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Forward to the Past

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Forward to the Past

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Introduction

The Supreme Court's decision in *Bilski v. Kappos*[1]—banning all patents claiming ''abstract ideas,'' but refusing to categorically bar any particular type of patent—represents a return to the Court's past patentable subject matter jurisprudence. In so returning, the Court determined that business methods could potentially be patentable. The decision reverses an attempt by the Federal Circuit Court of Appeals to draw bright-line subject matter rules that had the effect of limiting patentable subject matter.

The Court's preference for a flexible but uncertain standard is not surprising given recent patent decisions. In the last few years, the Court has struck down several of the Federal Circuit's bright-line rules; instead, it required case-by-case consideration to determine obviousness, application of the doctrine of equivalents, and injunctive relief.[2]

In *Bilski*, however, the Federal Circuit's chosen line was not terribly bright, and it potentially limited a wide range of patentable subject

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[1] 561 U.S. ____, 130 S. Ct. 3218 (2010) [hereinafter Bilski II].

[2] See generally KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398 (2007) (holding patent invalid for being obvious); MedImmune, Inc. v. Genentech, Inc., 549 U.S. 118 (2007) (holding that a licensee was not required to breach license agreement before seeking declaratory judgment of patent invalidity); eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006) (typical four-factor test for injunctive relief applies to disputes under the Patent Act); Festo Corp. v. Shoketsu Kinzoko Kogyo Kabushiki Co., 535 U.S. 722 (2002) (claim amendment is not an absolute bar to infringement under the doctrine of equivalents).

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matter in both historic and modern technologies.[3] This was the great fear of modern technology companies: that the Court would use this case to strike down all software patents.

In the end, then, the Court's vagueness may be preferable to the Federal Circuit's vagueness cloaked in bright-line clothing. The Court clearly struggled to apply an unambiguous statute in a way that would not create overbroad and underinventive patents that thwart innovation—while at the same time leaving open the possibility that new intangible technologies might be patentable.

This review considers these issues in four parts.

Part I discusses Mr. Bilski's patent application and the Court's ruling that it is an unpatentable abstract idea.

Part II takes a step back and considers how the law led to the growth of business methods patents. In particular, this part discusses how the Federal Circuit applied Supreme Court precedent to Bilski's application in an effort to reign in business methods.

Part III critically analyzes the Federal Circuit's opinion, the Supreme Court's granting of certiorari, and oral argument. It shows how lower courts have struggled to apply unclear Supreme Court precedent—precedent that is really concerned with patentability standards unrelated to eligible subject matter.

Part IV describes in further detail the Court's various opinions in *Bilski* and their reasoning. The discussion shows that the majority—as in previous cases—reached the right result through unprincipled, contradictory, and ultimately unrepeatable reasoning. Indeed, the Court based its ruling on the very same cases that led to the Federal Circuit's rule rejected here.

Part V discusses *Bilski*'s implications for the future of patent jurisprudence and innovation.

I. *Bilski* and Abstract Ideas

Bernard Bilski and Rand Warsaw (referred to collectively as Bilski) claim to have invented a method of hedging risk in commodities trading. The primary claim at issue includes the following steps:

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

[3] In re Bilski, 545 F.3d 943 (Fed. Cir. 2008) [hereinafter Bilski I].

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> consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumers;
>
> (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.[4]

The method involved selling commodities at a fixed price to consumers and ''transacting'' with other market participants at a fixed price. The second set of transactions is not specified, and thus might be buying, selling, or trading options and futures. Hedging, in general, is well known, though the inventors here claim to have come up with a better way to calculate prices. Because hedging is not new, the claim as written appears non-inventive; it is not limited to the ''better'' way to calculate prices.

Furthermore, while the patent application's description of the hedging process clearly requires a computer,[5] the claim is not so limited and could quite easily encompass ordinary hedging transactions.

A. Bilski as a Test Case

Despite its apparent weakness on a variety of fronts, the U.S. Patent and Trademark Office chose to use Bilski's patent application as a vehicle to obtain judicial guidance about what *types* of inventions can be patentable. Thus, the patent application was rejected by the PTO as not embodying patentable subject matter, *and for no other reason*.

In the past, applications were rejected on multiple grounds, and the Federal Circuit—the only court that hears appeals from PTO proceedings—rarely rejected patents solely on subject matter grounds. By rejecting this patent based on its subject matter alone, rather than on its merits, the court was required to consider the ''patentable subject matter'' question.

[4] Bilski II, 130 S. Ct. at 3223–24.

[5] See Mark A. Lemley et al., Brief Amici Curiae of 20 Law and Business Professors in Support of Neither Party, Bilski II, 1305 S. Ct. 3218 (2010) (No. 08-964).

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Page 335

The PTO thus rejected Bilski's application because the claims were not the type of claims allowed by the Patent Act. Understanding why requires some discussion about patentable subject matter.

B. Patentable Subject Matter

Section 101 of the Patent Act sets forth the type of inventions that can be patented: ''Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.''[6] The statutory phrase ''conditions and requirements'' encompasses traditional criteria: novelty, non-obviousness, utility, description, and enablement.

Because of its procedural posture, the sole issue before the Court was the type of invention and not any of these other requirements. The question, at bottom, is whether Section 101 bars Bilski's (or anyone else's) patent application because of its subject matter, no matter how novel, non-obvious, or useful it may otherwise be. As discussed further below, however, the traditional requirements invariably become entwined with the subject matter question.

The words of the statute do not end the inquiry. While it appears that Congress has authorized patenting all processes, machines, manufactures, and compositions of matter, the Court has limited the statute. Several Supreme Court decisions state that abstract ideas, natural phenomena, and products of nature are not patentable subject matter.[7]

Unfortunately, it seems that no one can figure out what constitutes abstract ideas, natural phenomena, or products of nature. Prior Supreme Court and Federal Circuit cases provide little and sometimes contradictory guidance: Abstract ideas are only patentable if they are part of a physical process—but perhaps not if the physical process involves human business transactions. Combining two products of nature can be patentable, except in some cases where the two products continue to do what they always did. Extracting part

[6] 35 U.S.C. §101 (2006).

[7] See Bilski II, 130 S. Ct. at 3253 (Stevens, J., concurring) (''For example we have held that no one can patent 'laws of nature, natural phenomena, and abstract ideas.'''') (quoting Diamond v. Diehr, 450 U.S. 175 (1981)). See also Parker v. Flook, 437 U.S. 584 (1978); Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127 (1948).

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of a product of nature can be patentable, unless the extraction does not sufficiently purify and isolate the new composition from existing material, a difficult and contentious inquiry. Applying a natural phenomenon can be patentable, except that ''simple'' application might be excluded, even though no one had discovered it before.

Bilski is thus the latest in a long line of cases trying to draw the line between patent-eligible processes and unpatentable abstractions that are undeserving of protection no matter by how much the invention clears the patent-issuance bar. It is an important case, however, because it is the first Supreme Court opinion to consider the question in nearly 30 years. *Bilski* caught the attention of many legal observers in part due to the amount of time that has passed without any new subject matter opinions despite the exponential growth of software patenting.

The stakes are quite high for affected industries, in this case software companies. Researchers estimate that between 1987 and 1996 the number of successful software patent applications increased by 16 percent per year,[8] and from 11,143 granted in 1998 to 21,224 in 2008.[9] It is no surprise that 68 amicus briefs were filed in this case, including from IBM, Eli Lilly and Company, and American Express.[10] Indeed, the definition of process might also affect manufacturing, biotechnology, medical diagnostics, and pharmaceutical companies.[11]

C. The Court's Ruling in a Nutshell

The Supreme Court unanimously voted to deny Bilski's patent application as outside the scope of Section 101. A majority of five

[8] James Bessen & Robert M. Hunt, An Empirical Look at Software Patents 16, (Research on Innovation, Working Paper No. 03-17/R, 2004), available at http://www.researchoninnovation.org/swpat.pdf.

[9] United States Patent & Trademark Office, Patent Counts by Class by Year, (May 5, 2009) available at http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cbcby.htm (calculating the total software patents granted in 1998 and 2008 under classes 700 through 717).

[10] Sara Mason, Amicus Briefs for the In re Bilski Case, http://works.bepress.com/cgi/viewcontent.cgi?article= 1003&context= faye_jones (last visited March 24, 2010).

[11] See, e.g., Classen Immunotherapies v. Biogen Idec., 561 U.S. ____, 130 S. Ct. 3541 (2010) and Mayo Collaborative Servs. v. Prometheus Labs., 561 U.S. ____, 130 S. Ct. 3543 (2010) (both granting certiorari and vacating underlying judgment, with remand to reconsider in view of *Bilski* for patents relating to medical treatment and pharmaceutical processes respectively).

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justices explained that the concept of hedging is no more than an abstract idea, and that application of the concept to particular commodities or using particular pricing formulas does not render the claims patentable. The majority also refused to bar all business methods, instead holding that non-abstract methods might be patentable. The remaining four justices would have gone further, banning all business methods patents. Even so, the minority also agreed that Bilski's claims were unpatentable as abstract ideas.

This ruling is consistent with long-standing Supreme Court pronouncements barring patents claiming abstract ideas. Indeed, it marks a return to those general rules from the more complex and rigid rules developed by the Federal Circuit.

Despite—or perhaps because of—the decision's simplicity, its implementation will be problematic. First, it provides no guidance about what an abstract idea might be. Second, it might arguably lead to over- or under-patenting, depending on how lower courts apply it.

The remaining sections provide the background and detailed analysis to understand these problems, beginning with the growth of business methods patents and ending with the future's likely course in light of *Bilski*.

II. The Rise of Business Methods

While the Court's decision is deceptively simple, understanding its importance and implications requires a closer look at the growth of business methods and the Federal Circuit's response in this case.

A. Software at the Supreme Court

Though *Bilski* is not technically a software case, understanding business methods and the Federal Circuit's decision in the case begins with the history of software at the Supreme Court. The Court first addressed software patentability in a series of three cases between 1972 and 1981. Analysis of these cases reveals just how difficult it is for courts to apply judicially developed limitations on patentable subject matter, a pattern that continues in *Bilski*.

In *Gottschalk v. Benson*, the Court considered a patent relating to the mathematical conversion of ''binary coded decimals'' into binary number representations, a conversion that was known and could be done by pencil and paper, though one of the claims at issue used

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''shift registers'' and was therefore tied to a machine.[12] The Court ruled that both the machine-implemented claim and the intangible claim were too abstract to be patentable, as they would preempt all uses of the mathematical algorithm.[13]

Despite the subject matter discussion, the opinion's text implies that the Court was more concerned with the inventor's failure to describe the process in such a way that made clear that the applicant actually invented the claimed invention. The real concern appeared to be that the claim fell short of the specification and novelty requirements.[14] Furthermore, a mathematical algorithm with no practical application was not practically useful as required by 35 U.S.C. §101 and Supreme Court precedent.[15] Though the numeric conversion was used in all computers, on its own it did nothing in particular. Its generality made it potentially useful when applied by others but not presently useful as claimed by the applicant.

In *Parker v. Flook*, the Supreme Court considered a claim related to catalytic converters.[16] The claimed method determined the level of temperature, pressure, or flow rate necessary to trigger an alarm; it included a mathematical algorithm to determine the proper ''alarm limit.'' The claim was indisputably tied to a machine: the catalytic converter and its computer controller. The Court ruled that the only allegedly ''new'' part of the three-step method was the mathematical algorithm. All the other parts of the claim were ''insignificant post-solution activity'' that could not change the nature of the mathematical step in the process.

The Court then held that discovery of a mathematical algorithm cannot be novel even if the algorithm was previously unknown: ''Whether the algorithm was in fact known or unknown at the time of the claimed invention, as one of the 'basic tools of scientific and technological work' . . . it is treated as though it were a familiar part of the prior art.''[17] In other words, the Court ruled that a scientific

[12] 409 U.S. 63, 73–74 (1972).

[13] *Id*. at 68.

[14] *Id.* at 70–72.

[15] For further discussion of the practical utility of mathematical algorithms, see Michael Risch, Everything Is Patentable, 75 Tenn. L. Rev. 591 (2008) and Michael Risch, New Uses for Patent Utility (working paper, 2010).

[16] 437 U.S. 584 (1978).

[17] *Id.* at 591–92 (quoting Gottschalk, 409 U.S. at 67).

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principle cannot be novel, because it must have existed in nature. The *Flook* Court admits that its rule is not bright: ''The line between a patentable 'process' and an unpatentable 'principle' is not always clear.''[18]

Only three years later, in *Diamond v. Diehr*, the Court again considered whether a patent should issue where a claim used a mathematical algorithm, this time as part of a method for manufacturing rubber.[19] Part of the process implemented a well-known formula relating to the time required to cure rubber. The patent applicant argued, and the Court agreed, that the process could be novel and useful because the claimed invention was more than just the algorithm.[20] Thus, the Court ruled that the patent could not be rejected on subject matter grounds. The Court was unconcerned that the mathematical algorithm was well known; the process could have just as easily (and might have) contained a non-mathematical step that was well known. Instead, what was important was that the known step became novel and non-obvious *when combined with the other elements of the claim*. Thus, *Diehr*'s requirement that the claim as a whole be considered was at least an implicit rejection of *Parker v. Flook*'s ''point of novelty'' rule.[21]

These three cases show the difficulty (even folly) of trying to apply judicially created restrictions to computer software. It is easy to say that a mathematical algorithm is unpatentable, but every software program boils down to an algorithm of one type or another. How do we know whether the algorithm is part of a *Diehr* process or whether it is a *Flook* principle of nature or a *Gottschalk* abstract idea? Do we follow *Flook*'s point-of-novelty analysis to isolate the algorithm, or do we follow *Diehr*'s holistic analysis to see how the algorithm is part of a more complex process? And how should any of this apply to non-software processes that might incorporate intangible steps?

The directly contradictory outcomes of *Flook* and *Diehr* show that courts have great difficulty applying an uncertain standard. Many would say that *Flook* is simply wrongly decided, but that case has

[18] *Id.* at 589.

[19] 450 U.S. 175 (1981).

[20] *Id*. at 188–89.

[21] See *Id*. at 189 n.12.

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Page 340

never been overruled and is still cited today—including in the *Bilski* decision.

B. Software and Business Methods

Diehr is commonly interpreted as allowing software patents. After all, every computer with software installed is a machine, and a machine as a whole is patentable. The Federal Circuit cemented this interpretation in cases such as *In re Alappat*, which held that mathematical calculation circuitry combined to form a machine.[22]

Additionally, the Patent Act explicitly defines a process to include a new use for an existing machine.[23] Software that allows a new use for computers satisfies this requirement; most software is technically a patentable process so long as it can be implemented by a computer.

The Federal Circuit expanded on *Alappat* in later cases. In the 1998 case *State Street Bank* and its progeny, the court generally held that a ''useful, concrete and tangible result'' was sufficient for a process to be eligible subject matter.[24] Thus, methods of managing money by computer or measuring heart rhythms, and so forth, were useful, concrete and tangible.

State Street's rationale led to a trend over the last decade[25] toward patents claiming processes that are disembodied from a computer. These claims might be implemented by a computer, but need not be. Such claims are often called business methods. This circumstance reveals a definitional imprecision about what a business method is, and what role computers play in such methods. While a computer is not required to infringe business methods, such claims usually require a computer to be implemented with any reasonable speed.

Another definition of a business method is a process used to perform non-manufacturing tasks, such as money management, sales transactions, or other steps that do not transform a physical object.[26] This type of business method may or may not require a

[22] 33 F.3d 1526, 1544 (Fed. Cir. 1994) (en banc).

[23] 35 U.S.C. §100(b) (2006).

[24] See State St. Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 1375 (1998) (quoting Allapat, 33 F.3d at 1544).

[25] Bilski, for example, filed his application in 1997.

[26] Michael Risch, Dealing with Controversial Patent Subjects, PrawfsBlawg (Oct. 29, 2008, 07:52 EST), http://prawfsblawg.blogs.com/prawfsblawg/2008/10/dealing-with-co.html.

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computer. For example, one often-criticized business-method type is the tax-planning method—claims to tax savings by taking certain steps that minimize taxes under the Internal Revenue Code. These patents could be implemented by hand, but likely require a computer to be efficiently implemented.

Indeed, there are plenty of other intangible methods that are not really business related. Medical diagnostic and treatment patents are ostensibly not business methods. Even sports moves such as the Fosbury flop are a method for achieving a goal using only the human body. While not really ''business'' methods, patenting of such intangible methods might be affected by the same subject matter restrictions applied to business methods.

Regardless of how business methods are defined, their existence has been widely criticized by many businesses, scholars, and even some judges as not only contrary to law but harmful to innovation. Others, however, believe that business-methods patents are critical to investment. The policy debate is discussed further below.

C. Machine or Transformation Test

Against this backdrop of Supreme Court precedent and the growth of intangible methods, the Federal Circuit in *Bilski* sought to define just which claims should be patent eligible and which ones should be excluded.

The *en banc* Federal Circuit held, 11–1, that Bilski's claim was not patentable subject matter.[27] In so ruling, the Federal Circuit overruled *State Street* and all its other precedent that relied explicitly on a useful, concrete, and tangible test.[28]

Instead, the court announced an exclusive rule called the ''machine-or-transformation'' test: to be patent eligible, a process must either be tied to a machine or be a transformation of something physical.[29]

However, the court ruled that insignificant ''post-solution'' machines or transformations are ineligible, so that one cannot pass

[27] While there were three dissents, only Judge Pauline Newman would have found the claims to be patentable subject matter.

[28] Bilski I, 545 F.3d at 959–60.

[29] *Id*. at 961–62. The transformation can also be a transformation of data representing something physical, such that processing heart rhythm data is a transformation, while processing money data is not a transformation.

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the test simply by adding a machine or transformation that is unrelated to the inventiveness of the claim.[30]

The Federal Circuit reached this test by attempting to assimilate the Supreme Court precedent discussed above, as follows. First, the Court has held that fundamental principles such as historical abstract ideas, products of nature, and principles of nature are not patentable.[31] To make them so would preempt use of such principles.

Second, it is difficult to determine whether a claim is a fundamental principle that might be preempted. The Court has held, however, that there are two ways to tell if something is *not* a fundamental principle. If a claim is tied to a machine or if a claim transforms some subject matter, then it is *not* a fundamental principle.[32]

Third, therefore, the *only* way for a process to be patent eligible is to be tied to a machine or to transform subject matter.[33]

Fourth, in order to make sure all fundamental principles are excluded, insignificant post-solution machines or transformations cannot save a non-machine and non-transformative process.

The Federal Circuit meant this test to apply to *any* process; it has since applied this rule to pharmaceutical process claims relating to the metabolization of drugs in the body.[34] If a process met the test, then it was eligible. If it did not meet the test, then it was not eligible.

Using this test, the Federal Circuit then ruled that Bilski's claims were not a patent-eligible process: a) they were not tied to a machine (though no human could efficiently do the calculations in many of the patent claims); b) the transformations involved are of legal obligations and not anything physical; and c) any physical activity contemplated by the claim was ''post-solution.''[35]

III. Certiorari and Oral Argument

The Federal Circuit's ruling had potentially wide-ranging consequences—consequences that led the Supreme Court to reconsider this area after a 30-year hiatus.

[30] *Id*. at 957.

[31] *Id*. at 960.

[32] *Id*. at 961.

[33] *Id*.

[34] Prometheus Labs., Inc. v. Mayo Collaborative Servs., 581 F.3d 1336 (Fed. Cir. 2009), rev'd 561 U.S. ____ 130 S. Ct. 3543 (2010) (summary certiorari grant and reversal in light of *Bilski*).

[35] Bilski I, 545 F.3d at 965–66.

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Page 343

A. Aftermath of the Federal Circuit Ruling

Many commentators immediately reacted to the new rule—that eligible processes must either be tied to a machine or transform something physical—and considered it problematic in many respects.

First, the rule is contrary to the statute, which states that ''[t]he term 'process' means process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.''[36] The Federal Circuit explicitly read this definition out of the statute. The opinion states that because the statutory definition of process includes the word ''process,'' it is circular, and thus the entire definition—including the inclusion of new uses of processes, machines, and compositions of matter—may be ignored.[37]

Even if limiting subject matter is a preferred normative policy, interpretation of a statute to exclude an explicit definition defies the most flexible statutory interpretation principles. Many statutes are written to expand the definition of a word to include other words, just as ''process'' was written to include not only a process, but also an ''art'' or a ''method.''[38]

Thus, even if one were to argue, as the Supreme Court ultimately found, that historical limitations should apply to the term ''process,'' simply ignoring the definition altogether was problematic.

Second, it is a rigid rule, which the Supreme Court has disfavored. Recent cases have overturned rigid Federal Circuit rules relating to obviousness,[39] declaratory relief,[40] injunctions,[41] and the doctrine of equivalents.[42]

Third, the logic used to justify a rigid rule is deeply flawed. The Federal Circuit held that Supreme Court precedent allowed patenting of machines or transformations, and thus *only* machines or transformations are patentable. The logical fallacy is apparent—just

[36] 35 U.S.C. § 100(b).

[37] Bilski I, 545 F.3d at 951 n.3, 957.

[38] For example, 35 U.S.C. § 100(d) states: ''The word 'patentee' includes not only the patentee to whom the patent was issued but also the successors in title to the patentee.''

[39] KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 421–22 (2007).

[40] MedImmune, Inc. v. Genentech, Inc., 549 U.S. 118, 132 n.11 (2007).

[41] eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 393–94 (2006).

[42] Festo Corp. v. Shoketsu Kinzoko Kogyo Kabushiki Co., 535 U.S. 722, 739 (2002).

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because a machine or transformation is eligible subject matter, this does not mean that *nothing else* is eligible.

Fourth, the decision unsettled expectations about software patenting that were at least 10 years old, if not older. The court gave little indication of whether patents that were previously upheld, such as *State Street Bank*, would continue to be patentable.

Fifth, in its effort to deal with high technology, the court abandoned low technology. There are many patented processes that have nothing to do with machines or transformations—methods for measuring fabric, methods for harvesting fruit, and methods for manufacturing products by hand (for example, forming wrought iron). At worst, these types of historically patentable inventions would now be unpatentable. At best, determining what is patentable and what is excluded became much more difficult.

Sixth, rather than achieve the Federal Circuit's stated goal of identifying unpatentable fundamental principles,[43] the test transforms ordinary processes into fundamental principles. The opinion makes clear that the machine-or-transformation test should determine whether a claimed process is more than a ''fundamental principle.''[44] By finding that *Bilski* fails the test, the court effectively ruled that the claimed process must, therefore, be preempting a fundamental principle. But is the process of hedging through fixed-price contracts, even if obvious and overbroad, really a fundamental principle? Is it really part of the scientific landscape for all to use in whatever ''applied'' way they choose? Does this particular process really preempt a field of math, science, or technology?[45] Despite its failings, Bilski's claim does not rise to the level of gravity, relativity, or even the numeric conversion in *Gottschalk*. The machine-or-transformation test attempts to shoehorn an otherwise square claim into round subject matter rejection.

Seventh, and perhaps most important practically, although the test is supposedly bright-line, renewed emphasis on ''insignificant

[43] Bilski I, 545 F.3d at 954 (''The question before us then is whether Applicants' claim recites a fundamental principle and, if so, whether it would pre-empt substantially all uses of that fundamental principle if allowed.'').

[44] *Id.*

[45] See, e.g., Bilski II, 130 S. Ct. at 3235 (Stevens, J., concurring) (''The patent now before us is not for '[a] principle, in the abstract,' or a 'fundamental truth.'''') (quoting Flook, 437 U.S. at 589).

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post-solution activity'' makes the patentability determination indefinite—any computer software could be invalidated if the computer were considered ''insignificant.'' For example, data gathering may be physical, but courts could ignore such activity as unrelated to the solution. This hearkens back to the suspect ''point of novelty'' analysis of *Parker v. Flook* that was rejected only a few years later in *Diehr.*

Similarly, it is unclear which transformations involve physical data rather than intangible data. For example, financial processes involve money—which surely can be converted to physical dollar bills. It is unclear why programs that count heart rhythms should be sufficiently physical, but programs that count money should not.

Thus, the Federal Circuit's guidance about determining whether a process is tied to a machine is unhelpful. The appellate opinion cites *Mackay Radio* as a prime example of a machine-implemented mathematical formula.[46] But *Mackay* illustrates the imprecision of the Federal Circuit's test. There, a well-known equation predicted the optimal wire lengths for receiving radio signals. The patentee (who did not discover the equation) claimed an antenna using these lengths. The Supreme Court held that the antenna was patent eligible because it was an application of the well-known principle. Under the Federal Circuit's test, however, there is no principled way to separate the antenna from the formula under the insignificant post-solution activity rule. One could easily argue that the antenna was simply an insignificant ''post-solution'' part of the claim because the ''real'' solution was the mathematical formula, which is a process. In short, the Federal Circuit test might well consider the antenna ineligible when the Supreme Court long ago ruled to the contrary. Indeed, calling the antenna a manufacture rather than a process does not solve the problem, because computers are certainly manufactures/machines and they can be disregarded under the machine-or-transformation test.

It is this approach—point-of-novelty analysis and insignificant post-solution activity—that most threatened software and software patenting. Those considering an investment in a software-based business would not know *ex ante* whether their inventions would be entitled to possible patent protection. Any new software claim

[46] Mackay Radio & Tel. Co. v. Radio Corp. of Am., 306 U.S. 86 (1939).

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might be considered simply a transformation of non-physical data, and its execution in a computer considered insignificant.

B. Certiorari

Given the difficulties of the Federal Circuit's test, the best test case for subject-matter limitations is a business method that a) need not be implemented on a computer (ever) but is still valuable, and b) is otherwise novel, nonobvious, useful, described, and enabled. Courts have yet to consider such a patent on subject matter grounds, and *Bilski* is no exception; though Bilski's broadest claim might have been practiced without a computer, that claim surely fell short of several patentability requirements. Until courts see such a patent, ''insignificant post-solution activity'' and the computer/non-computer divide will continue to invite uncertainty.

It may be unfair to criticize the Federal Circuit for the failings of its *Bilski* ruling. After all, it had vague Supreme Court precedent to deal with. Even so, there is no precedential basis for such a rigid test; even the Supreme Court cases relied on by the Federal Circuit explicitly state that a machine-or-transformation test is not exclusive.[47] Indeed, one interpretation of the opinion is that the Federal Circuit deliberately implemented a rigid rule in order to achieve Supreme Court review. The opinion implicitly invites such review.[48]

Even so, a desire for Supreme Court review was not unanimous, in part because *Bilski* is not the ideal vehicle for considering these difficult questions.

Furthermore, the news was not all bad for software patenting. The Federal Circuit reaffirmed that business methods and any other method—including software—that meet the test are patentable.[49] Of course, those favoring the elimination of software patents would

[47] Bilski I, 545 F.3d at 955–56; but see Gottschalk, 409 U.S. at 70; Diehr, 450 U.S. at 192; Flook, 437 U.S. at 589. See also, Bilski II, 130 S. Ct. at 3221 (''The Court of Appeals incorrectly concluded that this Court has endorsed the machine-or-transformation test as the exclusive test.'').

[48] Bilski I, 545 F.3d at 956 (''Thus, we recognize that the Supreme Court may ultimately decide to alter or perhaps even set aside this test to accommodate emerging technologies.'').

[49] The opinion made clear that ''transformation'' is not limited to physical items, but could also include data about physical items, such as heart rhythms or earth movement.

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say that the opinion did not go far enough by banning all business methods or even all software.[50]

Because *Bilski* was not the best test case, and because it did not eliminate software patents, some people were surprised that the Court even agreed to review the case. Many believe that weak, non-computerized claims such as Bilski's could easily be sacrificed in the future given the Federal Circuit's affirmation of software patentability.[51] The fear, therefore, was that the Supreme Court would issue an opinion that would ban software patents.[52]

In fact, the solicitor general urged the Court to deny certiorari.[53] During oral argument, counsel mentioned this opposition, to which Justice Anthony Kennedy replied, ''You thought we—you thought we'd mess it up.''[54]

These fears were not unjustified. The *Bilski* claims were incredibly weak on the merits, and the Court could have made bad policy invalidating a bad patent for the wrong reasons.[55]

Nor were these fears lost on the Court. Oral argument demonstrated that many of the justices were grappling with what ruling would disallow ''bad'' patents but keep ''good'' patents. Even those justices who eventually voted to bar all business methods patents asked pointed questions to ensure that such a ruling might not go too far.

[50] *Id*. at 1007 (Mayer, J. dissenting) (''Allowing patents to issue on business methods shifts critical resources away from promoting and protecting truly useful technological advances.'').

[51] *Id.* at 1000 (Mayer, J., dissenting).

[52] A humorous ''Hitler Reacts to the Granting of Certiorari in *Bilski*'' video posted on YouTube makes this point. *Bilski* Movie Spoof, http://271patent.blogspot.com/2009/11/bilski-movie-spoof.html (November 11, 2009, 16:26 EST); see also Studio Plots Downfall of Hitler Meme on YouTube, http://www.popeater.com/2010/04/20/hitler-meme-downfall-removed-youtube/ (Apr. 20, 2010, 11:45 EST).

[53] See generally Brief for the Respondent in Opposition, Bilski v. Doll, No. 08-964 (May 1, 2009).

[54] Transcript of Oral Argument at 47, Bilski v. Kappos, 130 S. Ct. 3218 (2010) (No. 08-964), available at http://www.supremecourt.gov/oral_arguments/argument_transcripts/08-964.pdf [hereinafter Transcript].

[55] See Michael Risch, The Idea's the Thing, Legal Times (May 12, 2008), available at http://law.wvu.edu/r/download/9874; John Duffy, Bilski, Kenny Rogers, and Supreme Court Rule 46, Patently-O Blog (June 25, 2010, 07:43 EST), http://www.patentlyo.com/patent/2010/06/bilski-kenny-rogers-and-supreme-court-rule-46.html.

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For example, Justice Stephen Breyer noted:

> In the 19th century, they made it one way in respect to machines. Now you're telling us: Make it today in respect to information. And if you ask me as a person how to make that balance in respect to information, if I am honest, I have to tell you: I don't know. And I don't know whether across the board or in this area or that area patent protection will do no harm or more harm than good.[56]

Similarly, Justice Samuel Alito telegraphed the rationale for the majority opinion: ''If you—if you are right [that this claim is an abstract idea], is this a good case for us to get into these—into the very broad issue that Petitioner has raised?''[57] Justice Sonia Sotomayor posed the question differently—that perhaps outlawing business methods would leave software patenting intact.[58]

This question led to the most surprising discussion of the argument: the solicitor—charged with seeking affirmance of the machine-or-transformation test—made clear that the United States did not support the banning of business methods patents. Deputy Solicitor General Malcolm Stewart responded to Justice Sotomayor's question:

> I think that would be incorrect, and it would create problems of its own. That is, the—the innovation that was held to be patent eligible in *State Street Bank* was not a process.
>
> [intervening questions omitted]
>
> [Though claimed as a machine, *State Street* is still considered a business method.] So, to say that business methods are categorically ineligible for patent protection would eliminate new machines, including programmed computers, that are useful because of their contributions to the operation of businesses.[59]

[56] Transcript, *supra* note 54, at 20; see also *Id.* at 31–32 (expressing concern about machine-or-transformation test).

[57] *Id*. at 28.

[58] *Id*. at 29.

[59] *Id*. at 29–30.

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This statement interested the Court. Chief Justice John Roberts later asked about a similar statement in the government's brief:

> [Y]ou say this is not simply the method isn't patentable because it doesn't involve a machine. But then you say that it might be if you use a computer. . . . That's like saying if you use a typewriter to type out the—the process, then it is patentable. I—I—that takes away everything that you spent 53 pages establishing.[60]

When pressed by the Chief Justice, Stewart made clear that software should be patentable.[61] In fact, the government eventually argued explicitly that the *State Street Bank* decision—considered by most to have opened the business methods patent floodgates—would have come out exactly the same under a machine-or-transformation test because the method was implemented in a machine.[62]

Several justices appeared perplexed by this argument. After all, how could *Bilski* be the Court's chance to limit business methods patents if the quintessential business method case would be decided the same way? And how could the machine-or-transformation test have any relevance if it did not ban patenting on machines implementing business methods? How can a court tell the difference between hardware and software, especially when a software claim can easily be re-written as a computer claim? Why is a DVD player with software a new patentable machine while a general-purpose computer with software is not a new machine?

The government's nuanced argument about *State Street*—that the claimed software was both a business method and patent-eligible when implemented in a machine—was the right one as a matter of statutory interpretation, computer engineering, and patent policy. Nonetheless, the fine—and potentially irrelevant—distinction between processes and computers likely had two critical effects on the Court's thinking:

[60] *Id*. at 33–34.

[61] *Id*. at 36–37 (''[W]e don't want the court, for instance, in the area of software innovations or medical diagnostic techniques to be trying to use this case as the vehicle for identifying the circumstances in which innovations of that sort would and would not be patent eligible, because the case really doesn't present any—any question regarding those technologies.'').

[62] *Id*. at 44–45.

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1. A machine-based test alone is inadequate to eliminate ''bad'' patents, so some form of the insignificant post-solution activity rule must be reiterated; and

2. It would make little sense to ban patentability of all computer software when neither party was asking for it.

The combination of these two points leads to one conclusion: the Court was likely to allow software patents but leave a vague standard that would eliminate those deemed unworthy. The Court's struggle with this question took some time, however. Though argued on November 9, 2009, the opinion did not issue until the last decision day of the term, June 28, 2010, leading many to speculate that the majority shifted at some point.

IV. Analysis of the Supreme Court Opinions

A. The Court's Rulings

The Court's judgment was not a surprise: many had predicted a 9–0 defeat for Bilski. The rationale was debated, however, though as the date approached observer consensus seemed to be that Justice John Paul Stevens, who had authored *Flook*, would write the majority opinion.[63] This meant that the opinion was likely to significantly limit patentable subject matter.

The opinions that finally issued were therefore a surprise, causing some to speculate that Justice Stevens lost a vote somewhere along the way.[64] Of course, there maybe many other explanations for the vote distribution.

Instead, Justice Anthony Kennedy wrote the majority opinion, which became a plurality opinion in two sections where Justice Antonin Scalia did not join. Justice Stevens authored a long concurrence on behalf of four justices. Justice Breyer issued a separate, shorter concurrence (joined in part by Justice Scalia) that sought to identify agreement among all justices. The following is a summary of the opinions and concurrences in the case:

[63] See Duffy, *supra* note 55.

[64] See, e.g., Tom Goldstein, Business Method Patents Nearly Bite the Dust, SCOTUSblog (July 6, 2010, 12:54 EST), http://www.scotusblog.com/2010/07/business-method-patents-nearly-bite-the-dust/ (''[I]t seems quite likely to me that Justice Stevens was originally going to author the Court's opinion in *Bilski* but subsequently lost his majority to Justice Kennedy.'').

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1. As discussed above, all justices agreed that the Bilski claims are abstract ideas, and thus not patentable.

2. The Bilski claims are abstract even if they are limited by field of use or if ''token'' activities are undertaken outside the abstract idea. The majority held without much discussion that Bilski's additional claims limiting application to energy markets and performing ''well-known random analysis techniques to help establish some of the inputs to the equation'' did not add enough to the abstract idea to merit patent eligibility. This was the majority opinion of five justices: Kennedy, Roberts, Scalia, Thomas, and Alito. The other justices may have agreed, though it is difficult to tell as the concurrence criticizes the majority's methodology, as discussed below.

3. Limiting patentable processes to only those that use a machine or transform matter is a useful test but is not the *only* test. All nine justices appeared to agree on this point. None of the opinions state whether a process that meets the test is definitively or even presumptively eligible.

4. Section 100(b) defines process, and nothing in that definition excludes business methods per se or makes ''machine or transformation'' the only test. Section 273 (which provides a defense for potential infringers of business methods) is evidence that the statute contemplates at least some business methods patents. That section would be meaningless if business methods were excluded. The five-justice majority applied this rationale to reject the machine-or-transformation (or any other) rigid test.

5. The absence of business methods patents issuing early in America's history does not mean that they should not issue now with changing times and technology. Only four justices joined this portion of the Court's opinion: Kennedy, Roberts, Thomas, and Alito.

6. A high bar should be set for business methods, or else they may harm innovation. Lower courts might define broader categories of business methods that are abstract ideas, and therefore be consistent with the Court's opinion. The same four justices also joined this portion of the Court's opinion: Kennedy, Roberts, Thomas, and Alito.

7. The concurrence argues that in addition to being unpatentable as an abstract idea, the term ''process'' should not be read in the ordinary sense, but instead should be interpreted in light of history, context, and patent policy goals to exclude business methods. It also asserts that Section 273 is a red herring—Congress was merely

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reacting to a court decision rather than defining patentable subject matter. Four justices joined this concurrence with the judgment: Stevens, Breyer, Ginsburg, and Sotomayor.

8. The majority gives no further guidance about identifying an unpatentable abstract process. Justice Breyer's concurrence with the judgment, joined only by Justice Scalia, argues that the Court unanimously agreed on the following principles. First, that Section 101 is not without limit. Second, that ''machine-or-transformation'' is a *clue* to patentability. Third, the machine or transformation test has never been the *sole* test of patentability. Fourth, that *State Street*'s ''useful, concrete, and tangible result'' test does not necessarily yield patentable subject matter.

B. Analysis

This section takes a closer look at the doctrinal rationale for the opinion and its likely application by lower courts through a series of questions.

1. What is an abstract invention?

This is the most important and least answerable question arising from the opinion. The answer is anyone's guess. One patent examiner memorably comments on the difficulty: ''I'll tell you what, I wish I could write 101 rejections with as little supporting analysis as the Supreme Court did in the *Bilski* decision. A little discussion of precedential caselaw[], some hand-waving, and the conclusion that the claims at issue are drawn to an abstract idea.''[65] The Court gives no guidance other than to say this ''concept'' of hedging is abstract.[66] Apparently, the Court knows abstractness when it sees it, and this is it.[67]

Indeed, the Court does not address (in detail) several other of Bilski's proposed patent claims which are much more specific than

[65] *Bilski* Fallout, http://just-n-examiner.livejournal.com/44111.html (June 30, 2010). (The quote continues: ''Actually, it didn't even seem like a conclusion, it very much seemed as if the decision that the claims were drawn to an abstract idea was the starting point of the Court's deliberations. What that means, unfortunately, is that there was no analysis of how they reached that conclusion, and I really would like to have seen that type of analysis.'').

[66] Bilski II, 130 S. Ct. at 3231.

[67] With apologies to Justice Potter Stewart, Jacobellis v. Ohio, 378 U.S. 184, 197 (1964) (Stewart, J., concurring).

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the claim quoted above, implying that such claims are also abstract. This may create the greatest uncertainty of all: the reemergence of ''insignificant post-solution activity'' restrictions without describing what they are.[68] As a result, lower courts are left to guess which aspects of any given claim—even Bilski's claims—make them abstract.

In fact, Justice Stevens points out the indeterminacy of ''token'' activities in his concurrence.[69] Even if Justice Stevens's concurrence were the majority, however, the answer would still be uncertain. Defining a business method is extremely difficult. It cannot simply be data manipulation; otherwise, certain medical, physical, and electronic diagnostic tools might be barred when most seem to agree that such patents fall within Section 101. Further, as discussed above, many methods are implemented in a computer, so distinguishing between machines that qualify and those that are merely ''insignificant'' would be incredibly difficult.

2. What becomes of the machine-or-transformation test?

While the Court was unanimous that implementing a method using a machine or transforming matter is a ''clue'' to patent eligibility rather than the sole test, the fate of the test and how it should apply is hazy.

It is tempting to assume that the test can approve a method but cannot be used to reject a method. This assumption, however, is incomplete because the test includes the unpredictable ''insignificant post-solution activity'' component. Thus, methods like that implemented in *State Street* may turn out to be unpatentable despite the government's assertion that the method passes the machine-or-transformation test.

Indeed, Supreme Court precedent does not necessarily require a machine to identify a non-abstract idea. The applicants in both *Benson* and *Flook* indisputably tied their processes to machines but still were denied patents. It makes no sense to say that a process tied to a machine is necessarily eligible when all the Supreme Court's precedent involved machines regardless of outcome. Lack of machinery

[68] Bilski II, 130 S. Ct. at 3230.

[69] *Id*. at 3235 (Stevens, J., concurring).

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could not have driven the Court's rationale in those cases, and thus cannot be the binding precedent that the Federal Circuit implied.

Consider, for example, the method at issue in *In re Comiskey*, a case involving a patent application for a method of dispute resolution, including the steps of submitting a matter to arbitration, arbitrating the matter, and reaching a final and binding resolution.[70] The Federal Circuit barred all claims that were not limited to implementation by a computer, but allowed the same process implemented through a computer system to be considered under other patentability criteria such as novelty.[71]

A rejection based on failure to include a computer in the claim limitations superficially makes sense. After all, a computer is a machine, so that a programmed computer falls within Section 101. Scratching the surface, however, shows that rejection solely on this basis is problematic. First, the definition of process is not limited to computers. The *Comiskey* claims included the use of paper if not a computer, and there is no basis under the statute to allow new uses of a computer but not new uses of paper, which is an ''article of manufacture'' under the statute. The court provides no principled basis for distinguishing the use of a machine from the use of an article of manufacture.

Furthermore, the *Comiskey* claims were not intangible human activity; they clearly contemplate physical movement of some sort as part of the transaction and arbitration, even if it is the act of signing and delivering a piece of paper (which was surely typed on a computer). The arbitration could not happen if nobody did anything physical. Here, too, the statute does not distinguish between physical activity to make things and physical activity to accomplish other ends. Readers of *Comiskey* are left trying to understand just what is patentable and what is not.

Cases like *Comiskey* reveal a general problem with any machine test—even if a claim is intangible on its face, the true invention, if there is one, is most likely computer-based. For example, considering Comiskey's claims without considering a computer makes little sense for three reasons. First, the process described in the patent

[70] In re Comiskey, 554 F.3d 967, 970 (Fed. Cir. 2009).

[71] *Id.*; Bilski I, 545 F.3d at 960–61 (discussing its holding in *Comiskey* and reaffirming that *Comiskey* was decided under the machine-or-transformation test).

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disclosure was implemented by a computer, and no other way. Second, implementing the process without a computer would be so cumbersome as to be useless. Third, without the use of a computer, the claimed process so clearly fails a novelty test as to be absurd; it would be remarkable if this is what the applicant intended. A focus on the existence of a computer cannot drive analysis in a principled way.

A further reason to not use computerization as the dividing line is that computerized business methods will still run into patentability problems unrelated to subject matter. First, computerizing something that is known to be done without a computer, like *Comiskey*'s online arbitration, is obvious—the Supreme Court addressed this nearly 35 years ago in *Dann v. Johnston*.[72] Even if the task was never done manually, it might still be obvious if it is something anyone skilled in the area might think of if only they had a computer.

In sum, it is unclear what it means for a test to be a ''clue.'' Typically, clues are used to solve mysteries. The Court here created rather than solved a mystery and might leave Federal Circuit judges guessing whether Colonel Mustard used a lead pipe or a computer to invent a new process.

3. What becomes of the useful, concrete, and tangible result test?

Justice Breyer's final assertion—that all justices agreed that *State Street*'s useful, concrete, and tangible result test cannot qualify patentable subject matter—may be the most controversial of his four points.[73] The majority opinion merely communicates ''non-endorsement'' of the test, rather than rejection of it. Theoretically, if the Federal Circuit were to explain why *every* claim meeting that test were non-abstract, then perhaps the majority would reconsider.

Then again, given that four justices explicitly rejected the test in Justice Stevens's concurrence, and that Justice Scalia joined Justice Breyer and did not join the part of the majority opinion suggesting that the Federal Circuit might come up with bright-line rules that implement an abstract idea test, a majority of the Court did, in fact, explicitly reject the ''useful, concrete, and tangible result'' test.

[72] Dann v. Johnston, 425 U.S. 219 (1976).

[73] Bilski II, 130 S. Ct. at 3259 (Breyer, J., concurring).

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It is quite likely that that test will be abandoned, especially given that the Federal Circuit had already done so.

4. Was the majority's rationale sound?

The majority's rationale, while better than the alternatives, is internally inconsistent. The broad statutory reading is certainly reasonable. Even if one agrees with the policy of Justice Stevens's concurrence, it is difficult to simply ignore both the breadth of the definition of process and Section 273's explicit acknowledgment that some business methods might be patented. Thus, it is no surprise that the textualists on the Court relied on Section 100(b).[74]

In fact, ignoring Section 100(b) was the largest problem with the machine-or-transformation test, which required that *all* processes be tied to a machine or transform matter. Many patented processes from 1790 onward are new uses of manufactures or matter but are not tied to machines and did not ''transform'' matter in the way the Federal Circuit seemed to envision. Iron working, glass blowing, medical diagnostics, and some new uses for old drugs or tools are all historically patentable processes despite not satisfying the machine-or-transformation test.

And, in fact, that's how the majority saw things. The Court said:

> Section 101 similarly precludes the broad contention that the term ''process'' categorically excludes business methods. The term ''method,'' which is within §100(b)'s definition of ''process,'' at least as a textual matter and before consulting other limitations in the Patent Act and this Court's precedents, may include at least some methods of doing business. *See*, *e.g.*, Webster's New International Dictionary 1548 (2d ed. 1954) (defining ''method'' as''[a]n orderly procedure or process . . . regular way or manner of doing anything; hence, a set form of procedure adopted in investigation or instruction''). The Court is unaware of any argument that the '''ordinary, contemporary, common meaning,''' Diehr, *supra*, at 182, of ''method'' excludes business methods.[75]

[74] See Michael Risch, Bilski Argument: Procedure and Substance, PrawfsBlawg (Nov. 10, 2010, 09:58 EST), http://prawfsblawg.blogs.com/prawfsblawg/2009/11/bilski-argument-substance-and-procedure.html (''I was extremely disappointed that . . . there was not *one single mention* of 35 USC 100(b), *which states the statutory definition of process*. I would think that a court filled with textualists would want to know what the text of the statute says.'') (emphasis in original).

[75] Bilski II, 130 S. Ct. at 3222.

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Justice Stevens complained that the statutory term ''process'' should not have been interpreted in an ordinary and common sense, and much of his concurrence was directed at showing why process must have a narrower meaning. Some have argued that the reasoning used by Justice Stevens is suspect as a matter of history[76] and of statutory interpretation.[77] Indeed, the famous 19th-century case *O'Reilly v. Morse*—remarkably left almost entirely out of all *Bilski* opinions—upheld a patent for the business method of ''the system of signs . . . in combination with machinery for recording them, as signals for telegraphic purposes.''[78]

Even if one agrees with Justice Stevens, though, it is not outside the bounds of reason to disregard history when interpreting the plain language of a statute written and amended well after the historical opinions. After all, Congress frequently clarifies statutes in response to historical court opinions.

Beyond the plain reading, however, the majority's rationale becomes inconsistent. After all, the Court ruled that the claims were not, in fact, patent-eligible processes. In order to reach this result, remain true to the statute, yet reject this patent, the majority had to embrace a broad reading while finding some way to except these particular claims. To get there, Justice Kennedy writes:

> The Court's precedents provide three specific exceptions to §101's broad patent-eligibility principles: ''laws of nature, physical phenomena, and abstract ideas.'' While these exceptions are not required by the statutory text, they are consistent with the notion that a patentable process must be ''new and useful.'' And, in any case, these exceptions have defined the reach of the statute as a matter of statutory *stare decisis* going back 150 years. The concepts covered by these exceptions are ''part of the storehouse of knowledge of all men . . . free to all men and reserved exclusively to none.''[79]

[76] See, e.g., Adam Mossoff, Who Cares What Jefferson Thought about Patents? Reevaluating the Patent ''Privilege'' in Historical Context, 92 Cornell L. Rev. 953 (2007) (showing that historical account of patent rights is incorrect).

[77] See, e.g., Eric Guttag, Section 273 is NOT a Red Herring: Stevens' Disingenuous Concurrence in *Bilski*. IPWatchDog (June 30, 2010, 22:55 EST), http://www.ipwatchdog.com/2010/06/30/stevens-disingenuous-concurrence-in-bilski/id = 11457/ (arguing that Section 101 must be read in conjunction with Section 273).

[78] O'Reilly v. Morse, 56 U.S. 62, 86 (1853).

[79] Bilski II, 130 S. Ct. at 3225.

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Thus, the Court remains true to the statute, except for these three exceptions, which are so old that they define the statute. The inconsistency is that there is no reason these, and only these, exceptions should define the statute, nor that these, and only these, exceptions are proper simply because they are consistent with Section 101's new and useful requirement. Indeed, Justice Breyer adds mental process in his concurrence, despite disagreement about the issue in lower courts.[80] In fact, there is no principled reason why business methods should be excluded from this *stare decisis* category where, as Justice Stevens notes, they were historically rare and where many thought they had been barred since the early 20th century.

Furthermore, the exclusion of laws of nature, physical phenomena, and abstract ideas is not so clear as a matter of *stare decisis*. The Court has repeatedly announced this rule but never barred a patent solely because it fell into one of those categories.[81] In legal terms, the exclusion has mostly been dicta. As discussed below, though the abstraction exclusion is applied in *Bilski*, it too is a proxy for other concerns about the patent application.

Thus, while the majority preached fidelity to the statute, it departed from that fidelity in a critical way. However, it appears that the Court has limited divergence from the statute to *only* abstract ideas, laws of nature, and physical phenomena.

5. Is subject matter a constitutional question?

One interesting and potentially important question was whether the Court would limit subject matter as a constitutional matter. The ''Intellectual Property Clause'' in the Constitution authorizes Congress to promulgate patent laws to promote the progress of the useful arts.[82] The Court could have ruled that business methods fail to promote the progress of the useful arts, and are thus barred.

Such a ruling would have had two important effects. First, it would have barred Congress from amending the statute—and courts from interpreting it—to expand patentable subject matter beyond the Court's limitations. In other words, Congress can arguably

[80] *Id.* at 3233 (Stevens, J., concurring).

[81] See generally, Risch, Everything Is Patentable, *supra* note 15.

[82] U.S. Const. art. I, § 8, cl. 8 (Congress has the power ''To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries. . . '').

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amend the statute to allow patenting of abstract ideas without offending the Constitution. Second, it would have opened the door for Courts to look more specifically at patent subjects, and perhaps even individual patents, to see if they ''promote the progress.''

The Court did not elevate patentable subject matter to the level of constitutionality. The majority treated the historical exclusions as a matter of historical statutory interpretation. Despite the historical analysis, Justice Stevens also implied that its constitutional purpose was a tool to determine how to interpret ''process'' in the statute rather than a constitutional question:

> [A]lthough it is for Congress to ''implement the stated purpose of the Framers by selecting the policy which in its judgment best effectuates the constitutional aim'' . . . absent a discernible signal from Congress, we proceed cautiously when dealing with patents that press on the limits of the '''standard written into the constitution,''' [] for at the ''fringes of congressional power,'' ''more is required of legislatures than a vague delegation to be filled in later . . . .''[83]

The concurrence thus implies that Congress can (and perhaps should) clearly delineate subject matter that it believes is in line with the constitutional mandate, and that such determinations would be given wide latitude so long as they are not vague. Of course, where the statute is not vague—as the majority found—then patentable subject matter is statutorily determined. The majority did not even respond to the concurrence's constitutional discussion.

Thus, it does not appear that the Court mandated testing each patent against the constitutional goal of promoting the progress of the useful arts.

6. Did the justices vote as predicted?

After oral argument, predictions were nearly unanimous that Bilski would lose 9–0, even if the scope and rationale of the eventual opinion might have been a surprise.[84] For the most part, the votes

[83] Bilski II, 130 S. Ct. at 3252–53 (Stevens, J., concurring).

[84] Josh Sarnoff predicted a narrow decision with a Stevens concurrence. *Bilski*—The Oral Argument, Inherently Sarnoff (Nov. 9, 2009, 19:16 EST), http://inherentlysarnoff.blogspot.com/2009/11/bilski-oral-argument.html.

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matched expectations. For example, one would have expected Justices Stevens and Breyer to limit subject matter based on their opinions in prior cases, with Justices Ginsburg and Sotomayor probably following.[85] One might have also expected Chief Justice Roberts and Justices Scalia, Thomas, and Alito to adopt a textualist reading of the statute. This left Justice Kennedy as the swing vote on different issues. Justice Kennedy asked questions at oral argument that implied he could have accepted a bar on business methods.

More surprisingly, the opinions seem to indicate that Justice Scalia was a partial swing vote, and that his vote was unpredictable. First, as a self-avowed originalist, he might have been expected to limit subject matter based on the lack of business methods patents at the nation's founding. Indeed, he asked that very question at oral argument. Further, he did not join the majority regarding the need to change standards as part of changing times. More surprising, however, was his adoption of Justice Breyer's summary of the opinions, which means that he was at least partially persuaded by Justice Breyer's policy viewpoint.

Thus, it could be considered a surprise that Scalia the originalist voted in favor of broad subject matter. Perhaps Scalia the textualist won the internal argument, with the scale tipping toward the historic ''abstract ideas'' exception that resolved the case. Ironically, ''living constitutionalists'' on the Court relied on history and tradition to propose limited subject matter.

Looking to the future, with Justice Elena Kagan replacing Justice Stevens, it is unlikely that the Court will swing toward a more restrictive view of patentable subject matter.

7. Is the opinion consistent with the Court's recent patent jurisprudence?

The Court's rejection of the strict machine-or-transformation test is consistent with other recent opinions. The Federal Circuit has, over recent years, promulgated many bright-line tests in various areas. The Court has consistently reversed such tests, opting instead for standards that should apply on a case-by-case basis. For example,

[85] Conventional wisdom holds that liberal justices generally disfavor strong IP rights. This is not necessarily so, however. See Matthew Sag, et al., Ideology and Exceptionalism in Intellectual Property: An Empirical Study, 97 Cal. L. Rev. 801, 849–850 (2009) (finding that conservatives generally favor strong IP, but liberals are split in IP cases).

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the Court recently overturned rigid Federal Circuit rules relating to obviousness,[86] declaratory relief,[87] injunctions,[88] and the doctrine of equivalents.[89] This decision is consistent with each of the others, embracing uncertain flexibility over certain rigidity.

V. Future Implications

Though *Bilski* did not fundamentally change patentable subject matter jurisprudence, the decision leads to important implications for the future of patent law.

A. Forward to the Past

Bilski simultaneously stops a recent trend of narrowing patentable subject matter and returns to the Court's past. The PTO had sought to limit patentable subject matter to the ''technological arts.'' The Federal Circuit rejected this narrow test, but instead opted for a machine-or-transformation limit. Ironically, both tests would have excluded inventions considered patentable in the distant past, such as methods for manufacturing tools. The Supreme Court's test would not so limit subject matter.

The ruling marks a return not only to past technology but also to past precedent. The majority opinion simply reaffirms decades-old case law—both the substance and the resulting uncertainty. The time after *Benson* and *Diehr* led to much discussion about how to treat intangible methods, and *Bilski* restarts that discussion.

The future of patentable subject matter is thus in the past. The Federal Circuit must restart its jurisprudence in this area without the benefit of the useful, concrete, and tangible result test. The Federal Circuit's ruling effectively wiped out the last 10 years of patentable subject matter jurisprudence and the Supreme Court extended that erasure to 30 years! Lower courts and the PTO must forge a new reality based on the very same precedent they used (and perhaps misused) before.

B. An Undefinable Standard

Courts will struggle now as they did then as they forge this new reality. This is unsurprising because patentable subject matter jurisprudence—not just abstract ideas, but also natural products and

[86] KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398 (2007).

[87] MedImmune, Inc. v. Genentech, Inc., 549 U.S. 118 (2007).

[88] eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006).

[89] Festo Corp. v. Shoketsu Kinzoko Kogyo Kabushiki Co., 535 U.S. 722 (2002).

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phenomena of nature—is a mess that can never be cleaned up.[90] While *Bilski*'s return to the past does not make the mess any worse, it hardly tidies things.

As noted above, the Court could barely muster a majority for a specific line to draw, and that majority may have shifted at some point. A decision unanimous in outcome but yielding a 5-4 (and arguably 4–4–1) split in rationale is good evidence that defining a stable, consistently applicable, and clear standard is impossible.

Indeed, though he adds little clarity, Justice Stevens rightly points out that the majority opinion fails to provide a way to identify abstract ideas. As he says, the *Bilski* claims are far more complex and concrete than the simple and ''abstract'' mathematical formulas the Court previously rejected. Nonetheless, the concurrence provides no clear solution by suggesting a business methods patents ban without defining what a business method might be. Finally, neither the majority nor concurring opinions identify what post-solution activity is sufficient to make a claim non-abstract.

There are strong arguments that favor abandoning this sort of line drawing. The better approach is to plainly read ''process'' as the statute defines it but to do away with the supposed historical limitation on abstractness.[91] Instead, a direct application of the statutory categories ''process, machine, manufacture, or composition of matter'' should define patentable subject matter.[92] If rigorously applied, other patentability requirements such as novelty, obviousness, utility, description, and enablement are more than sufficient to weed out undesirable patents.

In fact, these other patentability requirements were implicitly considered by the *Bilski* Court. The Court justified its use of an abstract-idea exception in part on Section 101's requirement that inventions be new and useful. Perhaps the claims were not new and useful in the eyes of the Court.

[90] See generally, Risch, Everything Is Patentable, *supra* note 15.

[91] *Id*.

[92] See *Id*. (arguing that the broad statutory categories should be the exclusive test for patentable subject matter). See also, Mobil Oil Corp. v. Higginbotham, 436 U.S. 618, 625 (1978) (''There is a basic difference between filling a gap left by Congress' silence and rewriting rules that Congress has affirmatively and specifically enacted.'').

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The most basic claims here lacked any new practical utility: they did not do anything that provided a direct benefit to the public.[93] Instead they claimed a series of transactions that could have been any series of transactions conducted by anyone. It is not even clear who was to benefit from the claims—presumably the commodities seller benefits, but other participants in the transactions might have only benefited in some circumstances. The Court calls this the ''concept'' of hedging, and in fact the first claim is for no more than that.

Relatedly, the claimed methods were not definite. They cannot be practiced repeatedly in the same way to achieve the similar results. While a claim can certainly have leeway for circumstance, it should not depend on the ability to find people willing to contract at particular prices.

Also, the claims to the specific types of hedging (in addition to general hedging) were likely obvious. The Court discusses the patent's ''use of well-known random analysis techniques.''

Furthermore, the broader claims were not enabled or described. The patent specification describes a particular application with a particular formula tied to a very particularized set of data, but it did not describe how that formula might apply to *every* type of commodity and *every* set of consumers, and *every* group of third parties, which was required in order to support the broadest claim.

Some disagree with applying these patentability criteria. They argue that we should apply subject matter limitations even though such patents are surely invalid on other grounds. The rationale is that even if subject matter limits are proxies for other patentability criteria, categorical exclusions can be a more efficient way to reject low-quality patents.

Arguments in favor of subject-matter-as-proxy assume, however, that exclusionary rules can accurately identify which patents should be disallowed. To date no proffered test has shown the ability to do so in a principled way. Thus, the introduction of subject matter

[93] See, e.g., Brief for the State of Oregon as Amicus Curiae in Support of Neither Party, at 12, Bilski v. Doll, No. 08-964 (Aug. 6, 2009) (''There is no manifestly useful outcome, no palpable product, no given result. It is not clear how the process is performed, what the tangible outcome is, or even who benefits.''). For further discussion about practical utility and patentable subject matter, see also Risch, Everything Is Patentable, *supra* note 15, and Michael Risch, New Uses for Patent Utility (working paper, 2010).

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limitations injects unnecessary uncertainty into the process despite claims to the contrary.

Until the judges see the wisdom of abandoning line drawing, cases like *Bilski* will continue to vex courts, the PTO, scholars, attorneys, and inventors. Given the Court's reiteration of the abstract idea exception, however, it is unlikely that lower courts will eschew unwritten exceptions in favor of strict application of other patentability criteria any time soon.

In light of the continued uncertainty in patentable subject matter, perhaps the PTO and Federal Circuit will define abstractness by looking to other patentability criteria as a guide rather than as a replacement. The Court sanctioned this by importing the new and useful requirement to support its abstract idea exception. Importing other criteria means that obvious patent applications that lack practical utility and that are overbroad and underdescribed are more likely to be abstract than non-obvious claims that reach practical ends that are no broader than what the inventor teaches in the patent specification.[94]

C. Patent Standards at the Federal Circuit

Both the majority and the concurrence tell the Federal Circuit to avoid a rigid approach. Indeed, Justice Kennedy's statements that the Federal Circuit might develop special rules to identify abstract inventions failed to garner a majority. Even Justice Stevens recognized that barring business methods would leave some room in each case to determine what claims are business methods.

Of course, the Court arguably sent a clear message after each of the prior cases that rejected a rigid rule. But the other cases involved doctrine that developed over time, and represented different judges writing panel opinions that developed into a rigid rule. The Court intervened to reverse these rules where their application started to yield undesirable results. In *Bilski*, on the other hand, the Federal Circuit announced the rigidity of its rule with no precedential support in a single *en banc* opinion—one practically begging for Supreme Court review.[95] It is quite possible, therefore, that the lower court

[94] See Lemley et al., *supra* note 5, at 31 (arguing that *Bilski* claim is abstract because it is not enabled).

[95] See Bilski I, 545 F.3d at 956 (''Thus, we recognize that the Supreme Court may ultimately decide to alter or perhaps even set aside this test to accommodate emerging technologies.'').

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received prior messages loud and clear, and expected—even wanted—the Court to hear the case to give some guidance.

Three observations result from this insight: First, that the Court granted certiorari is perhaps not the surprise commentators thought. Second, the Federal Circuit sought guidance and received little more than a return to prior non-guiding precedent. Third, as a result, the Federal Circuit may be less likely to promulgate rigid rules in the future.

D. Implications for Business

This review has thus far focused on legal analysis, but even more important is the effect of *Bilski* on business research and development. Alas, it is difficult to predict and too soon to tell what effect *Bilski* will have in practice. First, resetting the debate back to earlier precedent leaves much uncertainty and potentially more litigation in the process, both of which hamper investment.

Second, even so, uncertainty may be better for investment in particular types of technology than banning business methods patents altogether. After all, some chance is better than no chance. Risk-averse companies can always rely on secrecy as they would have under a ban.

Third, there is deep division among interested parties about the effect of business methods patents on investment. A simple examination of the amicus briefs filed in the case illustrates this division. The briefs were numerous: 17 supporting Bilski, 24 supporting the PTO, and 25 favoring neither party. Parties supporting Bilski included Novartis (medical diagnostics); Borland Software (software); Double Rock Corporation (financial services); and Accenture and Pitney Bowes (business operations). Parties supporting the government included Adams Pharmaceutical and the American Medical Association (medical diagnostics); Microsoft and the Business Software Alliance (software); Bloomberg and Bank of America (financial services); and Internet Retailers (business operations). Briefs supporting neither party were filed by a variety of interest groups and took very different positions regarding the scope of patentable subject matter. Some argued for very broad subject matter, while others argued for limits even greater than those sought by the government.

Although it is early, I offer a conservative prediction: investment incentives will change little over the next decade or so. There will,

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however, be an increased cost and uncertainty associated with prosecuting patents relating to intangible subject matter. On the whole, the news is probably good for two reasons.

First, software patents seem to be clearly patentable unless they are too simple. Software patents were certainly not rejected.

Second, business methods (methods involving less software and more human activity) *might* be patentable, but they also might not be. This could appease all sides. Aggressive inventors can seek patents, and opponents can continue to argue that such patents are too abstract. This may be more costly to inventors than a clear rule that allowed all patents and more costly to potential defendants than a clear rule that disallowed all patents. However, the result is certainly less costly for either side than the worst alternative.

How one ultimately views *Bilski*'s effect on research and development depends on how one values the role of intangible method patents and how one predicts lower courts will implement the ''abstract idea'' standard. University of San Diego law professor Ted Sichelman sums up the issues nicely:

> Assuming the Federal Circuit and the PTO do not go astray in implementing *Bilski*—which admittedly leaves many doors open to do so—the opinion will allow startups to continue to use patents to garner financing and will, hopefully, set an appropriate balance on the patentability of non-technological inventions.
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> . . .
>
> And while *Bilski* ultimately holds that business methods are not per se unpatentable, the practical effect of the outcome will be to place unapplied business methods into the precluded ''abstract idea'' category. If implemented properly, such an approach will ensure that startups—and, indeed, larger and more established companies—are not unnecessarily subject to overly broad patents while maintaining robust incentives to innovate.[96]

Sichelman's predictions are optimistic. A pessimistic story can also be told for each side. If you think that patents are critical to

[96] See, e.g., Ted M. Sichelman, Why *Bilski* Benefits Startup Companies, Patently-O (June 29, 2010, 08:19 EST), http://www.patentlyo.com/patent/2010/06/guest-post-why-bilski-benefits-startup-companies.html.

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innovation—as I tend to—then this ruling is a bad thing to the extent that it increases patenting costs now and might overly limit patenting later. If you think patents are unnecessary or even harmful for innovation, then you are probably not thrilled with this decision, but it could have been worse: the *Bilski* claims might have been allowed. Further, courts might allow too much patenting of intangible claims in the future.

In the end, this decision is a draw: It does not expand eligibility, but it also puts a halt to the trend of limiting eligibility—which result appears to be exactly the Court's intent. The Court did not want to foreclose the debate nor invalidate a large number of existing patents, and did the best it could short of rejecting all non-statutory exceptions. Justice Kennedy wrote: ''Rather than adopting categorical rules that might have wide-ranging and unforeseen impacts, the Court resolves this case narrowly . . . .''[97]

The Court's discussion seems to imply that it simply does not know what effect a broad limitation might have, and thus leaves the determination up to a case-by-case review. The result is not surprising given its recent rulings in other patent cases that also advocate a case-by-case analysis. Though not the best, it is also the better course.[98]

Conclusion

Given that many consider the opinion a non-event, *Bilski v. Kappos* is remarkably important. First, it is another in a recent line of cases emphasizing flexible interpretation of a broad statute. Second, it represents a return to old precedent and reopens the debate about how to interpret that precedent. Third, with Justice Stevens's retirement, it may represent that last, best hope that opponents of software patents had to ban software or even business methods at the judiciary. Fourth, it strikes a balance—albeit an uncertain one—between two important types of innovation: that innovation driven by the exclusivity that patents bring, and that driven by implementing combinations of valuable but non-pioneering intangible methods.

[97] Bilski II, 130 S. Ct. at 3229.

[98] See Risch, Everything Is Patentable, *supra* note 15, at 595 (''[T]he judiciary should not limit the subject matter of *all* patents based on *any single case* at bar, and it certainly should not do so without concrete evidence of the supposed harm that an entire class of patents might allegedly cause.'') (emphasis in original).

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