

**[REPLACE STATE STREET, AT&T, AND COMMENTS WITH THE FOLLOWING]**

**IN RE BILSKI**

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— F.3d — (Fed. Cir. 2008) (en banc)

MICHEL, CHIEF JUDGE.

Bernard L. Bilski and Rand A. Warsaw (collectively, “Applicants”) appeal from the final decision of the Board of Patent Appeals and Interferences (“Board”) sustaining the rejection of all eleven claims of their U.S. Patent Application Serial No. 08/833,892 (“’892 application”). Specifically, Applicants argue that the examiner erroneously rejected the claims as not directed to patent-eligible subject matter under 35 U.S.C. § 101, and that the Board erred in upholding that rejection. We affirm the decision of the Board because we conclude that Applicants’ claims are not directed to patent-eligible subject matter, and in doing so, we clarify the standards applicable in determining whether a claimed method constitutes a statutory “process” under § 101.

I.

Applicants filed their patent application on April 10, 1997. The application contains eleven claims, which Applicants argue together here. Claim 1 reads:

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

- (a) initiating a series of transactions between said commodity provider and consumers of said commodity wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumer;
- (b) identifying market participants for said commodity having a counter-risk position to said consumers; and
- (c) initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk position of said series of consumer transactions

’892 application cl.1. In essence, the claim is for a method of hedging risk in the field of commodities trading. For example, coal power plants (i.e., the “consumers”) purchase coal to produce electricity and are averse to the risk of a spike in demand for coal since such a spike would increase the price and their costs. Conversely, coal mining companies (i.e., the “market

participants”) are averse to the risk of a sudden drop in demand for coal since such a drop would reduce their sales and depress prices. The claimed method envisions an intermediary, the “commodity provider,” that sells coal to the power plants at a fixed price, thus isolating the power plants from the possibility of a spike in demand increasing the price of coal above the fixed price. The same provider buys coal from mining companies at a second fixed price, thereby isolating the mining companies from the possibility that a drop in demand would lower prices below that fixed price. And the provider has thus hedged its risk; if demand and prices skyrocket, it has sold coal at a disadvantageous price but has bought coal at an advantageous price, and vice versa if demand and prices fall. Importantly, however, the 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.

[The PTO rejected the claims of Bilski’s application under 35 U.S.C. § 101 as not directed to eligible subject matter. The Federal Circuit sua sponte ordered en banc review.]

## II.

Whether a claim is drawn to patent-eligible subject matter under § 101 is a threshold inquiry, and any claim of an application failing the requirements of § 101 must be rejected even if it meets all of the other legal requirements of patentability. *In re Comiskey*, 499 F.3d 1365, 1371 (Fed.Cir.2007)<sup>1</sup> (quoting *Parker v. Flook*, 437 U.S. 584, 593 (1978)); *In re Bergy*, 596 F.2d 952, 960 (CCPA 1979). Whether a claim is drawn to patent-eligible subject matter under § 101 is an issue of law that we review de novo. *Comiskey*, 499 F.3d at 1373; *AT & T Corp. v. Excel Commc'ns, Inc.*, 172 F.3d 1352, 1355 (Fed.Cir.1998)....

### A.

As this appeal turns on whether Applicants' invention as claimed meets the requirements set forth in § 101, we begin with the words of the statute:

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 therefor, subject to the conditions and requirements of this title.

35 U.S.C. § 101. The statute thus recites four categories of patent-eligible subject matter: processes, machines, manufactures, and compositions of matter. It is undisputed that Applicants'

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<sup>1</sup> Although our decision in *Comiskey* may be misread by some as requiring in every case that the examiner conduct a § 101 analysis before assessing any other issue of patentability, we did not so hold. As with any other patentability requirement, an examiner may reject a claim solely on the basis of § 101. Or, if the examiner deems it appropriate, she may reject the claim on any other ground(s) without addressing § 101. But given that § 101 is a threshold requirement, claims that are clearly drawn to unpatentable subject matter should be identified and rejected on that basis. Thus, an examiner should generally first satisfy herself that the application's claims are drawn to patent-eligible subject matter.

claims are not directed to a machine, manufacture, or composition of matter. Thus, the issue before us involves what the term “process” in § 101 means, and how to determine whether a given claim—and Applicants' claim 1 in particular—is a “new and useful process.”

.... [T]he Supreme Court has held that the meaning of “process” as used in § 101 is narrower than its ordinary meaning. Specifically, the Court has held that a claim is not a patent-eligible “process” if it claims “laws of nature, natural phenomena, [or] abstract ideas.” *Diamond v. Diehr*, 450 U.S. 175, 185 (1981) (citing *Flook*, 437 U.S. at 589, and *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Such fundamental principles<sup>5</sup> are “part of the storehouse of knowledge of all men ... free to all men and reserved exclusively to none.” *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948). “Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.” *Benson*, 409 U.S. at 67.

The true issue before us then is whether Applicants are seeking to claim a fundamental principle (such as an abstract idea) or a mental process. And the underlying legal question thus presented is what test or set of criteria governs the determination by the Patent and Trademark Office (“PTO”) or courts as to whether a claim to a process is patentable under § 101 or, conversely, is drawn to unpatentable subject matter because it claims only a fundamental principle.

The Supreme Court last addressed this issue in 1981 in *Diehr*, which concerned a patent application seeking to claim a process for producing cured synthetic rubber products. The claimed process took temperature readings during cure and used a mathematical algorithm, the Arrhenius equation, to calculate the time when curing would be complete. Noting that a mathematical algorithm alone is unpatentable because mathematical relationships are akin to a law of nature, the Court nevertheless held that the claimed process was patent-eligible subject matter, stating:

[The inventors] do not seek to patent a mathematical formula. Instead, they seek patent protection for a process of curing synthetic rubber. Their process admittedly employs a well-known mathematical equation, but *they do not seek to pre-empt the use of that equation*. Rather, they seek only to foreclose from others the use of that equation in conjunction with all of the other steps in their claimed process.

*Id.* at 187 (emphasis added). The Court declared that while a claim drawn to a fundamental principle is unpatentable, “an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.” *Id.* (emphasis in original); *see also Mackay Radio & Tel. Co. v. Radio Corp. of Am.*, 306 U.S. 86, 94 (1939) (“While a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.”).

The Court in *Diehr* thus drew a distinction between those claims that “seek to pre-empt the use of” a fundamental principle, on the one hand, and claims that seek only to foreclose others from using a particular “*application*” of that fundamental principle, on the other. 450 U.S.

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<sup>5</sup> As used in this opinion, “fundamental principles” means “laws of nature, natural phenomena, and abstract ideas.”

at 187. Patents, by definition, grant the power to exclude others from practicing that which the patent claims. *Diehr* can be understood to suggest that whether a claim is drawn only to a fundamental principle is essentially an inquiry into the scope of that exclusion; i.e., whether the effect of allowing the claim would be to allow the patentee to pre-empt substantially all uses of that fundamental principle. If so, the claim is not drawn to patent-eligible subject matter.

In *Diehr*, the Court held that the claims at issue did not pre-empt all uses of the Arrhenius equation but rather claimed only “a process for curing rubber ... which incorporates in it a more efficient solution of the equation.” 450 U.S. at 188. The process as claimed included several specific steps to control the curing of rubber more precisely: “These include installing rubber in a press, closing the mold, constantly determining the temperature of the mold, constantly recalculating the appropriate cure time through the use of the formula and a digital computer, and automatically opening the press at the proper time.” *Id.* at 187. Thus, one would still be able to use the Arrhenius equation in any process not involving curing rubber, and more importantly, even in any process to cure rubber that did not include performing “all of the other steps in their claimed process.” *See id.*

In contrast to *Diehr*, the earlier *Benson* case presented the Court with claims drawn to a process of converting data in binary-coded decimal (“BCD”) format to pure binary format via an algorithm programmed onto a digital computer. *Benson*, 409 U.S. at 65. The Court held the claims to be drawn to unpatentable subject matter:

It is conceded that one may not patent an idea. But in practical effect that would be the result if the formula for converting BCD numerals to pure binary numerals were patented in this case. The mathematical formula involved here has no substantial practical application except in connection with a digital computer, which means that if the judgment below is affirmed, *the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself.*

*Id.* at 71-72 (emphasis added). Because the algorithm had no uses other than those that would be covered by the claims (i.e., any conversion of BCD to pure binary on a digital computer), the claims pre-empted all uses of the algorithm and thus they were effectively drawn to the algorithm itself.

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. Unfortunately, this inquiry is hardly straightforward. How does one determine whether a given claim would pre-empt all uses of a fundamental principle? Analogizing to the facts of *Diehr* or *Benson* is of limited usefulness because the more challenging process claims of the twenty-first century are seldom so clearly limited in scope as the highly specific, plainly corporeal industrial manufacturing process of *Diehr*; nor are they typically as broadly claimed or purely abstract and mathematical as the algorithm of *Benson*.

The Supreme Court, however, has enunciated a definitive test to determine whether a process claim is tailored narrowly enough to encompass only a particular application of a fundamental principle rather than to pre-empt the principle itself. A claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing. *See Benson*, 409 U.S. at 70

(“Transformation 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.”); *Diehr*, 450 U.S. at 192 (holding that use of mathematical formula in process “transforming or reducing an article to a different state or thing” constitutes patent-eligible subject matter). A claimed process involving a fundamental principle that uses a particular machine or apparatus would not pre-empt uses of the principle that do not also use the specified machine or apparatus in the manner claimed. And a claimed process that transforms a particular article to a specified different state or thing by applying a fundamental principle would not pre-empt the use of the principle to transform any other article, to transform the same article but in a manner not covered by the claim, or to do anything other than transform the specified article.

The process claimed in *Diehr*, for example, clearly met both criteria. The process operated on a computerized rubber curing apparatus and transformed raw, uncured rubber into molded, cured rubber products. The claim at issue in *Flook*, in contrast, was directed to using a particular mathematical formula to calculate an “alarm limit”— a value that would indicate an abnormal condition during an unspecified chemical reaction. The Court rejected the claim as drawn to the formula itself because the claim did not include any limitations specifying “how to select the appropriate margin of safety, the weighting factor, or any of the other variables ... the chemical processes at work, the [mechanism for] monitoring of process variables, or the means of setting off an alarm or adjusting an alarm system.” The claim thus was not limited to any particular chemical (or other) transformation; nor was it tied to any specific machine or apparatus for any of its process steps, such as the selection or monitoring of variables or the setting off or adjusting of the alarm.

A canvas of earlier Supreme Court cases reveals that the results of those decisions were also consistent with the machine-or-transformation test later articulated in *Benson* and reaffirmed in *Diehr*. Interestingly, *Benson* presents a difficult case under its own test in that the claimed process operated on a machine, a digital computer, but was still held to be ineligible subject matter.<sup>9</sup> However, in *Benson*, the limitations tying the process to a computer were not actually limiting because the fundamental principle at issue, a particular algorithm, had no utility other than operating on a digital computer. *Benson*, 409 U.S. at 71-72. Thus, the claim's tie to a digital computer did not reduce the pre-emptive footprint of the claim since all uses of the algorithm were still covered by the claim.

## B.

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<sup>9</sup> We acknowledge that the Supreme Court in *Benson* stated that the claims at issue “were not limited ... to any particular apparatus or machinery.” 409 U.S. at 64. However, the Court immediately thereafter stated: “[The claims] purported to cover any use of the claimed method in a general-purpose digital computer of any type.” *Id.* And, as discussed herein, the Court relied for its *holding* on its understanding that the claimed process pre-empted all uses of the recited algorithm because its only possible use was on a digital computer. *Id.* at 71-72. The *Diehr* Court, in discussing *Benson*, relied only on this latter understanding of the *Benson* claims. See *Diehr*, 450 U.S. at 185-87. We must do the same.

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[W]e agree that future developments in technology and the sciences may present difficult challenges to the machine-or-transformation test, just as the widespread use of computers and the advent of the Internet has begun to challenge it in the past decade. Thus, we recognize that the Supreme Court may ultimately decide to alter or perhaps even set aside this test to accommodate emerging technologies. And 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. At present, however, and certainly for the present case, we see no need for such a departure and reaffirm that the machine-or-transformation test, properly applied, is the governing test for determining patent eligibility of a process under § 101.

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### III.

In the years following the Supreme Court's decisions in *Benson*, *Flook*, and *Diehr*, our predecessor court and this court have reviewed numerous cases presenting a wide variety of process claims, some in technology areas unimaginable when those seminal Supreme Court cases were heard. Looking to these precedents, we find a wealth of detailed guidance and helpful examples on how to determine the patent-eligibility of process claims.

#### A.

Before we turn to our precedents, however, we first address the issue of whether several other purported articulations of § 101 tests are valid and useful. The first of these is known as the *Freeman-Walter-Abele* test after the three decisions of our predecessor court that formulated and then refined the test: *In re Freeman*, 573 F.2d 1237 (CCPA 1978); *In re Walter*, 618 F.2d 758 (CCPA 1980); and *In re Abele*, 684 F.2d 902 (CCPA 1982). This test, in its final form, had two steps: (1) determining whether the claim recites an “algorithm” within the meaning of *Benson*, then (2) determining whether that algorithm is “applied in any manner to physical elements or process steps.” *Abele*, 684 F.2d at 905-07.

Some may question the continued viability of this test, arguing that it appears to conflict with the Supreme Court's proscription against dissecting a claim and evaluating patent-eligibility on the basis of individual limitations. In light of the present opinion, we conclude that the *Freeman-Walter-Abele* test is inadequate. Indeed, we have already recognized that a claim failing that test may nonetheless be patent-eligible. Rather, the machine-or-transformation test is the applicable test for patent-eligible subject matter.<sup>17</sup>

The second articulation we now revisit is the “useful, concrete, and tangible result”

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<sup>17</sup> Therefore, in *Abele*, *Meyer*, *Grams*, *Arrhythmia Research Technology, Inc. v. Corazonix Corp.*, 958 F.2d 1053 (Fed.Cir.1992), and other decisions, those portions relying solely on the *Freeman-Walter-Abele* test should no longer be relied on.

language associated with *State Street*, although first set forth in *Alappat*. *State St.*, 149 F.3d at 1373 (“Today, we hold that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a [patent-eligible invention] because it produces ‘a useful, concrete and tangible result’....”). The basis for this language in *State Street* and *Alappat* was that the Supreme Court has explained that “certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application.” *Alappat*, 33 F.3d at 1543; *see also State St.*, 149 F.3d at 1373. To be sure, a process tied to a particular machine, or transforming or reducing a particular article into a different state or thing, will generally produce a “concrete” and “tangible” result as those terms were used in our prior decisions. But while looking for “a useful, concrete and tangible result” may in many instances provide useful indications of whether a claim is drawn to a fundamental principle or a practical application of such a principle, that inquiry is insufficient to determine whether a claim is patent-eligible under § 101. And it was certainly never intended to supplant the Supreme Court’s test. Therefore, we also conclude that the “useful, concrete and tangible result” inquiry is inadequate and reaffirm that the machine-or-transformation test outlined by the Supreme Court is the proper test to apply.<sup>19</sup>

We next turn to the so-called “technological arts test” that some amici urge us to adopt. We perceive that the contours of such a test, however, would be unclear because the meanings of the terms “technological arts” and “technology” are both ambiguous and ever-changing. And no such test has ever been explicitly adopted by the Supreme Court, this court, or our predecessor court, as the Board correctly observed here. Therefore, we decline to do so and continue to rely on the machine-or-transformation test as articulated by the Supreme Court.

We further reject calls for categorical exclusions beyond those for fundamental principles already identified by the Supreme Court. We rejected just such an exclusion in *State Street*, noting that the so-called “business method exception” was unlawful and that business method claims (and indeed all process claims) are “subject to the same legal requirements for patentability as applied to any other process or method.” 149 F.3d at 1375-76. We reaffirm this conclusion.<sup>23</sup>

Lastly, we address a possible misunderstanding of our decision in *Comiskey*. Some may suggest that *Comiskey* implicitly applied a new § 101 test that bars any claim reciting a mental process that lacks significant “physical steps.” We did not so hold, nor did we announce any new test at all in *Comiskey*. Rather, we simply recognized that the Supreme Court has held that mental processes, like fundamental principles, are excluded by § 101 because “ ‘[p]henomena of nature, though just discovered, *mental processes*, and abstract intellectual concepts ... are the

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<sup>19</sup> As a result, those portions of our opinions in *State Street* and *AT & T* relying solely on a “useful, concrete and tangible result” analysis should no longer be relied on.

<sup>23</sup> Therefore, although invited to do so by several amici, we decline to adopt a broad exclusion over software or any other such category of subject matter beyond the exclusion of claims drawn to fundamental principles set forth by the Supreme Court. We also note that the process claim at issue in this appeal is not, in any event, a software claim. Thus, the facts here would be largely unhelpful in illuminating the distinctions between those software claims that are patent-eligible and those that are not.

basic tools of scientific and technological work.” *Comiskey*, 499 F.3d at 1377 (quoting *Benson*, 409 U.S. at 67) (emphasis added). And we actually applied the machine-or-transformation test to determine whether various claims at issue were drawn to patenteligible subject matter. *Id.* Because those claims failed the machine-or-transformation test, we held that they were drawn solely to a fundamental principle, the mental process of arbitrating a dispute, and were thus not patent-eligible under § 101.

Further, not only did we not rely on a “physical steps” test in *Comiskey*, but we have criticized such an approach to the § 101 analysis in earlier decisions. In *AT & T*, we rejected a “physical limitations” test and noted that “the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter.” 172 F.3d at 1359 (quoting *State St.*, 149 F.3d at 1374). The same reasoning applies when the claim at issue recites fundamental principles other than mathematical algorithms. Thus, the proper inquiry under § 101 is not whether the process claim recites sufficient “physical steps,” but rather whether the claim meets the machine-or-transformation test. As a result, even a claim that recites “physical steps” but neither recites a particular machine or apparatus, nor transforms any article into a different state or thing, is not drawn to patent-eligible subject matter. Conversely, a claim that purportedly lacks any “physical steps” but is still tied to a machine or achieves an eligible transformation passes muster under § 101.<sup>26</sup>

## B.

With these preliminary issues resolved, we now turn to how our case law elaborates on the § 101 analysis set forth by the Supreme Court. To the extent that some of the reasoning in these decisions relied on considerations or tests, such as “useful, concrete and tangible result,” that are no longer valid as explained above, those aspects of the decisions should no longer be relied on. Thus, we reexamine the facts of certain cases under the correct test to glean greater guidance as to how to perform the § 101 analysis using the machine-or-transformation test.

The machine-or-transformation test is a two-branched inquiry; an applicant may show that a process claim satisfies § 101 either by showing that his claim is tied to a particular machine, or by showing that his claim transforms an article. *See Benson*, 409 U.S. at 70. Certain considerations are applicable to analysis under either branch. First, as illustrated by *Benson* and discussed below, the use of a specific machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility. *See Benson*, 409 U.S. at 71-72. Second, the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity. *See Flook*, 437 U.S. at 590.

As to machine implementation, Applicants themselves admit that the language of claim 1 does not limit any process step to any specific machine or apparatus. *See Appellants' Br.* at 11.

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<sup>26</sup> Of course, a claimed process wherein all of the process steps may be performed entirely in the human mind is obviously not tied to any machine and does not transform any article into a different state or thing. As a result, it would not be patent-eligible under § 101.

As a result, issues specific to the machine implementation part of the test are not before us today. We leave to future cases the elaboration of the precise contours of machine implementation, as well as the answers to particular questions, such as whether or when recitation of a computer suffices to tie a process claim to a particular machine.

We will, however, consider some of our past cases to gain insight into the transformation part of the test. A claimed process is patent-eligible if it transforms an article into a different state or thing. This transformation must be central to the purpose of the claimed process. But the main aspect of the transformation test that requires clarification here is what sorts of things constitute “articles” such that their transformation is sufficient to impart patent-eligibility under § 101. It is virtually self-evident that a process for a chemical or physical transformation of *physical objects or substances* is patent-eligible subject matter. As the Supreme Court stated in *Benson*:

[T]he arts of tanning, dyeing, making waterproof cloth, vulcanizing India rubber, smelting ores ... are instances, however, where the use of chemical substances or physical acts, such as temperature control, changes articles or materials. The chemical process or the physical acts which transform the raw material are, however, sufficiently definite to confine the patent monopoly within rather definite bounds.

409 U.S. at 70.

The raw materials of many information-age processes, however, are electronic signals and electronically-manipulated data. And some so-called business methods, such as that claimed in the present case, involve the manipulation of even more abstract constructs such as legal obligations, organizational relationships, and business risks. Which, if any, of these processes qualify as a transformation or reduction of an article into a different state or thing constituting patent-eligible subject matter?

Our case law has taken a measured approach to this question, and we see no reason here to expand the boundaries of what constitutes patent-eligible transformations of articles.

Our predecessor court’s mixed result in *Abele* illustrates this point. There, we held unpatentable a broad independent claim reciting a process of graphically displaying variances of data from average values. That claim did not specify any particular type or nature of data; nor did it specify how or from where the data was obtained or what the data represented. *See also In re Meyer*, 688 F.2d 789, 792-93 (CCPA 1982) (process claim involving undefined “complex system” and indeterminate “factors” drawn from unspecified “testing” not patent-eligible). In contrast, we held one of *Abele*’s dependent claims to be drawn to patent-eligible subject matter where it specified that “said data is X-ray attenuation data produced in a two dimensional field by a computed tomography scanner.” *Abele*, 684 F.2d at 908-09. This data clearly represented physical and tangible objects, namely the structure of bones, organs, and other body tissues. Thus, the transformation of that raw data into a particular visual depiction of a physical object on a display was sufficient to render that more narrowly-claimed process patent-eligible.

We further note for clarity that the electronic transformation of the data itself into a visual depiction in *Abele* was sufficient; the claim was not required to involve any transformation of the underlying physical object that the data represented. We believe this is faithful to the concern the Supreme Court articulated as the basis for the machine-or-transformation test, namely the

prevention of pre-emption of fundamental principles. So long as the claimed process is limited to a practical application of a fundamental principle to transform specific data, and the claim is limited to a visual depiction that represents specific physical objects or substances, there is no danger that the scope of the claim would wholly pre-empt all uses of the principle.

This court and our predecessor court have frequently stated that adding a data-gathering step to an algorithm is insufficient to convert that algorithm into a patent-eligible process. For example, in *Grams* we held unpatentable a process of performing a clinical test and, based on the data from that test, determining if an abnormality existed and possible causes of any abnormality. 888 F.2d at 837, 841. We rejected the claim because it was merely an algorithm combined with a data-gathering step. *Id.* at 839-41. We note that, at least in most cases, gathering data would not constitute a transformation of any article. A requirement simply that data inputs be gathered without specifying how is a meaningless limit on a claim to an algorithm because every algorithm inherently requires the gathering of data inputs. *Grams*, 888 F.2d at 839-40. Further, the inherent step of gathering data can also fairly be characterized as insignificant extra-solution activity.

Similarly, *In re Schrader* presented claims directed to a method of conducting an auction of multiple items in which the winning bids were selected in a manner that maximized the total price of all the items (rather than to the highest individual bid for each item separately). 22 F.3d 290, 291 (Fed.Cir.1994). We held the claims to be drawn to unpatentable subject matter, namely a mathematical optimization algorithm. No specific machine or apparatus was recited. The claimed method did require a step of recording the bids on each item, though no particular manner of recording (e.g., on paper, on a computer) was specified. But, relying on *Flook*, we held that this step constituted insignificant extra-solution activity.

#### IV.

We now turn to the facts of this case. As outlined above, the operative question before this court is whether Applicants' claim 1 satisfies the transformation branch of the machine-or-transformation test.

We hold that the Applicants' process as claimed does not transform any article to a different state or thing. Purported 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. Applicants' process at most incorporates only such ineligible transformations. As discussed earlier, the process as claimed encompasses the exchange of only options, which are simply legal rights to purchase some commodity at a given price in a given time period. The claim only refers to "transactions" involving the exchange of these legal rights at a "fixed rate corresponding to a risk position." Thus, claim 1 does not involve the transformation of any physical object or substance, or an electronic signal representative of any physical object or substance. Given its admitted failure to meet the machine implementation part of the test as well, the claim entirely fails the machine-or-transformation test and is not drawn to patent-eligible subject matter.

Applicants' arguments are unavailing because they rely on incorrect or insufficient

considerations and do not address their claim's failure to meet the requirements of the Supreme Court's machine-or-transformation test. First, they argue that claim 1 produces “useful, concrete and tangible results.” But as already discussed, this is insufficient to establish patent-eligibility under § 101. Applicants also argue that their claimed process does not comprise only “steps that are totally or substantially practiced in the mind but clearly require physical activity which have [sic] a tangible result.” But as previously discussed, the correct analysis is whether the claim meets the machine-or-transformation test, not whether it recites “physical steps.” Even if it is true that Applicant's claim “can only be practiced by a series of physical acts” as they argue, its clear failure to satisfy the machine-or-transformation test is fatal. Thus, while we agree with Applicants that the only limit to patent-eligibility imposed by Congress is that the invention fall within one of the four categories enumerated in § 101, we must apply the Supreme Court's test to determine whether a claim to a process is drawn to a statutory “process” within the meaning of § 101. Applied here, Applicants' claim fails that test so it is not drawn to a “process” under § 101 as that term has been interpreted.

On the other hand, while we agree with the PTO that the machine-or-transformation test is the correct test to apply in determining whether a process claim is patent-eligible under § 101, we do not agree, as discussed earlier, that this amounts to a “technological arts” test. Neither the PTO nor the courts may pay short shrift to the machine-or-transformation test by using purported equivalents or shortcuts such as a “technological arts” requirement. Rather, the machine-or-transformation test is the only applicable test and must be applied, in light of the guidance provided by the Supreme Court and this court, when evaluating the patent-eligibility of process claims. When we do so here, however, we must conclude, as the PTO did, that Applicants' claim fails the test.

Applicants' claim is similar to the claims we held unpatentable under § 101 in *Comiskey*. There, the applicant claimed a process for mandatory arbitration of disputes regarding unilateral documents and bilateral “contractual” documents in which arbitration was required by the language of the document, a dispute regarding the document was arbitrated, and a binding decision resulted from the arbitration. *Comiskey*, 499 F.3d at 1368-69. We held the broadest process claims unpatentable under § 101 because “these claims do not require a machine, and these claims evidently do not describe a process of manufacture or a process for the alteration of a composition of matter.” *Id.* at 1379. We concluded that the claims were instead drawn to the “mental process” of arbitrating disputes, and that claims to such an “application of [only] human intelligence to the solution of practical problems” is no more than a claim to a fundamental principle. *Id.* at 1377-79 (quoting *Benson*, 409 U.S. at 67 (“[M]ental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”)).

Just as the *Comiskey* claims as a whole were directed to the mental process of arbitrating a dispute to decide its resolution, the claimed process here as a whole is directed to the mental and mathematical process of identifying transactions that would hedge risk. The fact that the claim requires the identified transactions actually to be made does no more to alter the character of the claim as a whole than the fact that the claims in *Comiskey* required a decision to actually be rendered in the arbitration—i.e., in neither case do the claims require the use of any particular machine or achieve any eligible transformation.

We have in fact consistently rejected claims like those in the present appeal and in *Comiskey*. For example, in *Meyer*, the applicant sought to patent a method of diagnosing the location of a malfunction in an unspecified multi-component system that assigned a numerical value, a “factor,” to each component and updated that value based on diagnostic tests of each component. 688 F.2d at 792-93. The locations of any malfunctions could thus be deduced from reviewing these “factors.” The diagnostic tests were not identified, and the “factors” were not tied to any particular measurement; indeed they could be arbitrary. *Id.* at 790. We held that the claim was effectively drawn only to “a mathematical algorithm representing a mental process,” and we affirmed the PTO’s rejection on § 101 grounds. *Id.* at 796. No machine was recited in the claim, and the only potential “transformation” was of the disembodied “factors” from one number to another. Thus, the claim effectively sought to pre-empt the fundamental mental process of diagnosing the location of a malfunction in a system by noticing that the condition of a particular component had changed. And as discussed earlier, a similar claim was rejected in

Similarly to the situations in *Meyer* and *Grams*, Applicants here seek to claim a non-transformative process that encompasses a purely mental process of performing requisite mathematical calculations without the aid of a computer or any other device, mentally identifying those transactions that the calculations have revealed would hedge each other’s risks, and performing the post-solution step of consummating those transactions. Therefore, claim 1 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). And while Applicants argue that the scope of this pre-emption is limited to hedging as applied in the area of consumable commodities, the Supreme Court’s reasoning has made clear that effective pre-emption of all applications of hedging even just within the area of consumable commodities is impermissible. Moreover, while the claimed process contains physical steps (initiating, identifying), it does not involve transforming an article into a different state or thing. Therefore, Applicants’ claim is not drawn to patent-eligible subject matter under § 101.

## CONCLUSION

Because the applicable test to determine whether a claim is drawn to a patent-eligible process under § 101 is the machine-or-transformation test set forth by the Supreme Court and clarified herein, and Applicants’ claim here plainly fails that test, the decision of the Board is

### **UPDATE: Supreme Court Grants Certiorari on June 1, 2009**

The questions presented are:

1. Whether the Federal Circuit erred by holding that a “process” must be tied to a particular machine or apparatus, or transform a particular article into a different state or thing (“machine-or-transformation” test), to be eligible for patenting under 35 U.S.C. § 101, despite this Court’s precedent declining to limit the broad statutory grant of patent eligibility for “any” new and useful process beyond excluding patents for “laws of nature, physical phenomena, and abstract ideas.”

2. Whether the Federal Circuit’s “machine-or-transformation” test for patent eligibility, which effectively forecloses meaningful patent protection to many business methods, contradicts the clear Congressional intent that patents protect “method[s] of doing or conducting business.” 35 U.S.C. § 273.

## Comments

**1. *The Machine-Transformation Rule.*** In *Bilski*, the Federal Circuit asked “what test or set of criteria governs the determination by the [PTO] or courts as to whether a claim to a process is patentable under § 101 or, conversely, is drawn to unpatentable subject matter because it claims only a fundamental principle.” In answering this question, the court — tracking Supreme Court precedent very closely — adopted the machine-transformation test. This “definitive test” — as characterized by the Federal Circuit — states that subject matter is eligible for patent protection if “(1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.” The court added two additional filters in unpacking this test, namely that the claimed machine or transformation of an article “must impose meaningful limits on the claim’s scope” to satisfy § 101’s eligibility requirements, and the specific machine or transformation “must not merely be insignificant extra-solution activity.”

In adopting the machine-transformation test, the court expressly rejected several of its prior § 101 frameworks, including the *Freeman-Walter-Abele* test, *State Street Bank’s* “useful, concrete, and tangible test (“UCT”), and the “technological arts” test, which was particularly telling because in doing so the court signaled that § 101 eligibility is a big tent that does not make distinctions based on technological category. Related to this point, the court rejected calls to enunciate categorical exclusions beyond those already firmly entrenched in Supreme Court case law, namely “laws of nature,” “natural phenomena,” and “abstract ideas” or what, during oral argument, Chief Judge Michel referred to as “the three No No’s.” (See Comment 4 below for a discussion of the court’s refusal to adopt exclusions.) Thus, the machine-transformation test can be viewed as a rule-like framework that is broad and inclusive, but not without underlying considerations or filters that can inform the subject matter analysis. The question remains how aggressive the Federal Circuit and PTO apply the machine-transformation framework. What is clear is that *Bilski* gave the patent world a technology-neutral test focused solely on eligibility; and applicants must comply with this test to open other patentability doors (*i.e.*, requirements relating to disclosure, novelty, non-obviousness, and utility).

**2. *What is a “Machine?”*** The court did not elaborate on the machine component of the test and left open the question “whether or when recitation of a computer suffices to tie a process claim to a particular machine.” The obvious question is: What is a “particular machine?” The common law will have to play itself out and draw the line at the appropriate level of abstraction, but one

can plausibly argue that under *Benson* a claimed process tied to a computer may not satisfy the machine prong unless the claim is geared toward a real-world application, something concrete, not overly abstract. In other words, a computer is not a “particular machine.” As *Bilski* noted, in *Benson* “the limitations tying the process to a computer were not actually limiting because the fundamental principle at issue, a particular algorithm, had no utility other than operating on a digital computer.”

But this may be too broad a reading of *Benson*. The *Bilski* court recognized that “*Benson* presents a difficult case” because “the claimed process operated on a machine, a digital computer, but was still held to be ineligible subject matter.” Thus, the claimed process in *Benson* arguably satisfies the machine-transformation test. One way to reconcile *Benson* with the machine-transformation test, therefore, is find another reason why the *Benson* claims were deemed ineligible. This other reason maybe that *Benson*’s claimed invention would have preempted a fundamental principle, particularly because the only use of the claimed algorithm was on a digital computer. See *Bilski*, footnote 9. That is, the claims “purported to cover any use of the claimed method in a general-purpose digital computer of any type.” *Id.* Thus, a claim to an algorithm tied to a computer maybe eligible under *Bilski* if the algorithm has additional computer-related uses beyond what is claimed. For application of the machine prong of *Bilski*, see *Ex Parte Halligan*, discussed in Comment 3.

**3. What is a “Transformation?”** Regarding the transformation component, the court made clear that the transformation “must be central to the purpose of the claimed process” and must transform an “article.” It is hard to know what the court meant by the former other than the transformation imposes “meaningful limits” on claim scope. Regarding the latter, the court endeavored to clarify “what sorts of things constitute ‘articles.’” For instance, a claimed process directed toward “a chemical or physical transformation of *physical objects or substances*.” (emphasis in original.). And a claimed process that employs electronic signals and electronically-manipulated data are eligible if the data represents physical or tangible objects. As an example, the court used the dependent claim in *Abele* wherein transformed data were represented in the form of bone structure and organs. The court added the “electronic transformation of the data itself into a visual depiction in *Abele* was sufficient.” But the issue becomes more difficult as you move away from physicality. What about data transformations that do not represent physical or tangible information on a computer screen; in other words, the transformation of data that results in an intangible representation. *Bilski*’s claimed invention falls into this category, so-called transformations “of public or private legal obligations or relationships, business risks, or other such abstractions” that “are not physical objects or substances.” Thus, the physicality of the representation seems to play an important role in the transformation test.

Shortly after *Bilski*, the Board of Patent Appeals and Interferences (BPAI) had an opportunity to apply the machine-transformation test. In *Ex Parte Halligan*, B.P.A.I., No. 2008-

1588, the inventor claimed a method for identifying a trade secret under the common law, particularly the First Restatement of Torts § 757. The Board began its analysis by noting that *Bilski*:

Explained that transformation of data is sufficient to render a process patent-eligible if the data represents physical and tangible objects, i.e., transformation of such raw data into a particular visual depiction of a physical object on a display. The court further noted that transformation of data is insufficient to render a process patent-eligible if the data does not specify any particular type or nature of data and does not specify how or where the data was obtained or what the data represented.

*Id.* at 25. Based on this understanding of *Bilski*, the Board rejected claims 122 and 123 under the transformation prong “because the data does not represent physical and tangible objects. Rather, the data represents information about a trade secret, which is an intangible asset.” As such, the Board further stated in footnote 3, “we need not reach the issue of whether mere calculation of a number based on inputs of other numbers is a sufficient “transformation” of data to render a process patent-eligible under § 101.” Claims 122 and 123 were not tied to a machine, and therefore, the machine prong was not relevant to these claims.

The preamble of claims 119 and 120, however, did recite: “A *programmed computer method* based upon the six factors of a trade secret from the First Restatement of Torts for identifying trade secrets within a plurality of potential trade secrets of a business, where each of the plurality of potential trade secrets comprise information.” (Emphasis added.) The issue for the Board was “whether recitation of a programmed computer suffices to tie the process claims to a particular machine.” The Board acknowledged that while

*Bilski* did not expressly discuss this issue, the court “did provide some guidance when it explained that the use of a specific machine must impose meaningful limits on the claim’s scope to impart patent-eligibility.” With this in mind, the Board rejected claims 119 and 120:

Claims 119 and 120 recite a method performed on a programmed computer. This recitation fails to impose any meaningful limits on the claim’s scope as it adds nothing more than a general purpose computer that has been programmed in an unspecified manner to implement the functional steps recited in the claims. Were the recitation of a “programmed computer” in combination with purely functional recitations of method steps, where the functions are implemented using an unspecified algorithm, sufficient to transform otherwise unpatentable method steps into a patent eligible process, this would exalt form over substance and would allow pre-emption of the fundamental principle present in the non-machine implemented method by the addition of the mere recitation of a “programmed computer.” Such a field-of-use limitation is insufficient to render an otherwise ineligible process claim patent eligible.

*Id.* at 27.

**4. A “Measured Approach.”** Prior to *Bilski*, the Federal Circuit’s *State Street Bank* decision was the most prominent (and controversial) subject matter eligibility decision. In *State Street*, the Federal Circuit broadly opened the doors of § 101’s subject matter requirement, and held that patent eligibility is satisfied as long as the claimed invention produces a “useful, concrete, and tangible result.” The *Bilski* court rejected *State Street Bank*’s “useful, concrete, and tangible” test

as “insufficient to determine whether a claim is patent-eligible under § 101,” but the court embraced *State Street Bank*’s fundamental premise. The core principle of *State Street Bank* is that given the unpredictable nature and extraordinary diversity of technological innovation, § 101’s eligibility requirement should be inclusive. Indeed, the *Bilski* court eschewed explicit subject matter exclusions other than laws of nature, natural phenomena, and abstract ideas. As the court wrote in footnote 23, “we decline to adopt a broad exclusion over software or any other such category of subject matter beyond the exclusion of claims drawn to fundamental principles set forth by the Supreme Court.” Indeed, the court noted that in this regard the Federal Circuit “case law has taken a measured approach.” *Bilski* is no exception.

Compare this “measured approach” with the European model. Article 52(2) of the European Patent Convention states: “The following ... shall not be regarded as inventions – (a) discoveries, scientific theories and mathematical methods; (b) aesthetic creations; (c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers; (d) presentations of information.” And Article 53 expressly excludes from patent protection:

(a) inventions the publication or exploitation of which would be contrary to “ordre public” or morality, provided that the exploitation shall not be deemed to be so contrary merely because it is prohibited by law or regulation in some or all of the Contracting States;

(b) plant or animal varieties or essentially biological processes for the production of plants or animals; this provision does not apply to microbiological processes or the products thereof

The American subject matter jurisprudence reflects a recognition of the unpredictable nature of technological innovation and the predominance of the common law in the development of American patent law. As the *Bilski* court wrote, “future developments in technology and the sciences may present difficult challenges to the machine-or-transformation test,... [a]nd 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.” Thus, although there is substantive overlap regarding exclusions (e.g., scientific theories), there are important institutional differences and approaches to developing eligibility requirements.

**5. *Bilski and Software Patents.*** *Bilski* said very little about the patentability of software, or more generally, computers. The court’s reluctance to engage software and computers in the context of § 101 may simply be a result of what the facts presented, namely *Bilski* was not claiming a software invention. Accordingly, in footnote 23, the court pointed out that “the facts here would be largely unhelpful in illuminating the distinctions between those software claims that are patent-eligible and those that are not.” Rather, “the operative question” in *Bilski* was “whether Applicants’ claim 1 satisfies the transformation branch of the machine-or-transformation test.”

But what prong of the machine-transformation test is most suitable to analyze software? Software inventions may very well satisfy the transformation test. For instance, compare *Abele*’s independent claim 5 (not patentable subject matter) and dependent claim 6 (patentable subject matter):

5. A method of displaying data in a field comprising the steps of

calculating the difference between the local value of the data at a data point in the field and the average value of the data in a region of the field which surrounds said point for each point in said field, and

displaying the value of said difference as a signed gray scale at a point in a picture which corresponds to said data point.

6. The method of claim 5 wherein said data is X-ray attenuation data produced in a two dimensional field by a computed tomography scanner.

The court viewed claim 5 as “directed solely to the mathematical algorithm,” whereas, with respect to claim 6, “the production, detection, and display steps as manifestly statutory subject matter” regardless of the “presence of an algorithm in the claimed method.” Referring to Abele’s claim 6, the court wrote, “the transformation of that raw data into a particular visual depiction of a physical object on a display was sufficient to render that more narrowly-claimed process patent-eligible.”

Although software-related inventions can satisfy transformation test, it seems that a more comfortable fit would be the machine prong. Even though the question “whether or when recitation of a computer suffices to tie a process claim to a particular machine” will have to wait for another day, *Bilski* is not without guidance. First, the court did not express any negativity toward software inventions (or business methods). In fact, based on the court’s refusal to recognize subject matter exclusions and by rejecting the technological arts test, one can argue that the court signaled to the software industry a receptivity to software-related inventions. As noted in Comment 2, however, one could argue that to “play it safe,” an applicant may want to do more than tie the algorithm to a computer, and stress a real-world application or concrete nature of the invention. *See, e.g., Ex Parte Halligan*, discussed in Comment 3.

**6. Software and Patents: A Complex and Controversial Relationship.** The patenting of software has always been controversial. Software firms, especially during the 1980s, turned to copyright law as a means of appropriating their innovations. Code was considered a form of expression. But by the early 1990s, copyrights became less important as courts began narrowly interpreting copyright law as applied to software. *See, e.g., Apple Computer, Inc. v. Microsoft, Inc.*, 35 F.3d 1435 (9th Cir. 1994) (denying copyright protection for Apple’s graphical user interface); *Lotus Development Corp. v. Borland International, Inc.*, 49 F.3d 807 (1st Cir. 1995) (holding no copyright protection for pulldown menus). As such, copyright doctrine was seen as an increasingly poor fit for software. Copyright law protects the expression of the software code, not functional elements of the software. And reverse engineering is a rather straightforward means of obtaining access to software’s functionality. Unlike a patent, a copyright does not protect its owner against reverse engineering, which is considered a form of fair use. *See Sony Computer Entertainment, Inc. v. Connectix Corp.*, 203 F.3d 596 (9th Cir. 2000). *See also* Robert J. Mann, *Do Patents Facilitate Financing in the Software Industry*, 83 TEX. L.REV. 961, 1013, 1015 (2005) (stating “[t]he most obvious problem with copyright protection for software relates

to reverse engineering” by competitors, but copyright law does have an important role in preventing piracy by customers and code “theft” from departing employees); Peter S. Menell, *Envisioning Copyright Law’s Digital Future*, 36 N.Y.L. SCH. L. REV. 63, 65-66 (2003) (“Copyright law provides a thin layer of protection for computer software, effectively prohibiting wholesale piracy of computer programs without affording control for interface specifications and other essential elements of computer functionality.”). Thus, in many respects, patent law is a much more attractive option for software firms.

*Diehr* was decided in 1981, but it was not until the 1990s that software patents became more commonplace. See, e.g., *Arrhythmia Research Technology Inc. v. Corazonix Corp.*, 958 F.2d 1053 (Fed. Cir. 1992). In fact, the number of software patent applications and issued patents increased dramatically in the 1990s. See Stuart J.H. Graham & David C. Mowery, *Intellectual Property Protection in the U.S. Software Industry*, in PATENTS IN THE KNOWLEDGE-BASED ECONOMY 219 (Wesley A. Cohen & Stephen A. Merrill eds., 2003). As Cohen and Lemley write, “the past three decades have witnessed an about-face on the question of software’s eligibility for patent protection . . . [as] software’s status as patentable subject matter was first doubted, then grudgingly admitted, and finally embraced.” Julie E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CAL. L. REV. 1, 7 (2001).

But software patents remain controversial. Some economists have argued patents are not needed to incentivize software innovation, and indeed, are harmful to software innovation because the sheer number of software patents makes it difficult for innovators to obtain permission to pursue their research. Software patents can present significant barriers to entry for small entities, imposing a tax of sorts, either in the form of due diligence (e.g., money spent on infringement studies of existing patents). As a group of economists recently wrote in opposition to the failed European Software Directive, “[s]oftware patents damage innovation by raising costs and uncertainties in assembling the many components needed for complex computer programs and constraining the speed and effectiveness of innovation.” <http://www.researchineurope.org/policy/patentdirltr.pdf>. Moreover, large entities in the software industry have argued they are being plagued by low-quality patents owned by smaller entities. For criticisms of software patents, see JAMES BESSEN AND MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK (2007); James Bessen & Eric Maskin, *Sequential Innovation, Patents and Imitation*, available at <http://ssrn.com/abstract=206189> (Jan. 2000); PATENTS IN THE KNOWLEDGE-BASED ECONOMY 2 (Wesley M. Cohen & Stephen A. Merrill eds., 2003); James Bessen, *Patent Thickets: Strategic Patenting of Complex Technologies*, available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=327760](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=327760). The attitude within the IT industry generally has been described as one of mutually assured destruction, meaning that Firm 1 arms itself with patents because Firms 2, 3, and 4 have done the same. The first firm to sue another will be hit with counter-infringement suits. Of course, this can give rise to cross-licensing opportunities, assuming transaction costs are not prohibitively.

But other commentators have contested these claims. See John R. Allison & Robert J. Mann, *The Disputed Quality of Software Patents*, <http://ssrn.com/abstract=970083> (March 2007) (disputing the notion that software patents are of a lower quality than other types of patents, and also stating that “the data substantially undermine the traditional story that large firms in the

software industry are plagued by a large number of low-quality patents obtained by the smaller firms in the industry’). See also Mann, *Facilitate Financing*, supra, at 1004-09 (rejecting software thicket thesis); Robert P. Merges, *Patents, Entry and Growth in the Software Industry*, at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=926204](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=926204) (asserting that patents have not damaged the software industry and new firm entry remains robust).

**7. Defining Software and the Software Patent.** It is common to think of software as part of a CD-ROM or that which forms part of a computer and provides it with functional applications. But it is more accurate to think of software as a series of instructions, known as source code and object code, “that directs a computer to perform specified functions or operations.” *Fantasy Sports Props., Inc. v. Sportslines.com, Inc.*, 287 F.3d 1108, 1118 (Fed. Cir. 2002). Indeed, the PTO’s Manual of Patent Examination Procedure (MPEP) states “a computer program is merely a set of instructions capable of being executed by a computer.” MPEP § 2106.IV.B.1(a) (8th ed. 2001).

It is particularly difficult to define a software patent and there is no universally accepted definition. Perhaps the reason for this elusiveness has something to do with software’s pervasiveness across many industries that make categorization quite difficult. See Stuart J.H. Graham & David C. Mowery, *Software Patents: Good News or Bad News*, [http://tiger.gatech.edu/files/gt\\_tiger\\_software.pdf](http://tiger.gatech.edu/files/gt_tiger_software.pdf) at 29 (May 2004) (stating “[o]ne of the thorniest problems in analyzing software patenting, of course, is defining and measuring software patents”).

**8. Business Method and Other “Non-Traditional” Patents.** Business method patents are still viable as long as they satisfy the machine-transformation test. Bilski’s invention was rejected under § 101 not because it was a business method, but rather it related to nothing more than “public or private legal obligations or relationships, business risks, or other such abstractions.” The *State Street Bank* and *AT&T* cases have spurred patenting in business methods, financial tools, and the like. Indeed, the PTO has been flooded with business method patents in the wake of *State Street Bank* and its rejection of the “ill-conceived exception.” This increase in patent applications has posed problems for the PTO. See Robert P. Merges, *As Many as Six Possible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577 (1999). One patent that received a great deal of publicity was Amazon.com’s “one-click” ordering method. In fact, Amazon successfully obtained a preliminary injunction against Barnes & Noble, although the injunction was reversed on appeal. See *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343 (Fed. Cir. 2001).

In addition, commentators have criticized business method patents. According to two commentators:

Beyond the issue of permissible subject matter, settled by *State Street*, critics raise essentially two objections. First, some BMPs appear to be based on ideas that can not reasonably be considered novel because similar methods have existed in various unprotected forms for some time. For example, Priceline.com’s “reverse auction,” in which purchasers list a maximum price and the software auctioneer finds a willing supplier, has antecedents in Dutch auctions and other selling methods. Similarly, Barnes & Noble contested the validity of Amazon’s “one-

click'' patent on the grounds that other techniques involving a single operation by the consumer, contingent on the seller's ability to identify the consumer uniquely, were in operation prior to the patent's issuance in 1999. . . .

Second, many patents cover remarkably broad claims that could permit patentees to exclude competition in a wide swath of Internet applications. . . . In brief, [business method patents] are controversial because they provide broad and lengthy exclusivity for inventions that may not be particularly novel or non-obvious.

Keith E. Maskus & Eina Vivian Wong, *Searching For Economic Balance in Business Method Patents*, 8 WASH. U. J.L. & POL'Y 289, 291-92 (2002). Rochelle Dreyfuss asserts that incentives other than patents are more germane to business method innovations:

Business methods are . . . hard to free ride on. They depend in strong ways on the social structure within the firms utilizing compensation schemes, lines of reporting, supervising policies, and other business factors. Moreover, as we saw, sticky business methods are their own reward. With lock in, network effects, and even good old fashioned loyalty, lead time (the first mover advantage) goes a long way to assuring returns adequate to recoup costs and earn substantial profit. In sum, while business innovations are certainly desirable, it is not clear that business method patents are needed to spur people to create them.

Rochelle Cooper Dreyfuss, *Are Business Method Patents Bad For Business?*, 16 SANTA CLARA COMPUTER & HIGH TECH. L.J. 263, 274-75 (2000). *See also* Michael J. Meurer, *Business Method Patents and Patent Floods*, 8 WASH. U. J.L.& POL'Y 309 (2002); John R. Thomas, *Liberty and Property in Patent Law*, 39 HOUS. L. REV. 569 (2002). But some commentators have argued that the criticism of business method patents lacks empirical support, which has "led to undesirable results." *See, e.g.,* John R. Allison & Emerson H. Tiller, *The Business Method Patent Myth*, 18 BERKELEY TECH. L.J. 987, 990 (2003) (comparing Internet business method patents to large random sample of general patents and finding business method patents "actually fare quite well statistically").

Yet another concern about patenting business methods and financial tools is that these types of inventions are far removed from patent law's traditional technological subject matter. *See* John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139 (1999) (criticizing the patenting of non-technological arts). Of course, *Bilski* rejected the technological arts test. For a lengthy debate on this issue, *see also Ex parte Lundgren*, 76 U.S.P.Q.2d 1385 (B.P.A.I. 2004).