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Serial No. 08/833,892

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

IN RE BERNARD L. BILSKI and RAND A. WARSAW

APPEAL FROM THE UNITED STATES PATENT AND
TRADEMARK OFFICE, BOARD OF PATENT APPEALS AND
INTERFERENCES

**BRIEF OF *AMICI CURIAE* CONSUMERS UNION,
ELECTRONIC FRONTIER FOUNDATION, AND PUBLIC
KNOWLEDGE FOR HEARING *EN BANC***

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April 7, 2008

CERTIFICATE OF INTEREST

Counsel for Amici Curiae Consumers Union, Electronic Frontier Foundation, and Public Knowledge certifies the following:

1. The full name of every party or amicus curiae represented by me is: Consumers Union; Electronic Frontier Foundation; and Public Knowledge.
2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is: Consumers Union; Electronic Frontier Foundation; and Public Knowledge.
3. All parent corporations and any publicly held companies that own 10 percent of the stock of the party or amicus curiae represented by me are: None.
4. In addition to myself, I expect Pamela Samuelson to appear in this Court on behalf of amici curiae.

Signed: _____
Jason M. Schultz

Dated: April 7, 2008

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UNITED STATES PATENT AND TRADEMARK OFFICE, PERFORMANCE AND ACCOUNTABILITY REPORT, FISCAL YEAR 2007 3

STATEMENT OF INTEREST OF AMICI CURIAE

Amici are not-for-profit organizations concerned with consumer welfare and innovation policy.¹ Patent law enhances consumer welfare by encouraging innovation in fields of technology, but it can harm consumer welfare if construed as extending to everything under the sun made by humans. Amici urge the Court to interpret 35 U.S.C. § 101 in accordance with these goals.

Amici have no financial interest in the outcome of this case and no other party paid for or authored this brief.² Pursuant to this Court's Order, neither a motion for leave to file nor consent of the parties is required.

¹ See <http://www.consumersunion.org/>; <http://www.eff.org/>;
<http://www.publicknowledge.org/>.

² Students of the Samuelson Law, Technology & Public Policy Clinic at the U.C. Berkeley School of Law (Constance Jinhee Choi, Robert J. Esposito, and Solyn J. Lee) helped to prepare this brief under the supervision of Deirdre K. Mulligan, Jason M. Schultz, and Jennifer A. Lynch.

I. SUMMARY OF ARGUMENT

Ever since *State Street*, the United States Patent and Trademark Office (“PTO”) has been flooded with applications for a wide variety of non-technological “inventions” such as arbitration methods, dating methods, tax-planning methods, legal methods, and novel-writing methods.³ These applications have eroded public confidence in the patent system and driven up the cost and decreased the return for applicants seeking legitimate technological patents. They also threaten to harm consumers by arbitrarily erecting barriers to competition that bear no relationship to the professional competence of the service provider or the quality of the service, and by imposing higher costs via licensing fees providers must pay and pass on to consumers.

To address these problems and to answer the questions posed by this Court’s En Banc Order, we propose a framework for guaranteeing that patents only issue to technological processes. This framework will allow

³ See *Ex parte Bilski*, No. 2002-2257, 2006 WL 4080055, at *7 (B.P.A.I. Sept. 26, 2006). For examples of such patents, see, e.g., *In re Comiskey*, 499 F.3d 1365 (Fed. Cir. 2007); U.S. Patent No. 7,255,277 (filed Apr. 6, 2006) (method of designating dating status); U.S. Patent No. 6,292,788 (filed Dec. 3, 1998) (method for tax-deferred real estate investing); U.S. Patent No. 6,607,389 (filed Dec. 3, 2001) (method of selecting a jury); U.S. Patent No. 6,544,037 (filed Apr. 17, 2001) (method for teaching experiential writing); U.S. Patent No. 5,102,338 (filed July 31, 1990) (method for training children in the art of dialogue writing); U.S. Patent No. 5,190,458 (filed Apr. 17, 1991) (method of assessing a person’s character); U.S. Patent Application No. 10/869,082 (filed June 17, 2004) (process of relaying a story having a unique plot).

patent examiners and courts to clearly and efficiently separate “technological” inventions, which should receive patent protection, from “non-technological” methods, which should not.

Drawing upon this Court’s and Supreme Court precedents, we argue that (1) processes that transform a machine, manufacture, or composition of matter are presumptively technological and patent-eligible; (2) processes that do not employ human-made machines, manufactures, or compositions of matter to achieve their purpose are non-technological and thus patent-ineligible; and (3) processes that make some use of human-made matter, machines, or manufactures to achieve their purposes may be technological and therefore patent-eligible on a case-by-case basis in light of five clear factors gleaned from the Supreme Court’s decisions in *Benson*, *Flook* and *Diehr* and this Court’s decisions in *State Street* and *AT&T v. Excel*. As we show, our approach finds the overwhelming majority of processes easily adjudicated under (1) and (2), while the factor-based test for (3) provides a much-needed efficient and meaningful approach to analyzing and administering § 101’s threshold for more complex cases.

II. ARGUMENT

A. To Restore Public Confidence in the Patent System, Assist Technological Inventors, and Protect Consumers, the Court Should Refine Its Views on Statutory Subject Matter

Non-technological applications have eroded public confidence in the patent system's purpose and public benefit. In fact, when critics of the patent system seek to highlight its failures, they often point to these non-technological patents as proof of a system out of control.⁴

These applications also impose significant practical and financial burdens on the PTO, other inventors, and the public. Every year, the PTO struggles to review and grant patents on appropriate inventions.⁵ Reviewing applications on behavioral, relational, informational, and other non-technological methods undermines the PTO's ability to achieve this goal in a timely manner. The diversion of resources to review non-technological

⁴ Greg Hitt, *Ban on Tax-Plan Patents?*, WALL ST. J., Sept. 24, 2007, at A1; Floyd Norris, *You Can't Use that Tax Idea, It's Patented*, N.Y. TIMES, Oct. 20, 2006, at C1; Editorial, *Pay to Obey*, N.Y. TIMES, October 31, 2006 at A1; Editorial, *Patently Obvious: The Internet has Fueled an Unhealthy Demand for Dubious Patents Covering Common Business Practices*, L.A. TIMES, Oct. 30, 2006; Paul Davidson, *Patents Out of Control?*, USA TODAY, Jan. 13, 2004, at 1B; Sabra Chartrand, *Patents: Insurance Protection for Terrorism, Divorces, Frivolous Lawsuits and Excessive Gambling Losses*, N.Y. TIMES, June 30, 2003, at C3.

⁵ UNITED STATES PATENT AND TRADEMARK OFFICE, PERFORMANCE AND ACCOUNTABILITY REPORT, FISCAL YEAR 2007 (noting that 467,243 patent applications were filed in 2007), <http://www.uspto.gov/web/offices/com/annual/2007/2007annualreport.pdf>.

methods delays the consideration of technological inventions⁶—under-protecting them and potentially reducing investment in their fields. It can also hurt consumers by delaying public access to innovative and beneficial new advances in the arts.

1. There are Strong Public Policy Reasons Not to Patent Non-Technological Methods

Numerous policy problems also arise when patents are allowed for non-technological applications. For example, granting applications such as *Bilski*'s encourages rent-seeking on human thought and behavior,⁷ imposing significant transaction costs on non-industrial actors who have no reason to expect they will need to defend themselves against patents.⁸ The public may understand that use of some technology could infringe a patent, but it should not have to anticipate infringement claims on individual thought process or

⁶ See UNITED STATES PATENT AND TRADEMARK OFFICE, PERFORMANCE AND ACCOUNTABILITY REPORT, FISCAL YEAR 2006 (noting 25-44 month pendency rate), http://www.uspto.gov/web/offices/com/annual/2006/50304_table4.html; James E. Rogan, Under Sec'y of Commerce for Intellectual Prop., United States Patent and Trademark Office, Statement Before the Subcommittee on Courts, the Internet and Intellectual Property, Committee on the Judiciary, U.S. House of Representatives (Apr. 11, 2002), (“[t]he increasing volume and complexity of our workload poses serious issues for the USPTO. Some might even use the word “crisis”), <http://www.ogc.doc.gov/ogc/legreg/testimon/107s/rogan0411.htm>.

⁷ See, e.g., U.S. Patent No. 11,081,866 (filed Mar. 15, 2005) (method of directing funds to a charity).

⁸ See *Lab. Corp. of Am. Holdings v. Metabolite Lab., Inc.*, 126 S. Ct. 2921, 2922-23 (2006) (Breyer, J., dissenting) (noting that allowing patents on improper subject matter may impede rather than promote the progress of the useful arts); *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006) (Kennedy, J., concurring) (noting potential problems arising from burgeoning number of business method patents).

interactions.⁹ Thus, using “technology” as a substantive limitation on patentability provides a clear and intuitive demarcation to individuals who want to avoid infringement.

Non-technological applications can also create substantive conflicts with other areas of intellectual property law. For example, recent attempts to patent movie plots and novel-writing methods pit patent and copyright policy against each other.¹⁰ Copyright law works to promote the maximum amount of creative expression within each genre while patent protection in creative works would exclude all but the first author from a particular style of writing.¹¹ Given the Constitutional goal of promoting creativity in the liberal arts, it should be copyright, not patent, that regulates these works.

Non-technological patents in service professions are also troubling. For example, patents on doctors’ diagnostic thought processes could inhibit timely and appropriate medical care and undermine both the Hippocratic

⁹ *Ex parte Bilski*, 2006 WL 4080055, at *17 (noting most individuals only worry about patent infringement when dealing with methods associated with industry and the production of goods). Unexpected patenting undermines both the notice function of the patent system as well as its public disclosure goals.

¹⁰ See, e.g., U.S. Patent Application No. 10/869,082 (filed June 17, 2004) (process of relaying a story having a unique plot).

¹¹ See Pamela Samuelson, *The Story of Baker v. Selden: Sharpening The Distinction Between Authorship and Invention*, in INTELLECTUAL PROPERTY STORIES (Jane C. Ginsburg and Rochelle Cooper Dreyfuss, eds., Foundation Press 2005) (noting that “Everything under the sun made by humans” is an overbroad conception of patentable subject matter, since it would sweep into the patent system everything that protects copyrights).

Oath's basic tenets and the doctor-patient relationship.¹² Similarly, patents on legal techniques could undermine lawyers' abilities to fulfill their ethical duty of zealous advocacy to their clients.¹³ Even judges and juries might be affected if, for example, the PTO were to allow patents on methods of calculating damages or determining liability. Patents on non-technological services also hurt consumers by raising costs, limiting competition, and erecting barriers that artificially limit professionals' opportunities to improve their skills and competence.

In light of these undesirable consequences stemming from the *State Street/AT&T* experiment, the Court should take this opportunity to establish a clear threshold under § 101 that will limit non-technological patent applications as a matter of law and policy.

B. Section 101 Should Only Allow Patents on “Technological” Inventions

1. Section 101 Must Serve A Substantial Threshold Function

Both this Court and the Supreme Court have consistently recognized that inventors must pass through § 101's gateway before novelty, non-obviousness and other requirements can be assessed. *See Diamond v. Diehr*,

¹² *See Metabolite*, 126 S. Ct. at 2928-29 (noting special public interest considerations arising from patents that could restrict the medical profession and inhibit doctors from using their best medical judgment).

¹³ *See* U.S. Patent No. 6,607,389 (filed Dec. 3, 2001) (method of selecting a jury).

450 U.S. 175, 188 (1981); *Parker v. Flook*, 437 U.S. 584, 593 (1978); *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1372 n.2 (Fed. Cir. 1998).

Without any real threshold requirement, patent applicants have deluged the PTO with inventions that are inappropriate for patenting. *See Bilski*, 2006 WL 4080055, at *3 (noting that “[p]erhaps encouraged by certain general language” in *State Street*, there has been an influx of applications covering processes that are not tied to implementation by a specific technology or machine). Thus, a substantial threshold is necessary to keep unwanted applications out of the PTO’s queue.

Such thresholds are not uncommon; in fact, they exist in all areas of intellectual property law to provide judicial and administrative economy and to ensure that laws reflect public policy goals such as protecting the public domain. *See, e.g., Lab. Corp. of Am. Holdings v. Metabolite Lab., Inc.*, 126 S. Ct. 2921, 2926 (2006) (Breyer, J., dissenting) (comparing line between patentable processes and unpatentable principles to copyright law’s distinction between copyrighted material and non-copyrightable ideas); John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139, 1145 (1999) (comparing doctrinal bars to patents on business methods, mental steps, algorithms and printed matter to copyright law limits that

protect public domain). *See also TrafFix Devices, Inc. v. Mktg Displays, Inc.*, 532 U.S. 23 (2001) (using “functionality” doctrine to limit trademark protection for patentable products); 17 U.S.C. § 101 (2005) (codifying “useful article” doctrine to limit copyright protection for pictorial, graphic, or sculptural works).

In the domain of patent law, § 101 filters out unpatentable inventions at the outset, obviating the need to evaluate other requirements such as novelty and non-obviousness. In addition, § 101 plays a crucial role in the judicial economy of patent litigation, where courts must contend with an ever-increasing caseload crowding their dockets. A robust § 101 threshold limits unnecessary judicial expenditures on claim construction, discovery, summary judgment, and trial.

2. The Constitution and Judicial Precedents Support Using Section 101 to Limit Patentable Inventions to Advances in Technology

To discern a reasonable and effective threshold for § 101, we begin with first principles. The Constitution authorizes Congress to award patents to inventors in order to “Promote the Progress of . . . the Useful Arts.” U.S. CONST. art. I, § 8, cl. 8. This Court has interpreted that purpose as “advancing the useful arts—the process today called technological arts.” *In re Comiskey*, 499 F.3d 1365, 1375 (Fed. Cir. 2007) (quoting *Paulik v.*

Rizkalla, 760 F.2d 1270, 1276 (Fed. Cir. 1985) (en banc)). Thus, the Constitutional context of patents—technological inventions in the useful arts—informs § 101’s interpretation.

Moreover, the Supreme Court has articulated numerous times that technology is what distinguishes patentable subject matter from that which is not. For example, in *Mackay Radio & Tel. Co. v. Radio of Am.*, 306 U.S. 86, 94 (1939), the Court held that “[w]hile 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.” *See also Diehr*, 450 U.S. at 184 (“Industrial processes . . . are the types which have historically been eligible to receive the protection of our patent laws.”).

In addition, in *Gottschalk v. Benson*, 409 U.S. 63, 65 (1972), the Supreme Court held that natural phenomena, mental processes, and abstract intellectual concepts are not patentable because they are basic tools of scientific and technological work. In other words, the difference between a basic tool of technological work and an actual patentable technological process is the application of that tool to engineer or improve technology. *Id.*; *see also Pfaff v. Wells*, 525 U.S. 55, 63 (1998) (“The patent system represents a carefully crafted bargain that encourages both the creation and the public disclosure of new and useful advances *in technology*, in return for

an exclusive monopoly for a limited period of time.”) (emphasis added); *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996) (“Congress created the Court of Appeals for the Federal Circuit as an exclusive appellate court for patent cases . . . observing that increased uniformity would ‘strengthen the United States patent system in such a way as to foster *technological growth and industrial innovation.*’”) (citation omitted) (emphasis added).

Thus, using “technology” as the threshold for patentability ensures that basic human skills, behaviors, and interactions like those identified in Section A as well as scientific tools, mental process, and abstract concepts are free from encroachment by the patent system.¹⁴

C. A Framework for Assessing Technological Processes

In order to achieve the policy goals set out in Section A and the Constitutional purpose discussed in Section B, § 101 must present a technological threshold that is both definable and meaningful. *See Bilski*, 2006 WL 4080055, at *4 (“The USPTO is struggling to identify some way to objectively analyze the statutory subject matter issue instead of just saying

¹⁴ It is worth noting that while some argue there should be no substantive limits on patentable subject matter under the oft-quoted language of “anything under the sun” in *Diamond v. Diehr*, 450 U.S. 175, 182 (1981), this quote was taken out of context from a committee report, S. REP. NO. 1979, as reprinted in 1952 U.S.C.C.A.N. 2394, 2399. *See Bilski*, 2006 WL 4080055, at *5 (quoting Justice Breyer at oral argument in *Metabolite* noting this discrepancy).

‘We know it when we see it.’”) (no citation in original). To meet these needs, the undersigned propose three categories, described below, to determine whether or not a process claim is technological in nature.¹⁵

1. Category One: Processes That Transform Machines, Manufactures, and Matter Are Presumptively Technological

Under the first category, we seek to approve the “easy” cases—cases that are, by their nature, presumptively technological. As numerous Supreme Court cases have held, processes that transform matter, manufactures, or machines into a different state or thing are patentable. *Diehr*, 450 U.S. at 184; *Benson*, 409 U.S. at 69; *Flook*, 437 U.S. at 589. Thus, in most of these cases, examiners can proceed under § 101 without complex analysis.

To “transform” something, however, does not simply mean to change its state. As the Supreme Court has instructed, transformation changes the composition of the subject matter into a fundamentally different state or

¹⁵ We assume for purposes of this brief that machines, compositions of matter, and manufactures themselves are presumptively technological in nature; however, claims for processes that are drafted as systems and machines present many of the same problems from a § 101 perspective, *see, e.g., In re Beauregard*, 53 F.3d 1583 (Fed. Cir. 1995) and *State St. Bank & Trust Co. v. Signature Fin. Group*, 149 F.3d 1368 (Fed. Cir. 1998), and thus, our framework may be useful for testing these presumptions as well. Other policy-based exclusions, such as the printed-matter exception, would also serve to rebut such a presumption. *See In re Alappat*, 33 F.3d 1526, 1554 (Fed. Cir. 1994) (Archer, C.J., concurring in part and dissenting in part) (“The discovery of music does not become patentable subject matter simply because there is an arbitrary claim to some structure.”).

thing. *Diehr*, 450 U.S. at 184. Thus, substituting a new computer processor that is twice as fast transforms a computer system, but machine-implemented processes that simply rearrange the representation of data in memory do not. While the function of certain components may change in relation to the new representation of data, the fundamental nature of the machine remains the same.¹⁶ Transformation for patentability purposes requires more than reordering; it requires changing the fundamental nature of the object.

For example, moving chairs around a dining room table may “transform” one’s furniture in some sense. But the furniture’s fundamental nature is not transformed into a different state or thing, even if it becomes more useful for a dinner party. Similarly, one can program a computer within its normal parameters to display either a box or a circle on the screen. A computer programmed to display a circle is certainly physically different from a computer programmed to display a square in the sense that different gates are charged, different electrical signals are sent, etc. The differences, however, are within the general parameters of the machine as designed; no

¹⁶ In *Benson*, the Court described the “patent sought” as “a method of programming a general-purpose digital computer to convert signals from binary-coded decimal form into pure binary form.” 409 U.S. at 65. Given that the Supreme Court held this was unpatentable under § 101, the merely physical conversion of electrical signals representing data (whether it be numbers or other information) is not sufficiently transformative to be a patentable process, i.e. it does not transform the digital computer (the machine) into a fundamentally different state or thing. *See id.*

matter has been transformed or improved, even though the output signal may be more useful for a particular purpose.

The Supreme Court's holding in *Benson* is instructive on this point. There, the Court noted that the processes of “tanning, dyeing, making waterproof cloth, vulcanizing India rubber, [or] smelting ores” are instances “where the use of chemical substances or physical acts, such as temperature control, changes articles or materials.” *Benson*, 409 U.S. at 69. The Court further reasoned “[t]he chemical process or the physical acts which transform the raw material are, however, sufficiently definite to confine the patent monopoly within rather definite bounds.” *Id.* Thus, transformation serves as a useful approximation for technological improvement because it helps sufficiently define the boundaries between what is patentable and what is not in a tangible and meaningful way.

Thus, taking guidance from *Benson* and *Diehr*, Category One finds any process that transforms machine, matter, or composition of matter to be presumptively technological and patentable.

2. *Category Two: Non-Transformative Processes That Do Not Employ Technological Elements To Achieve Their Purpose Are Not Patent-Eligible*

Under Category Two, we seek to eliminate the non-transformative processes that fail to employ any technological elements—meaning human-

made compositions of matter, machines, or manufactures—to achieve their purpose. These should not be patent-eligible under § 101, as they do not contain any elements that pass the “technology” threshold.¹⁷ This would include Bilski’s method,¹⁸ and the non-technological tax-planning methods, legal methods, dating methods, and methods for writing plots mentioned in Section A.

3. *Category Three: Processes that Use Technological Elements to Achieve their Result are Patentable on a Case-By-Case Basis Using Five Precedent-Based Factors*

Category Three covers processes that do not transform matter, machines, or manufactures but do employ them to achieve a practical result. In other words, if the process itself does not transform one of the other § 101 technologies (machines, matter, manufactures), then it should only be considered “technological” if it uses one of those technologies to perform some other task. This limits patents to technology-related processes and prevents patents like those cited in Section A from issuing.

¹⁷ Note that technological elements do not necessary include all physical elements. While many processes may involve “physical” steps, not all processes are technological in the patent sense. After all, all activities are physical on some level because they involve physics and matter, e.g., electrons, gravitational forces, energy, and so forth. Even “mental steps” involve biochemical reactions and neural pathway activation. However, Supreme Court precedent clearly prohibits patents on mental processes. *See Parker v. Flook*, 437 U.S. 584 (1978). Thus, technological elements should only include human-made compositions of matter, machines, or manufactures since those are the other express categories mentioned in § 101 and do not intrude on categories like mental steps or natural phenomena.

¹⁸ This answers Question One of the Court’s Order Granting En Banc Hearing of *In re Bilski*, No. 2007-1130, 2008 WL 417680, at *1 (Fed. Cir. Feb 15, 2008).

There are concerns, of course, that because almost any “process” can be carried out via a human-made machine, manufacture, or composition of matter, this would mean that all processes are patentable with the simple addition of a technological element. However, the Supreme Court has expressly warned against allowing claims where the inclusion of technology is “token.” *Diehr*, 450 U.S. at 193 n.14. To limit this and avoid the use of “artful drafting” to circumvent § 101’s substantive gate-keeping role, patentability in these instances should be decided on a case-by-case basis using the five factors below in order to determine their true nature.

D. Five Precedent-Based Factors to Help Determine the Nature of Non-Transformative Processes That Employ Technology

Courts have historically used factored tests to analyze tough issues in other areas of intellectual property law. *See, e.g., Glenayre Electronics, Inc. v. Jackson*, 443 F.3d 851 (Fed. Cir. 2006) (evaluating fifteen “*Georgia-Pacific*” factors to approximate appropriate patent damages); *AMF Inc. v. Sleekcraft Boats*, 599 F.2d 341 (9th Cir. 1979) (weighing eight “*Sleekcraft*” factors to determine whether trademark likelihood of confusion exists); 17 U.S.C. § 107 (1992) (outlining four non-exclusive factors for determining fair use on a case-by-case basis). In applying the factors described below, the Court can do the same for the patentability of Category Three processes.

The analysis begins with the entire invention rather than its result. This is one aspect of this Court's *State Street* and *AT&T* decisions that needs clarification.¹⁹ While the result is an important part of an inventive process, the Supreme Court has instructed us to look at the invention as a whole, *Diehr*, 450 U.S. at 188. Also, as with other balancing tests, no one factor should be dispositive; all factors should be considered and weighed to achieve an appropriate result. Below we provide an explanation of each factor in turn.

1. Is the technology claimed merely that the process is capable of being carried out on a machine?

It is well-established that a process does not become patentable merely because it is capable of being carried out on a machine. *Benson*, 409 U.S. at 63. In *Benson*, the Court concluded that the mere fact that the mathematical procedures could be carried out in existing computers was not sufficient to find the process patentable. *Id.* at 71-72. The Court held this was prudent because the mere capability for a process to be carried out on a machine was too broad a limitation and would, in essence wholly pre-empt use of the process in any field. *Id.* Although Claim 13, for example, did not contain any reference to a particular apparatus, the method *could* be carried out on an apparatus. *Id.* at 73-74. The Supreme Court, however, held that

¹⁹ See Question Five of the Court's En Banc Order, 2008 WL 417680, at *1.

Claim 13 was not patentable because a patent on a method that “can be done mentally” in practical effect would be a patent on the algorithm itself. *Id.* at 67, 72. *See also In re Schrader*, 22 F.3d 290, 294 (Fed. Cir. 1994) (holding that a process connecting auction bidders via closed-circuit television through a large-screen display was patent-ineligible despite the possibility that the result of the auction could be displayed on a screen).

Factor one thus weighs against patentability for process claims whose only connection to technology is their possible execution on a machine.

2. *Is the technology claimed merely that the process is actually carried out by a machine?*

Factor two assesses whether a claim’s only connection to technology is its implementation on a specific machine or system.

A process is not patentable simply because the patent claim calls for its implementation on a specific apparatus. In *Benson*, although Claim 8 disclosed the apparatus for carrying out its algorithm—a “reentrant shift register”—the Supreme Court held that “the mathematical formula here has no substantial practical application except in connection with a digital computer” and in practical effect would be a patent on an idea and prohibited by § 101. 409 U.S. at 71-72. Thus, the mere fact that a process

was actually practiced on machine did not change the mental character of the claim into a technological one. *Id.* at 71.

Using *Benson*'s treatment of Claim 8 as a model, factor two instructs examiners to assess whether a claim's only connection to technology is its actual execution on a machine. An affirmative answer weighs against patentability.²⁰

3. *Is the claimed technology merely a field-of-use limitation?*

Factor three is designed to prevent the “artful drafting” of adding a technological field-of-use limitation in order to pass the § 101 threshold. In *Flook*, the Court held that a claim was not patentable just because it was tied to a specific end use. 437 U.S. at 595. There, the Court rejected a claim under § 101 for an improved method of calculation, even though the calculation was implemented via computers for “automatic monitoring alarming” during catalytic conversion of hydrocarbons. *Id.* Thus, no matter how transformative or technological the field-of-use limitation is, *Flook* holds that this alone is insufficient to make a process patentable. *Id.* at 590, 593 n.11; *see also Diehr*, 450 U.S. at 193 n.14. Thus, under factor three, if a

²⁰ For instance, if Claim 1 of *Bilski* were to include a limitation requiring the method be implemented via telephone, factor two would still weigh against patentability because this inclusion was merely a means for executing the otherwise non-technological method.

Category Three process is only tied to technology via a field-of-use limitation, this weighs against patentability.

4. *Is the claimed technology merely insignificant pre- or post-solution activity?*

The *Flook* case also held that technological elements in a process must amount to more than insignificant post-solution activity in order to render a claim patentable under § 101. 437 U.S. at 590 (noting that discovery of the Pythagorean theorem would not have been patentable even if usefully applied to existing survey techniques); *see also Diehr*, 450 U.S. at 193 n.14 (noting that although some post-solution activity can be attached to almost any mathematical formula, the formula does not become patentable subject matter merely by including in the claim a “token post-solution activity”).

Similarly, insignificant pre-solution activity is also patent-ineligible subject matter. *See In re Grams*, 888 F.2d 835, 839 (Fed. Cir. 1989) (holding pre-solution data-gathering step could not convert an unpatentable method into patentable subject matter).²¹ Accordingly, if the technology

²¹ *See also Metabolite*, 126 S. Ct. at 2927 (reasoning that despite claiming the step of obtaining results from a protein assay, “claim 13 is *not* a process for transforming blood or any other matter” because a protein assay, while itself a transformative process, is mere pre-solution activity to a discovered yet arguably unpatentable correlation) (emphasis in original).

used in a Category Three process is merely insignificant pre- or post-solution activity, it should generally be found patent-ineligible.

5. *Does the process produce a useful, concrete and tangible technological result?*

Factor five addresses, in part, this Court’s En Banc Question Five as to whether the Court’s precedents in *State Street* and *AT&T* should be reconsidered and to what extent, if any, they should be overruled. We believe that the “useful, concrete and tangible result” (UC&TR) test from those cases deviates too far from the proper § 101 threshold of technology, both in that it allows inventions to be patentable even when they do not transform matter or employ technology and in that the test focuses entirely on the result instead of the claim as a whole. In order to bring these decisions in line with Supreme Court precedents and good public policy, the UC&TR test should be reclassified as the final factor and focus on *technological* results so as to better capture the proper scope of § 101 processes.

Supreme Court precedent particularly compels this. For example, the *Diehr* invention produced the technological result of a manufacture, i.e. cured synthetic rubber. 450 U.S. at 187. This is distinguishable from the results in *Benson* and *Flook* where the results were numerical, not technological. *See Flook*, 437 U.S. at 585 (finding the result of an alarm

limit to be merely a number); *Benson*, 409 U.S. at 71 (finding that the result of method was numerical); *see also In re Taner*, 478 F.2d 1392 (C.C.P.A. 1973) (finding mere output of numbers was not a technological result). While *State Street* and *AT&T* involved computers and telecommunication systems, they actually present similar situations to *Flook* and *Benson*. *State Street*'s machine produced the result of a final share price and *AT&T*'s system produced a data field. *State Street*, 149 F.3d at 1373; *AT&T Corp. v. Excel Commc'ns, Inc.*, 172 F.3d 1352, 1354 (Fed. Cir. 1999). As in *Flook* and *Benson*, these are informational and financial results, not technological ones.²² Thus, whether or not the *result* is technological strongly correlates with whether or not the *invention* is technological in nature and thus patentable.

E. Applying the Five Factors To Historical Category Three Cases

To demonstrate how the five factors would work in Category Three cases, we apply them below to exemplary claims from several historical cases on patentable subject matter.

²² Note also that this revised UC&TR factor would also bring United States patentable subject matter into closer harmony with the European Patent Office (EPO), which requires an invention to produce “technical effects beyond the normal physical interactions between a program and the computer” in order to be patentable. *See* Robert Bray, *The European Union “Software Patents” Directive: What is It? Why is It? Where are We Now?*, 2005 DUKE L. & TECH. REV. 11, 22. A “technological result” factor would parallel the EPO’s “technical effects” test in this regard.

1. State Street Bank v. Signature Financial Group

In *State Street*, this Court examined a claim for a machine—a data-processing system—that carries out a series of computations to produce a numerical result. 149 F.3d at 1371-72. As the Court noted, however, “[t]he question of whether a claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to—process, machine, manufacture, or composition of matter—but rather on the essential characteristics of the subject matter[.]” *Id.* at 1375; *see also AT&T*, 172 F.3d at 1357 (“Whether stated implicitly or explicitly, we consider the scope of § 101 to be the same regardless of the form—machine or process—in which a particular claim is drafted.”).²³

The first factor asks whether, like Claim 13 in *Benson*, the link to technology in the claim is merely that the process could be carried out on a machine. Here, the answer is yes. The nature of the invention is a method of processing data, which can be carried out on a computer. As the Supreme Court reasoned in *Benson*, “mathematical procedures can be carried out in existing computers long in use, no new machinery being necessary.” 409

²³ In addition, the Supreme Court has recognized that artful applicants may attempt to mask unpatentable processes in the guise of machine claims. *See Cochrane v. Deener*, 94 U.S. 780, 788 (1876) (noting that “[t]he machinery pointed out as suitable to perform the process may or may not be new or patentable”).

U.S. at 67. Like *Benson*, the data processing in *State Street* “can [also] be carried out in existing computers long in use.” *Id.*

The second factor follows the same course. It asks whether the claim’s tie to technology is merely that its process is actually carried out by a machine, similar to Claim 8 in *Benson*. Again, the answer is yes; there is no other tie to technology in *State Street*’s claim other than the machine components necessary for carrying out the data processing method. Thus, both factor one and two weigh against patentability.

Factor three asks whether the technology is merely a field-of-use limitation such as in *Flook*. The answer here is that it is not. However, this is because the field-of-use limitation is non-technological itself, as it is directed to managing a financial services configuration as a partnership. Thus, factor three also weighs against patentability. Factor four asks whether the technological elements are either pre or post-solution activity. Here, it is neither, in so far as the claimed machine performs the data-processing solution.²⁴

Finally, under factor five, the process does not produce a technological result. While a final share price may be concrete and tangible, it is neither useful to the apparatus of the invention, nor to any external

²⁴ See *State Street*, 149 F.3d at 1371 (“Given the complexity of the calculations, a computer or equivalent device is a virtual necessity to perform the task.”).

technology or technological field; rather it is financial in nature. In summary, factors one, two, three and five weigh against patentability while factor four weighs in favor of it. Thus, patentability should be denied.

2. AT&T v. Excel

In *AT&T*, this Court examined a method for billing long distance calls that accounts for the caller and the receiver having different PICs, or primary interexchange carriers (i.e. long distance providers). 172 F.3d at 1353. The process involves two steps: the creation of a message record and the recordation of the PIC indicator of each caller. *Id.*

As in *State Street*, factor one weighs against patentability because the invention has no particular tie to technology other than the fact that a machine is capable of performing the steps of the claimed process. Factor two similarly weighs against patentability because the claim does not involve any technology beyond the telecommunications system that facilitates the call and the message record.

Factor three asks whether the claim recites technology merely as a field-of-use limitation. Here, the answer is yes. The preamble states that the billing method is “for use in a telecommunications system,” although it could just as easily be implemented in any service industry unrelated to technology. *Id.* at 1354. For instance, the method could be used to bill two

individuals covered by different insurance companies who are involved in an automobile accident. Therefore, the technology functions solely as a field-of-use limitation and thus weighs against patentability.

The fourth factor asks whether the claim recites technology only as part of incidental pre- or post-solution activity. Like *State Street*, this factor weighs in favor of patentability, because the telecommunications system carries out both steps of the claim.

Factor five questions whether the process produces a useful, concrete, and tangible technological result. The instant process produces a call record containing the PIC indicators of the caller and receiver; the result of the process is mere information. While this information is useful for billing purposes, it does not improve the performance or function of the telecommunications system. Overall, factors one, two, three and five all weigh against patentability, with only factor four weighing in favor. As in *State Street*, patentability should be denied.

3. In re Abele

In re Abele was a case where the CCPA considered two variants of a method intended to improve the function of a computed tomography scanner (“CAT scanner”). 684 F.2d 902 (C.C.P.A. 1982). The first claimed in general language “a method of displaying data in a field,” and was held

nonstatutory, while the second limited the claim to “a method of displaying X-ray attenuation data produced in a two dimensional field by a computed tomography scanner,” and was held statutory. *Id.* at 908.

Under our analysis, factor one weighs in favor of patentability because unlike *State Street* and *AT&T*, the claim does not merely assert that the steps of the process can be performed by the recited machine. The CAT scanner is much more than a means to perform calculations; it is the object of the claim that the invention seeks to improve. Therefore, the use of a machine is not optional, nor is it tangential to the object of the invention or even merely a means of implementing it. Factor two also weighs in favor of patentability. The claim involves more than the mere calculation of X-ray data by a CAT scanner. X-ray attenuation data comes in from the scanner and is displayed per the claimed method in a way that reduces the total area that the scanner must expose to X-ray light. This is more than merely carrying out the process.

Factors three and four also weigh in favor of patentability. Under factor three, the CAT scanner does not act as a mere field-of-use limitation because the claimed process is designed specifically to work with the claimed CAT scanner. This contrasts with the claim preamble in *AT&T*, which purported to limit the general billing method to a telecommunications

system, even though there was nothing about the method that particularly tied it to such a system. Similarly, under factor four, the CAT scanner is a fundamental part of the claimed process and not limited to pre- or post-solution activity as would be the case if, for instance, the claim were for a method of diagnosing a patient that began with obtaining a CAT scan.

Finally, per factor five, the process produces display data and *narrows* the X-Ray beam, which is a useful, concrete, and tangible technological result. *See id.* As the CCPA observed, “[n]arrowing the beam is advantageous not only because the exposure of a body to X-ray is thereby reduced but also because computer calculation time to produce the image is shortened inasmuch as the amount of data to be processed is less.” *Id.* Thus, all five factors weigh in favor of patentability.

4. In re Bradley

The invention in this case claimed a “firmware module” programmed with permanent microcode, which when coupled with a CPU, allows a computer to execute more than one program at once. *See In re Bradley*, 600 F.2d 807, 809 (C.C.P.A. 1981), *aff’d by an equally divided court, Diamond v. Bradley*, 450 U.S. 381 (1981).

Factors one and two weigh in favor of patentability. Under factor one, the invention’s claim to technology is not merely that the firmware code is

capable of execution by the firmware module. Rather, the invention as a whole is the integration of the process with the firmware module, which when programmed with particular microcode, allows the CPU to perform multiple tasks in parallel more efficiently than the prior art. *See id.* at 808-09. Likewise, under factor two, the invention's claim to technology is not merely that the firmware module executes the firmware code. As the CCPA reasoned, "[the invention] does not relate to computer applications, i.e., any specific task that a computer is asked to perform, but rather to the internal operation of the computer and its ability to manage efficiently its operation in a multiprogrammed format." *Id.* at 808.

Factors three and four also weigh in favor of patentability. Under factor three, the claim does not recite technology to impose a field-of-use limitation; rather the process applies directly to a firmware module whose function is dictated by particular "microcode" without regard to its use in a particular field. *Id.* at 809. Likewise, because the firmware module is an integral part of the process claimed, it is not insignificant pre- or post-solution activity.

Lastly, factor five weighs in favor of patentability because the invention produces a useful, concrete and tangible technological result. The prior art included means of storing data for multiple processes locally on the

CPU in “scratchpad registers,” which are much faster to access than the normal system memory (e.g. RAM). *Id.* at 808. These prior art means were inferior because every time the scratchpad data was altered, the CPU would either have to completely rewrite the scratchpad memory, or the software would have to contain CPU-specific code instructing the CPU how to alter the data. *Id.* The result of the invention is that it allows any CPU to alter data stored on the scratchpad register without having to flush the data and without requiring any particular CPU-dependant code in the software. *Id.* at 808-09. This improves the speed of the CPU while eliminating the need for CPU-specific code. Improving the speed of the CPU is a concrete, useful, and tangible technological result. In summary, all five factors weigh in favor of patentability.

III. CONCLUSION

Section 101 is an important and necessary gatekeeper for the patent system, especially when evaluating patent-eligibility for processes. For the foregoing reasons, the Court should adopt a three-category approach to this threshold and when confronted with complex cases, use the five factors to ensure that only technological processes are patent-eligible.

Respectfully Submitted,

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CERTIFICATE OF COMPLIANCE

Pursuant to Rule 32(a)(7)(C) of the Federal Rules of Appellate Procedure, I certify that the foregoing Brief of Amici Curiae Consumers Union, Electronic Frontier Foundation, and Public Knowledge is double-spaced (except headings, block quotations, and footnotes) and complies with the type volume limitations of Rule 29(d) of the U.S. Court of Appeals for the Federal Circuit and this Court's February 15, 2008 Order. I further certify that the body of this brief—not including the cover page, table of contents, table of authorities, and certificates—contains 6952 words as determined by Microsoft Word, including the statement of interest, headings, footnotes, quotations, signature lines, and date.

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CERTIFICATE OF SERVICE

I, Jason M. Schultz, hereby certify that I caused two copies of the foregoing Brief of Amici Curiae Consumers Union, Electronic Frontier Foundation, and Public Knowledge to be served this seventh (7th) day of April 2008, by first class mail, postage prepaid, upon each of the following sets of Counsel of Record:

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