/.

en banc) (noting that claim construction "rules are still ill-defined and inconsistently applied, even by us"). Moreover, there has been debate within the Federal Circuit regarding when to properly import a limitation from the specification. *Compare Retractable Technologies, Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2011) (adopting a narrow construction "to tether the claims to what the specifications indicate the inventor actually invented") *with Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 632 F.3d 1246, 1255-56 (Fed. Cir. 2011) (declining to construe claims narrowly in light of specification); *see also* Wegner, H.C., *Arlington Indus. v. Bridgeport Fittings: The 20 Year Claim Construction Debate,* IP Frontline (Jan 24, 2011)[4] ("Until there is a final resolution of this debate there will never be clarity in claim construction at the Federal Circuit."). Requiring patentees to indicate whether examples in the specification are limiting could short-circuit this debate. Courts might look directly to the prosecution history to determine whether to import a limitation from the specification.

However, EFF fears that this would not be helpful in practice. As a practical matter, if applicants are required to make an explicit decision, they will rarely, if ever, state that an example in the specification is limiting. Patent prosecutors are likely to be **very** reluctant to narrow claim scope with such an admission. *See Immunocept, LLC v. Fulbright & Jaworski, LLP*, 504 F. 3d 1281 (Fed. Cir. 2007) (law firm sued for malpractice for using more limiting transitional phrase "consists of" instead of "comprise" in patent claim). Accordingly, there may be little value in asking applicants whether or not examples are limiting—they will simply state that all examples are illustrative. Thus, if this proposal is adopted, the examining core will need to diligently evaluate whether the applicant has provided support for expanding the scope of claims beyond the examples.[5]

4. Requiring applicants to indicate whether a claim preamble is limiting will only assist if 35 U.S.C. § 112(a) is applied diligently.

Requiring patentees to indicate whether a claim preamble is limiting could help make claim construction more determinate. *See Catalina Marketing Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F. 3d 801, 808 (Fed. Cir. 2002) ("No litmus test defines when a preamble limits claim scope."). EFF is concerned, however, that patent prosecutors seeking broad coverage will routinely indicate that preambles are not limiting. Thus, as with the previous proposal, this policy will improve patent quality only if it is combined with a diligent enforcement of the written description and enablement requirements of 35 U.S.C. § 112(a).

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[4] Available at http://www.ipfrontline.com/depts/printabletemplate.aspx?id=24829

[5] In Part III below, we discuss the written description requirement in more detail.

5. The PTO should apply § 112(f) to method claims.[6]

As with the two previous proposals, EFF is concerned that requiring applicants to indicate whether 35 U.S.C. § 112(f) applies to claim limitations will lead to applicants routinely indicating that it does not apply, even in cases where it should. Accordingly, even if applicants are asked to indicate whether § 112(f) applies, the PTO must independently evaluate whether each claim limitation should be subject to means plus function analysis.

a. Identification of claim elements in method claims 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 (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 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

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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, *regardless of whether or not the applicant wishes for it to apply*. The PTO should instruct Examiners to apply these 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.

b. Examination of § 112(f) claim elements

After an Examiner determines that a claim element is subject to § 112(f), examination should proceed as follows. First, the examiner should consider whether the specification discloses sufficient structure corresponding to the §112(f) claim limitations. Software patents containing claim elements subject to § 112(f) that do not detail actual algorithms implementing those functional steps are invalid for indefiniteness. *See, e.g., Aristocrat Techs. Australia Pty Ltd. 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).

Cases like *Aristocrat Techs.* and *Ergo Licensing* 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. *See also* Part II.6 below. 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.

If 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* Mark A. Lemley, *Software Patents and the Return of Functional Claiming*, Stanford Public Law Working Paper No. 2117302 (July 25, 2012), Wis. L. Rev. (forthcoming) ("Lemley") at 40-42. As discussed in Part 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.

c. 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 (this could be done using the standardized template contemplated in many of the proposals in this request). This helps ensure 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)) only to 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's very important that the applicant be strictly required to state whether or not 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, 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.

6. 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 section, 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 that the applicant provide working code for each claim. While the current law does not require working code, it does requires 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 a .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 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. *See* 2011 FTC Report at 80-92.

III.   The PTO should diligently apply the written description requirements, especially to software-related patents.

Many of the proposals in this request for comments relate to the written description and enablement requirements of 35 U.S.C. § 112(a). By requiring applicants to provide more information about claims and support, these proposals could add *clarity*. But they will only improve patent *quality* if the PTO ensures that overbroad patents do not issue. A crucial way for the PTO to police patent overbreadth is to apply existing written description requirements for biotechnologies to software. It appears that the PTO *may* have recognized this proposition in the current version of MPEP ¶ 2161.01, but only very recently.[7]

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*) 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,

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[7] *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 Eighth edition Rev. 8 (July 2010), available at 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.

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 '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).

. . .

"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." [*Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 199 F.3d 1559, 1568 (1997) (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.

. . .

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.

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).

Respectfully submitted,

/s/
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