

Making Sense of the Revived “Machine-or-Transformation” Test in *In re Bilski*

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On October 30, 2008, in *In re Bilski*, No. 07-1130 (Fed. Cir. Oct. 30, 2008) the Federal Circuit handed down the latest judicial effort to provide guidance about the types of subject matter that are eligible for patent protection. Since that decision was published, commentators from both sides of the issue have weighed in on its meaning and impact. While some have lamented that the decision signals the death knell of software and business method patent claims, others have complained that the court’s decision did not go far enough because it leaves open these areas for patent protection without sufficient restrictions. But the real effect of *Bilski* on the patent laws is likely somewhere in the middle of these two extremes.

In *Bilski*, the Federal Circuit addressed the sensitive balance of what can and cannot be protected, juggling inconsistent Supreme Court precedent as well as previous decisions by it and its predecessor court. The result was a narrow, rigid test for subject matter eligibility under 35 U.S.C. § 101. The decision, however, was not without problems, and its effect will depend largely on its treatment by future courts as well as the U.S. Patent and Trademark Office (USPTO). *Bilski* can be applied in an acceptable manner to evaluate patentable subject matter, but whether the decision will be applied with any consistency is highly dubious.

The Federal Circuit’s Holding

In 1997, Bernard Bilski and Rand Warsaw filed a patent application with the USPTO, claiming a method of hedging commodity transactions. The claimed method included steps of initiating “transactions,” one set of transactions between a commodity provider and consumers of a commodity, and another set between the commodity provider and market participants who have counter-risk positions to those consumers. The rates for these transactions

were chosen so that the market participant transactions balance the risk position of the consumer transactions. As such, these patent claims are directed to a class of so-called “business methods,” those pertaining to trading methods.

The patent examiner rejected Bilski’s claims as being directed to “nonstatutory” subject matter, subject matter that is not eligible for patent protection under 35 U.S.C. § 101. The USPTO’s Board of Patent Appeals and Interferences subsequently sustained this rejection. Bilski and Warsaw then appealed the rejection of their patent application to the Court of Appeals for the Federal Circuit.

This appeal offered the Federal Circuit an opportunity to answer some important lingering questions about the scope of patent-eligible subject matter, issues that the court was clearly eager to address. After briefing and oral arguments by the parties before a three-judge panel, but before any decision from the panel, the court decided on its own initiative to rehear the appeal en banc. In its en banc order, the court set forth specific questions it sought to address, most significantly, what standard should govern in determining whether a process is patent-eligible subject matter under § 101, and whether its prior, expansive holdings in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), and *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 (Fed. Cir. 1999), should be overruled. The court also accepted additional briefing from over three dozen amicus curiae.

The court thus set the stage for a landmark ruling on the scope of § 101, one that would presumably lead to a definitive test for patent-eligible subject matter. Superficially, the court did just that, setting forth a so-called “machine-or-transformation” rule as the “definitive test” for deciding whether a process

claim satisfies 35 U.S.C. § 101. Specifically, the court held that a process claim is patent-eligible under the machine-or-transformation test if either: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.

Applying this test, the court then held that *Bilski*'s claim was not patentable subject matter because it did not transform "any article to a different state or thing." The court found that the claim "encompasses the exchange of only options, which are simply legal rights to purchase some commodity," and that "transactions involving the exchange of these legal rights do not involve the transformation of any physical object or substance, or an electronic signal representative of any physical object or substance." Because *Bilski* conceded that the claims were not tied to any particular machine, they failed the court's machine-or-transformation test.

Regardless of whether the court reached the right result in *Bilski*'s case, the court's decision leaves many significant questions unanswered, creates uncertainty as to the validity of many existing patents, and may ultimately undermine the ability of inventors and businesses to protect advances in fields as diverse as database design, computer languages, signal processing, financial engineering, medical diagnoses, and drug research—to name just a few. Nevertheless, the impact of *Bilski* on patent claims in various fields will depend on how its unanswered questions are resolved. The more draconian predictions that the case represents a sea change in the law of § 101, however, are likely overstated. On the other hand, although *Bilski*'s test can be understood and applied in a way that is consistent with precedent as well as the realities faced by patent applicants, key problems may arise from a careless application of this decision.

Understanding *Bilski*: Reading the Fine Print

Most discussion about *Bilski* has centered on the two alternative prongs of the machine-or-transformation test. But the real key to understanding the machine-or-transformation test lies in the court's two "considerations," which apply to both prongs of the machine-or-transformation test. First, the court stated, "the use of a specific machine or transformation of an article must impose *meaningful limits* on the claim's scope to impart patent-eligibility." Second, the court stated, "the involvement of the machine or transformation in the claimed process must not merely be *insignificant extra-solution activity*." These two considerations allow the machine-or-transformation test to be resolved with previous case law, and they are vital for guiding how the test should be applied to patent claims in the future. The considerations also prevent practitioners from gaming the test by clever patent drafting, while avoiding to some extent the slavish dedication to form over substance that has been promoted by the USPTO's application of previous case law.

The "meaningful limits" consideration is a refinement to the machine-or-transformation test that makes this test consistent with prior Supreme Court precedent, such as the holding in *Gottshalk v. Benson*, 409 U.S. 63 (1972). In *Benson*, the patent claims on their face were clearly tied to a particular machine, as they recited shift registers and other computer hardware. One may then discount *Bilski* as contrary to Supreme Court precedent, as the claim in *Benson* would appear to satisfy the transformation prong easily. However, the Court in *Benson* held the claims unpatentable because the Court believed that they effectively covered all practical implementations of a mathematical algorithm for converting binary numbers to decimal format. Even though the limitations in these claims were clearly "tied to a particular machine," the Court did not believe that they imparted "meaningful limits" sufficient to make the claims eligible for patent protection.

The “insignificant extra-solution activity” consideration identified in *Bilski* is also vital if the machine-or-transformation test is to make any sense. Without this consideration, the machine-or-transformation test could easily be satisfied by a clever patent attorney who simply adds a data-gathering or recording step to a process claim that is otherwise directed to an unpatentable algorithm. This consideration is also important for resolving the machine-or-transformation test with prior Supreme Court precedent, such as the holding in *Parker v. Flook*, 437 U.S. 584 (1978). In *Flook*, the patent claim covered a mathematical algorithm for computing an alarm limit, as well as a step for updating the alarm limit with the computed value. The Court held that the updating step was mere post-solution activity that failed to make patentable an otherwise unpatentable mathematical algorithm. Without the “insignificant extra-solution activity” consideration, the claims in *Flook* would clearly have met the machine-or-transformation test.

Accordingly, the machine-or-transformation test can be best rationalized in view of precedent by appreciating these two important considerations. If the two prongs of *Bilski*’s machine-or-transformation test are construed broadly, while the “meaningful limits” and “insignificant extra-solution activity” considerations are kept in mind, then *Bilski* provides meaningful guidance about patent-eligible subject matter while remaining faithful to precedent. But, as history has demonstrated, those are considerable assumptions. In fact, the Federal Circuit already violated one of them in *Bilski*.

Good Result, Bad Law?

The Federal Circuit likely reached the correct result in *Bilski*, assuming one agrees with the court’s characterization that *Bilski*’s claims “would effectively pre-empt any application of the fundamental concept of hedging and mathematical calculations inherent in hedging (not even limited to any particular mathematical formula).” Although this characterization of *Bilski*’s claims may not be correct—one may reasonably read the claims as covering merely one way to hedge—it is the finding on which the court based its holding. *Bilski*’s holding

must therefore be read within the context of this assumption. Assuming that *Bilski*’s claim effectively covered any way to hedge risks for commodities, the court likely reached the correct result, albeit for the wrong reason.

The Federal Circuit held that *Bilski*’s claims did not meet the transformation prong of the test because “[p]urported transformations or manipulations simply of public or private legal obligations or relationships, business risks, or other such abstractions cannot meet the test because they are not physical objects or substances, and they are not representative of physical objects or substances.” This language was particularly unfortunate; there was no need for the court to hold that all financial transactions—which are essentially “private legal obligations”—are not the stuff of patentable transformations. In this part of its holding, the Federal Circuit strayed from the fundamental, well-established rule that patent protection should not be afforded to abstract ideas. But far from an abstract idea, an actual financial transaction is clearly a real-world event between real-world participants, typically using real-world money. It is not an abstract idea, not a mental process, and not a mathematical algorithm.

Although the court was clearly disturbed by a patent claim that it believed covered the concept of hedging, it was unnecessary to decide the test on the transformation prong alone. The court should have instead looked to the “meaningful limits” consideration that it identified as a refinement of the two prongs. Just as the recitation of computer structures in the claims in *Benson* failed to provide a “meaningful limitation” because they still effectively covered an unpatentable mathematical algorithm, *Bilski*’s recitation of “transactions” arguably lacked any “meaningful limitation.” To hedge, some form of transaction is necessary. Therefore, the court should have held that while a transaction on its face is a transformation in the field of financial inventions, *Bilski*’s recitation of a transaction was meaningless because the claim still effectively preempted an abstract idea—“both known and unknown uses” of hedging in the field of commodities, to paraphrase *Benson*.

It should be noted, however, that *Bilski* arguably did not hold that a financial transaction can never meet the transformation prong, as some commentators have suggested. The court noted that Bilski's claim "is not limited to transactions involving actual commodities, and the application discloses that the recited transactions may simply involve options, i.e., rights to purchase or sell the commodity at a particular price within a particular timeframe." This statement appears to distinguish the "transactions" of legal rights in Bilski's claim with transactions that concern real-world objects. The court further stated that Bilski's "claim only refers to 'transactions' involving the exchange of these legal rights." Here, the court's use of quotation marks for the word "transactions" may signal the court's belief that transactions of mere rights to buy or sell are not real transactions in the patent context.

This leaves open the possibility that a transaction involving actual objects or money may satisfy the transformation prong, whereas the transfer of mere legal rights as in *Bilski* would not. Such an arbitrary distinction would likely be less than satisfactory to one who believes that any transaction should satisfy the transformation prong, but this at least leaves an opening to minimize one of the more problematic aspects of *Bilski*.

Machine-or-Transformation: A Test Too Rigid?

There are other valid criticisms of *Bilski*, such as its rigid application of the machine-or-transformation test. To arrive at its conclusion that the machine-or-transformation test is the sole definitive test, the court engaged in very selective hermeneutics of the Supreme Court's decisions in *Gottshalk v. Benson*, 409 U.S. 63 (1972), *Diamond v. Diehr*, 450 U.S. 175 (1981), and *Parker v. Flook*, 437 U.S. 584 (1978). In *Benson*, the Court summarized several earlier holdings by stating that "[t]ransformation and reduction of an article 'to a different state or thing' is the clue to the patentability of a process claim that does not include particular machines." But the Court expressly cautioned that "[w]e do not so hold" that a process claim "must operate to change articles or materials to a 'different state or thing.'" Nonetheless, the Federal Circuit latched on to the use of "the" and turned "the clue" to patent eligibility into the "definitive test" for it. In so doing, it ignored the plain meaning of the

word "clue," which is evidence that tends to suggest a result, but does not dictate one.

A valid criticism of *Bilski*, therefore, is that the court should not have so rigidly applied the machine-or-transformation test as the definitive and only test. Instead, the court should have outlined the test as simply a clue to patentability—a test that should guide but not handcuff. After all, the ultimate question of patent-eligible subject matter is, as the Federal Circuit acknowledged, "whether Applicants are seeking to claim a fundamental principle (such as an abstract idea) or a mental process." By making the machine-or-transformation test the sole determining inquiry, the Federal Circuit has committed the same sin with § 101 as it did with § 103 in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 127 (2007). Just as the Federal Circuit improperly applied a rigid test to determine obviousness in *KSR*, it now seeks to impose an inflexible machine-or-transformation test to determine whether a claim covers patent-eligible subject matter.

Nevertheless, while the Federal Circuit was setting forth the machine-or-transformation test as the "definitive" test in one breath, it invited future litigants to challenge that holding in another. The court acknowledged that the test may need to be changed to accommodate future technologies, stating that "we certainly do not rule out the possibility that this court may in the future refine or augment the test or how it is applied." This language in *Bilski* inviting future revisions of the test based on new technology may even afford an opportunity for a three-judge panel of the Federal Circuit to avoid *Bilski*'s rigid rule in the future simply by distinguishing the facts of the case, without requiring an en banc review of *Bilski*.

Since every new invention is by definition a "new technology," it should not be difficult for a panel to find a claim patentable even if it does not meet the test, on the ground that the machine-or-transformation test was just not suitable for that new technology. An en banc decision therefore may not be required to avoid the court's rigid machine-or-transformation test. Although this may be another avenue to chip away at a problematic aspect of *Bilski*, such a haphazard approach to a fundamental issue such as patentable subject matter only serves to introduce further uncertainty into the patent system, not reduce it.

Life After *Bilski*

Bilski is likely to affect the way that patent applications are drafted and prosecuted, and the way patents are litigated. In the short run, patent applications for computer-based inventions will likely be more expensive to prepare and prosecute. Patent counsel may spend more time describing and claiming the invention as a “particular computer,” characterizing the underlying data entities as “physical objects and substances,” and focusing on the “transformation” of “signals” representing those entities. This may be particularly important for business methods or other less clearly computer-based inventions.

However, applicants should be wary of promoting form over substance, forgetting the two “considerations” to the machine-or-transformation test discussed above. A mere recitation of a machine or a transformation in a process claim will likely not be sufficient. To draft a patent-eligible process claim, a practitioner must recite a machine or a transformation that imparts a “meaningful limitation” and is not merely “insignificant extra-solution activity.” This may require more advocacy in the patent specification itself by the patent practitioner, being more careful to characterize inventions as practical applications of fundamental concepts.

Practitioners may also be tempted to abandon method claims altogether to avoid the machine-or-transformation test, as *Bilski* arguably applies only to method claims. This is confirmed by the USPTO’s first decision applying *Bilski*, *Ex parte Li*, No. 08-1213 (B.P.A.I. Nov. 6, 2008) (nonprecedential), holding that computer program product claims are “considered statutory at the USPTO.” But abandoning method claims may be shortsighted. Although any activity that infringes a software implemented method claim would also infringe a properly drafted computer program product claim, the damages for that infringement could be vastly different. The damages for the computer program product claim may be based on the value of a computer program, rather than on the potentially greater value of the process implemented by the program. This is especially true where the claimed software is used in the course of a business’s operations rather than merely sold as a product.

While *Bilski* raises serious concerns for software and business innovators, patentees and applicants should not overreact. Under one interpretation, *Bilski*’s test probably has not dramatically changed the contours of patentable subject matter, as some suggest, but it also will likely not be easily bypassed by invoking token language. In the near term, *Bilski* may discourage some innovators in business operations and software from filing for patent protection, if only because the increased uncertainty as to whether they will obtain any protection makes the investment less attractive. However, others with longer term horizons and a commitment to protecting their innovations should continue to file for patent protection as they have been. *Bilski* will surely not be the last word on the bounds of patent-eligible subject matter, and, depending on how future courts and the USPTO apply the decision, the consequences of *Bilski* are yet to be fully identified. But it is probably safe to say, at least for now, the sky is not falling.

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