

REPORT

**FEDERAL CIRCUIT HOLDS IN *BILSKI* CASE THAT
PROCESS CLAIMS MUST COMPLY WITH THE
"MACHINE-OR-TTRANSFORMATION" TEST**

November 7, 2008

I. Summary

In its third recent decision concerning patentable subject matter,¹ on October 30 a divided *en banc* U.S. Court of Appeals for the Federal Circuit held in *In re Bilski* that process claims must (1) be tied to a particular machine or apparatus; or (2) transform a particular article into a different state or thing to satisfy the requirements of 35 U.S.C. §101.² The majority opinion expressly held that the "useful, concrete and tangible result" test from *State St. Bank & Trust v. Signature Fin. Group*³ should no longer be relied upon for §101 inquiries.

Judge Michel wrote the majority opinion, joined by Judges Lourie, Schall, Bryson, Gajarsa, Linn, Dyk, Prost and Moore.

Judge Dyk wrote a concurring opinion, joined by Judge Linn. The concurring opinion focused on the legislative history of the U.S. patent system as a whole, and argued that adopting any one of the dissenting opinions would amount to judicial legislation.

Judges Newman, Mayer and Rader filed separate dissenting opinions. Judge Newman argued that the majority decision will result in an overbroad exclusion of

process patents and is "contrary to statute, contrary to precedent and a negation of the constitutional mandate" to promote the useful arts and sciences.

Reaching the opposite conclusion, Judge Mayer argued that business method patents hinder rather than promote innovation, and that affording patent protection to business methods lacks constitutional and legislative support.

Judge Rader opined that the majority could have ruled in a single sentence: "Because *Bilski* claims merely an abstract idea, this court affirms the Board's rejection."

II. Background

The claims on appeal are directed to a method of hedging risk in the field of commodity trading by executing various transactions based on the fluctuating price of a particular commodity. The claims are not limited to transactions involving the commodity itself, but also extend to intangible legal rights such as options to buy the commodity.

Claim 1 recites:

A method for managing the consumption risk costs of a commodity sold by a commodity provider at a fixed price comprising the steps of:

(a) initiating a series of transactions between said commodity provider and consumers of

¹ See also *In re Nuijten*, 500 F.3d 1346 (Fed. Cir. 2007) *cert denied* ___ U.S. ___ (2008), the subject of our November 6, 2007 Special Report; and *In re Comiskey*, 499 F.3d 1365 (Fed. Cir. 2007), the subject of our October 22, 2007 Special Report.

² *In re Bilski*, ___ F.3d ___ (Fed. Cir. 2008) (*en banc*).

³ 149 F.3d 1368 (Fed. Cir. 1998).

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said commodity wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumer;

(b) identifying market participants for said commodity having a counter-risk position to said consumers; and

(c) initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk position of said series of consumer transactions.

In the Patent Office, the Board of Patent Appeals and Interferences (BPAI) affirmed the Examiner's rejection of all claims as nonstatutory. Noting that the claims did not recite any apparatus, the Board held that process claims need not recite a specific apparatus in order to comply with the requirements of §101 if the claims recite "a transformation of physical subject matter from one state to another."

The Board compared the Bilski claims to a hypothetical patent claim directed to mixing two chemical compounds and forming a new chemical substance or mixture. The Board reasoned that the hypothetical claim was clearly directed to statutory subject matter "although no apparatus is claimed to perform the step and although the step could be performed manually." However, the claims at issue are directed to the transformation of "non-physical financial risks and legal liabilities of the commodity provider, the consumer, and the market participants," and thus, the claims "preempt[] any and every possible way of performing the steps of the [claimed process], by human or by any kind of machine or by any combination thereof," and therefore are nonstatutory.

The Board also held that the claimed invention did not produce any "useful, concrete and tangible result," citing *State Street*.

III. The Federal Circuit Opinions

A. The Majority Opinion

Section 101 requires patent-eligible subject matter to be a (1) process; (2) machine; (3) manufacture; or (4) composition of matter. Further, process claims will not be granted patent protection if directed to "laws of nature, natural phenomena, [or] abstract ideas."⁴ It was undisputed that the claimed "business method" at issue is a process and not a machine, manufacture or composition of matter. The majority held that process claims must (1) be tied to a particular machine or apparatus; or (2) transform a particular article into a different state or thing.

1. The Machine Basis for a Statutory Process

The majority viewed the machine basis for a statutory process as stemming from a long line of cases that employ a "preemption" doctrine for determining patent-eligible subject matter.⁵ That is, while claims drawn to fundamental principles *per se* are unpatentable, "an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection."⁶

Expanding on this doctrine, the majority explained that a claimed process involving the application of a fundamental principle by a particular machine or apparatus would not pre-empt applications of the principle that do not also use the recited machine or apparatus. However, the majority cautioned that "insignificant postsolution" activity will not transform an otherwise unpatentable method claim into a patentable process. In that situation, the "pre-emptive footprint" of the claim is not reduced if the fundamental principle has no utility other than operating on the claimed machine or apparatus. As an example, the majority pointed to the data-conversion algorithm claimed in *Benson*, which had

⁴ *Diamond v. Diehr*, 450 U.S. 175, 185 (1981).

⁵ See generally *Diehr*, 450 U.S. 175; *Tilghman v. Proctor*, 102 U.S. 707, 729 (1880); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972); *Parker v. Flook*, 437 U.S. 584 (1978).

⁶ *Diehr*, 450 U.S. at 187 (emphasis in original).

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no utility other than operating on a digital computer.⁷ Therefore, tying the claimed process to a digital computer still encompassed every possible application of the algorithm and thus pre-empted the public's ability to use this fundamental principle.⁸

Applicants had admitted during prosecution that the claimed method was not limited to use within a computer or tied to any other tangible apparatus. Therefore, the majority focused on the transformation basis for statutory processes.

2. The Transformation Basis for a Statutory Process

If not tied to a particular machine or apparatus, a process claim is still eligible for patent protection if the claim transforms an article into a different state or thing. Extending their discussion of postsolution activity, the majority reiterated that the transformation "must be central to the purpose of the claimed process" rather than an irrelevant recitation designed to circumvent the protections of §101.

The majority also provided several examples from Federal Circuit precedents of patent-eligible process claims and the "articles" that are transformed. Clearly, a process claiming a physical or chemical transformation of a physical object complies with §101. However, the transformation need not be physical. For example, transforming data is patent-eligible if the data represents physical or tangible objects.⁹ Similarly, transforming raw data into a "visual depiction of a physical object on a display" is patent eligible.¹⁰

3. The Majority Rejected Other Long-Applied Tests

The majority expressly rejected two long-applied tests for determining patent-eligible subject matter and reiterated that the "machine-or transformation" test is the test to be applied. According to the majority, the

Freeman-Walter-Abele test¹¹ is "inadequate" because it improperly evaluates claims based on individual elements rather than considering the claims as a whole. The *State Street* "useful, concrete and tangible result" test is also inadequate because this test was "never intended to supplant the Supreme Court's test." The majority did recognize, though, that the production of such a result "may in many instances provide useful indications of whether a claim is drawn to a fundamental principle or a practical application of such a principle." The majority also dismissed the PTO-advocated "technological arts" test as too vague.

Finally, the majority noted that whether a claim is novel or non-obvious over prior art is irrelevant to a §101 analysis, and that Examiners should satisfy themselves that a claim is statutory separate from determining whether the claim is patentable under §102 or §103.

4. The Majority's Analysis of the Claims at Issue

With regard to the *Bilski* claims, the majority held that the claimed process does not constitute patentable subject matter for two reasons. First, the claims admittedly are not tied to any machine. Second, the claims do not involve any physical transformation of a tangible article, nor do the claims recite data representative of any physical object or substance. The claimed process merely involves mental and mathematical processes of identifying transactions that would adequately hedge risk.

Applicants argued that each step of the claimed process requires physical activity (i.e., a commodities transaction). However, the majority dismissed this argument, again holding that the "machine-or-transformation" test is the correct inquiry, not whether individual method steps can only be practiced by a series of physical acts. The claims recited no physical

⁷ 409 U.S. at 71-72.

⁸ *Id.*

⁹ *In re Abele*, 684 F.2d 902, 908-909 (CCPA 1982).

¹⁰ *Id.*

¹¹ The *Freeman-Walter-Abele* test has two steps: (1) determining whether the claim recites an "algorithm" within the meaning of *Benson*; and (2) determining whether that algorithm is "applied in any manner to physical elements or process steps." *Abele*, 684 F.2d at 905-907.

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transformation, and thus the "physicality" of the claimed process was insufficient to satisfy §101.

The majority also noted that the claimed process transforms legal rights rather than physical objects. While these rights could involve physical objects such as coal and other such commodities, the physical objects were not themselves transformed, nor did the claimed process involve an electronic signal or data representing the physical commodities.

Therefore, the majority opinion affirmed the Board's holding.

B. The Concurring and Dissenting Opinions

Judge Dyk's concurring opinion focused on the legislative history of the U.S. patent system and the historical origins of patent law as a whole. Judge Dyk argued that adopting any of the dissenting opinions would amount to judicial legislation rather than interpretation of the patent laws.

Judge Newman filed a vigorous dissent that was longer than the majority opinion. Judge Newman was alone in her view that the claimed process complied with the requirements of §101. According to Judge Newman, the appealed claims merely were broad, and not a mere abstraction or mathematical algorithm. Believing that business methods are important innovations that should be protected rather than impeded, Judge Newman argued that the majority opinion will result in an overbroad exclusion of process patents, and is not supported by past case law or statutory interpretation.

Judge Mayer, on the other hand, expressed a clear disapproval for business method patents in his dissent, and argued that business method patents hinder rather than promote innovation. Judge Mayer further argued that affording patent protection to business methods lacks constitutional and legislative support.

Judge Rader's dissent expressed concern over the impact of the majority decision. Although he agreed that the claimed process was unpatentable, Judge Rader argued that the majority opinion provided excessive discussion of the law surrounding patentable subject matter that would only muddle an already unsettled body

of law. Judge Rader argued that the majority could have ruled in a single sentence: "Because *Bilski* claims merely an abstract idea, this court affirms the Board's rejection."

We are monitoring whether Applicants petition the U.S. Supreme Court for *certiorari*, and if so, whether the Supreme Court agrees to accept the case for review. Any request for such review must be filed by January 28, 2009.

V. Recommendations

It is likely that USPTO Examiners will soon begin rejecting at least software and business method claims based on the *Bilski* decision. The attached May 15, 2008 USPTO Memorandum provides the current guidelines that Examiners are to follow. The guidelines are consistent with the USPTO's position argued before the Federal Circuit, which was substantially affirmed by the Federal Circuit. Based on the *Bilski* decision, the USPTO likely will update the guidelines to provide further detail. However, given the unsettled nature of the law surrounding §101, Applicants may wish to wait until claims are otherwise in condition for allowance before eliminating claims in response to *Bilski*-based §101 rejections, particularly if Applicants do not wish to limit their broadest claims to a particular machine or transformation for commercial reasons. The scope of patent-eligible subject matter could change again during the pendency of a single patent application. For this reason, prematurely canceling or limiting claims to overcome patentable subject matter rejections might unnecessarily limit the scope of a process claim without guaranteeing compliance with §101.

Until judicial guidance becomes clearer, several simple strategies can be utilized to avoid potential §101 rejections without significantly sacrificing claim scope in many cases.

A. Data Representative of Tangible Objects

The *Bilski* court clearly stated that the transformation of data representing a physical or tangible object would be eligible for patent protection.

The *Bilski* majority opinion distinguished the independent and dependent claims of *Abele*. The

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independent claims did not specify the type of data, what the data represented or where the data originated. However, the dependent claims of *Abele* recited that the data was "X-ray attenuation data" and thus represented physical and tangible objects such as bones, organs and body tissues.¹² While this distinction was not central to the holding of *Abele*, the majority opinion in *Bilski* stated that the dependent claims of *Abele* were patent-eligible under §101.

Under this guidance, claims reciting, e.g., "converting data representing [a physical object] into image data" should avoid a §101 rejection, without unreasonably sacrificing claim scope. We believe that claims reciting "specific transformations" (e.g., filtering, sampling, etc.) of data representing images (such as pixel data or text data) should still comply with §101 under *Bilski*. In our opinion, text and images are both tangible objects and thus the transformation of data for such underlying tangible objects should be considered patent-eligible subject matter.

B. Machine-Implemented Software Claims

A claimed process may be implemented within a "machine or apparatus" and comply with the *Bilski* test. However, such implementation cannot be mere "postsolution activity," i.e., trivial ties to a machine where the claimed process has no utility outside the machine.

For certain process claims, e.g., those that simply analyze data (without transforming the data), it may be necessary to recite the apparatus that will eventually utilize the data in order to comply with the "machine" prong of the machine-or-transformation test. For example, claims reciting the display of images created from the data, on a screen or on a recording medium, by a display apparatus or image forming apparatus might be considered sufficiently tied to a machine so as to comply with the requirements of §101.¹³

¹² *Abele*, 684 F.2d at 908-909.

¹³ In *Abele*, the court held unpatentable a process of graphically displaying variances of data from average values. *Id.* This process was not tied to a display screen, but rather the claimed process "displayed" the raw data. *Id.* Therefore, the Applicants in *Abele* argued that their

Claiming specific implementations of an invention also should help to comply with §101 even regarding inventions relating to "business methods." For example, although the PTO or a court might hold non-statutory a claim that generically relates to the management of "resources," a claim that more specifically recites management of specific physical resources (e.g., paper, toner, automotive parts, etc.) more likely would pass muster under §101.

We also believe that it is important to distinguish a "meaningful limitation" from a "non-obvious limitation." The *Bilski* majority opinion stated that insufficient postsolution activity will not transform an otherwise unpatentable method claim to a patent-eligible process. The court cautioned that "meaningful limitations" would render a claim patent-eligible if such limitations reduce the pre-emptive footprint of a claimed algorithm or fundamental principle. However, the majority did not indicate that such limitations need to overcome potential §102 or §103 rejections. Therefore, a claimed algorithm can still be the focus of §102 or §103 arguments, while the claimed machine implementation or transformation step can independently be the focus of §101 inquiries.

C. "Computer-Readable Medium" Claims Are Not Affected

So-called "Beauregard" claims recite a physical embodiment of a computer program as, for example "a computer-readable memory medium storing a computer program, the program comprising instructions for causing the computer to execute the steps of" *Bilski* is directed to process claims, and Beauregard claims recite a manufacture, not a process.¹⁴ Therefore, the *Bilski* decision should not affect such claims, and we accordingly recommend that such claims be included in applications directed to software-type processes.

claimed process satisfied the transformation prong of the machine-or-transformation test, not the machine prong.

¹⁴ *In re Nuijten*, 500 F.3d 1346 (Fed. Cir. 2007); *but see Nuijten*, 500 F.3d 1346, Linn, J. (concurring in part and dissenting in part) "To allow a patent on a storage medium containing the signal but to deny one to the real underlying invention 'make[s] the determination of patentable subject matter depend simply on the draftman's art' in the sense criticized by the Supreme Court."

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D. Specifications Should be Drafted to Allow for Meaningful Limitations to be Recited in the Claims

Claims that are rejected as unpatentable under §101 may need to be amended to comply with the machine-or-transformation test articulated by the *Bilski* majority. Therefore, specifications should be drafted to allow for practitioners to amend the claims during prosecution, if necessary, to overcome potential §101 rejections.

For example, specifications should list a number of structural "machines" that could be tied to the claimed process in order to support claims that comply with the machine prong of the machine-or-transformation test.¹⁵ Further, specifications should describe what underlying object is represented by a particular set of data, or where this data originated within a disclosed structure. It may not be necessary to amend process claims to recite the above features, but providing basis in the specification for such a modification may eventually make the difference between allowance and abandonment.

* * * * *

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¹⁵ For example, specifications should describe how the algorithm is implemented within a computer, display device or printer.



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MEMORANDUM

DATE: May 15, 2008
TO: Technology Center Directors
FROM: John J. Love *John J. Love*
Deputy Commissioner for Patent Examination Policy

SUBJECT: **Clarification of "Processes" under 35 USC § 101**

Last week, the U.S. Patent & Trademark Office presented its views on subject matter eligibility of process claims to the Court of Appeals for the Federal Circuit in *In re Bilski*, Appeal No. 2007-1130. This memo is to ensure that examiners are examining applications consistent with that view. In particular, this clarification is provided to assist examiners in determining, on a case by case basis, whether a **method** claim qualifies as a patent eligible process under 35 USC § 101. The following discussion is intended to be used in conjunction with the Interim Guidelines when evaluating whether a claimed invention falls within a statutory category of invention. (See MPEP § 2106.IV.B: *Determine Whether the Claimed Invention Falls Within An Enumerated Statutory Category.*)

As explained in the Interim Guidelines, the first step in determining whether a claim recites patent eligible subject matter is to determine whether the claim falls within one of the four statutory categories of invention recited in 35 USC § 101: process, machine, manufacture and composition of matter. The latter three categories define "things" or "products," while a "process" consists of a series of steps or acts to be performed. For purposes of § 101, a "process" has been given a specialized, limited meaning by the courts.

Based on Supreme Court precedent¹ and recent Federal Circuit decisions, the Office's guidance to examiners is that a § 101 process must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing.² If neither of these requirements is met by the claim, the method is not a patent eligible process under § 101 and should be rejected as being directed to non-statutory subject matter.

An example of a method claim that would not qualify as a statutory process would be a claim that recited purely mental steps. Thus, to qualify as a § 101 statutory process, the claim should positively recite the other statutory class (the thing or product) to which it is tied, for example by identifying the apparatus that accomplishes the method steps, or positively recite the subject

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² The Supreme Court recognized that this test is not necessarily fixed or permanent and may evolve with technological advances. *Gottschalk v. Benson*, 409 U.S. 63, 71 (1972).

matter that is being transformed, for example by identifying the material that is being changed to a different state.

If the claimed method is determined to be a statutory subject matter eligible process, the inquiry proceeds to determine whether the claimed invention falls within a judicial exception (law of nature, natural phenomena, or abstract idea), as explained in detail in the Interim Guidelines. Determining whether the claimed invention is directed to a statutory category of invention is a **separate inquiry** from whether the claimed invention falls within a judicial exception and whether the invention is limited to a specific practical application of a judicial exception. A complete examination of the pending claims should be made so that all potential rejections and objections are raised normally in the first Office action on the merits. Examiners should use the criteria in this memo for the first step in the analysis for statutory subject matter eligibility of process claims under § 101 and refer to the Interim Guidelines (MPEP 2106.IV.C.) for the additional analysis with respect to determining whether a claim is directed to a judicial exception and whether the invention has a practical application.

The state of the law with respect to statutory subject matter eligibility under § 101 is evolving and is presently an issue in several cases under appeal at the Federal Circuit. As the pending cases on appeal are decided, the Interim Guidelines will be revised to reflect any additional guidance the Office receives from the courts. Examiners are encouraged to seek assistance from their managers and pertinent training materials.