



Board of Patent Appeals  
and Interferences

Informative

Opinion

UNITED STATES PATENT AND TRADEMARK OFFICE

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U.S. PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte BERNARD L. BILSKI  
and RAND A. WARSAW

Appeal No. 2002-2257  
Application 08/833,892<sup>1</sup>

HEARD: March 8, 2006<sup>2</sup>

Before FRANKFORT, McQUADE, BARRETT, BAHR, and NAGUMO,  
Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) from  
the final rejection of claims 1-11.

We affirm.

<sup>1</sup> Application for patent filed April 10, 1997, entitled  
"Energy Risk Management Method," which claims the priority  
benefit under 35 U.S.C. § 119(e) of Provisional Application  
60/015,756, filed April 16, 1996.

<sup>2</sup> The case was previously heard on April 3, 2003, by  
Administrative Patent Judges Barrett, Fleming, and Nagumo, but no  
decision was entered.

BACKGROUND

The invention relates to a method practiced by a commodity provider for managing (i.e., hedging) the consumption risks associated with a commodity sold at a fixed price. It is disclosed that energy consumers face two kinds of risk: price risk and consumption risk (specification, p. 1). The proliferation of price risk management tools over the last 5 years before the filing date allows easy management of price risk (specification, p. 2). However, consumption risk (e.g., the need to use more or less energy than planned due to the weather) is said to be not currently managed in energy markets, which is the problem addressed by the invention (specification, p. 2).

Claim 1 is reproduced below.

1. 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.

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THE REJECTION

No references are applied in the rejection.

Claims 1-11 stand rejected under 35 U.S.C. § 101 as being directed to nonstatutory subject matter.

Pages of the final rejection (Paper No. 15) are referred to as "FR\_\_." Pages of the examiner's answer (Paper No. 18) are referred to as "EA\_\_." Pages of the appeal brief (Paper No. 17) are referred to as "Br\_\_." Pages of the reply brief (Paper No. 19) are referred to as "RBr\_\_."

The examiner's position is summarized in the statement that, "[r]egarding [] claims 1-11, the invention is not implemented on a specific apparatus and merely manipulates [an] abstract idea and solves a purely mathematical problem without any limitation to a practical application, therefore, the invention is not directed to the technological arts" (FR4). That is, the examiner states that the invention is an "abstract idea," and apparently a "mathematical algorithm," and does not fall within the "technological arts" according to In re Musgrave, 431 F.2d 882, 893, 167 USPQ 280, 289-90 (CCPA 1970), where the examiner states (FR4): "The definition of 'technology' is the 'application of science and engineering to the development of machines and procedures in order to enhance or improve human conditions, or at least improve human efficiency in some respect.' (Computer Dictionary 384 (Microsoft Press, 2d ed. 1994))." The examiner

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finds that no specific apparatus is disclosed to perform the steps, so "claims 1-11 are intended to be directed to the abstract method apart from the apparatus for performing the method" (FR4) and "[t]herefore, the claims are non-statutory, because they are directed solely to an abstract idea and solve[] a purely mathematical problem without practical application in the technological arts" (FR4). Therefore, the final rejection relies on both the "abstract idea" exclusion and a "technological arts" test for statutory subject matter.

In the examiner's answer, it is stated that "Applicant['s admission] that the steps of the method need not be performed on a computer (Appeal Brief at page 6) coupled with no disclosure of a computer or any other means to carry out the invention, make it clear that the invention is not in the technological arts" (EA4). The examiner states that the disclosure does not describe an implementation in the technological arts. The examiner states that the only way to perform the steps without a computer is by human means, and, therefore, the method is not technological because it does not "improve human efficiency" as required by the definition of "technology" (EA5-6). Thus, the examiner's answer relies primarily on a "technological arts" test.

DISCUSSION

The issue

The issue is whether the subject matter of claims 1-11 is directed to a statutory "process" under 35 U.S.C. § 101. We conclude that it is not.

Equally important is what test(s) should be applied in determining statutory subject matter.

Non-machine-implemented methods

The "useful arts" in the Constitution are implemented by Congress in the statutory categories of eligible subject matter in 35 U.S.C. § 101: "process, machine, manufacture, or composition of matter, or any new and useful improvements thereof." Machines, manufactures, and man-made compositions of matter represent tangible physical things invented by man and seldom raise a § 101 issue, except for the "special case" of claims to general purpose machines (usually computers) that merely perform abstract ideas (e.g., mathematical algorithms), where the fact that the claim is nominally directed to a "machine" under § 101 does not preclude it from being held nonstatutory. Machine-implemented methods also seldom have a problem being considered a process under § 101 because a "process" includes a new use for a known machine, § 100(b), again except for the "special case" of machine-implemented abstract

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ideas. However, "non-machine-implemented" methods, because of their abstract nature, present § 101 issues.

This appeal involves "non-machine-implemented" method claims, i.e., the claims do not recite how the steps are implemented and are broad enough to read on performing the steps without any machine or apparatus (although performing the steps on a machine would, of course, infringe). The steps of claim 1: do not recite any specific way of implementing the steps; do not expressly or impliedly recite any physical transformation of physical subject matter, tangible or intangible, from one state into another; do not recite any electrical, chemical, or mechanical acts or results; do not directly or indirectly recite transforming data by a mathematical or non-mathematical algorithm; are not required to be performed on a machine, such as a computer, either as claimed or disclosed; could be performed entirely by human beings; and do not involve making or using a machine, manufacture, or composition of matter. We do not believe the outcome in this case is controlled by the Federal Circuit decisions in State St. Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998) and AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999) because we interpret those cases to involve the "special case" of transformation of data by a machine.

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The question of whether this type of non-machine-implemented subject matter is patentable is a common and important one to the U.S. Patent and Trademark Office (USPTO), as the bounds of patentable subject matter are increasingly being tested. In recent years, the USPTO has been flooded with claims to "processes," many of which bear scant resemblance to classical processes of manipulating or transforming compositions of matter or forms of energy from one state to another. Many of these applications are referred to as so-called "business methods," but claims to methods of meditation, dating, physical sports moves, etc., are also presented. "Business methods" have long been considered statutory subject matter when performed by a machine. Technology Center 3600, Workgroup 3620, in the USPTO is entirely dedicated to "Electronic Commerce (Business Methods)" in Class 705, "Data Processing: Financial, Business Practice, Management, or Cost/Price Determination"; see <http://www.uspto.gov/web/menu/pbmethod>. The USPTO no longer rejects claims because the claimed subject matter does "business" instead of something else. See State Street, 149 F.3d at 1377, 47 USPQ2d at 1600 (referring to Examination Guidelines, 61 Fed. Reg. 7478, 7479 (1996)). Nevertheless, many questions remain about statutory subject matter and what the tests are for determining statutory subject matter. State Street and AT&T, often called "revolutionary," involved patented machines or

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machine-implemented processes that examiners have for sometime regarded as nonexceptional. Perhaps encouraged by certain general language in these cases, however, a wide range of ever more general claims to "processes" come before the Office (although the present case predates both State Street and AT&T). Many, like the claimed process in the present case, are not limited to implementation via any particular technology or machine. Are such "processes" patentable because they are "useful"? Other "process claims" involve what seem to be insubstantial or incidental manipulations of physical subject matter--e.g., the mere recording of a datum: are these patentable processes? Still other process claims involve human physical activity--methods of throwing a ball or causing a fumble. Do these process claims cover patentable subject matter? Must the examiners analyze such claims for compliance with the written description and enablement requirements, and search the prior art for evidence of novelty and nonobviousness?

Given the difficulty for examiners to make § 101 rejections, and the clear disfavor for such rejections in the opinions of our reviewing court, the U.S. Court of Appeals for the Federal Circuit, and in the view of many patent practitioners, it would be much more administratively convenient if the USPTO did not have to examine claims for statutory subject matter under § 101. Nevertheless, it is the USPTO's duty to examine claims for



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compliance with § 101 as well as the other statutory requirements of patentability. See Graham v. John Deere Co., 383 U.S. 1, 18, 148 USPQ 459, 467 (1966) ("[T]he primary responsibility for sifting out unpatentable material lies in the Patent Office. To await litigation is--for all practical purposes--to debilitate the patent system."). The USPTO rejects cases based on its understanding of § 101, not because it may be difficult to find prior art or to examine the claims for novelty and unobviousness. Cf. In re Fisher, 421 F.3d 1365, 1378, 76 USPQ2d 1225, 1235 (Fed. Cir. 2005) ("The concerns of the government and amici [that allowing EST patents would discourage research, delay scientific discovery, and thwart progress in the 'useful Arts'], which may or may not be valid, are not ones that should be considered in deciding whether the application for the claimed ESTs meets the utility requirement of § 101. The same may be said for the resource and managerial problems that the PTO potentially would face if applicants present the PTO with an onslaught of patent applications directed to particular ESTs. Congress did not intend for these practical implications to affect the determination of whether an invention satisfies the requirements set forth in 35 U.S.C. §§ 101, 102, 103, and 112."). In questionable cases, we feel that the public interest is best served by making a rejection. The Federal Circuit cannot address rejections that it does not see. See Enzo Biochem, Inc. v.

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Gen-Probe Inc., 323 F.3d 956, 972, 63 USPQ2d 1609, 1619 (Fed. Cir. 2002) (Lourie, J., concurring in decision not to hear the case en banc) ("As for the lack of earlier cases on this issue, it regularly happens in adjudication that issues do not arise until counsel raise them, and, when that occurs, courts are then required to decide them.").

Only a very small fraction of the cases examined by the Examining Corps are ever appealed to the Board of Patent Appeals and Interferences (Board), and only a very small fraction of the rejections affirmed by the Board will ever be appealed to the Federal Circuit. The fact that not many § 101 cases get appealed should not be interpreted to mean that these are an insignificant problem to the USPTO and the public. As indicated by Justice Breyer dissenting from the dismissal of certiorari in Laboratory Corp. of America Holdings v. Metabolite Labs., Inc., 126 S. Ct. 2921, 79 USPQ2d 1065 (2006) (Labcorp), there are still unresolved issues under § 101.

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Legal analysis of statutory subject matter

Several major analyses of statutory subject matter have been published recently. We review two in detail in the following summary.

Ex parte Lundgren

To avoid repetition, this opinion expressly incorporates by reference the legal analysis of statutory subject matter in the concurring-in-part/dissenting-in-part opinion of Administrative Patent Judge Barrett in Ex parte Lundgren, 76 USPQ2d 1385, 1393-1429 (Bd. Pat. App. & Int. 2005) (precedential). That discussion tries to identify the questions that have not been answered in the analysis of patentable subject matter under § 101 and to identify existing tests for statutory subject matter, rather than create some new test. The USPTO is struggling to identify some way to objectively analyze the statutory subject matter issue instead of just saying "We know it when we see it."

The main points of Lundgren are summarized as follows:<sup>3</sup>

(1) The Constitution authorizes Congress "To promote the Progress of ... useful Arts, by securing for limited Times to ... Inventors the exclusive Right to their ... Discoveries."

U.S. Const., art. I, § 8, cl. 8. There is little evidence in the historical record about what is meant by the "useful arts," but it appears intended to refer to "arts" used in industry and the production of goods. See Alan L. Durham, "Useful Arts" in the Information Age, 1999 BYU L. Rev. 1419 (1999).

(2) "Technological arts" is the modern equivalent of "useful arts" in the Constitution. Lundgren, 76 USPQ2d at 1393-94.

(3) "Technology" is defined as the totality of means employed to provide objects necessary for human sustenance and comfort. *Id.* at 1394. The definition of "engineering" as "the application of science and mathematics by which the properties of matter and the sources of energy in nature are made useful to man in structures, machines, products, systems, and processes" (emphasis added) is considered a good description of "technology" and the "useful arts." *Id.*

(4) The "useful arts" provision in the Constitution is implemented by Congress in the statutory categories of eligible subject matter in 35 U.S.C. § 101: "process, machine,

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<sup>3</sup> It should be understood that the citations to Lundgren are to the discussion and cases cited: the remarks of the concurrence/dissent have only persuasive value.

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manufacture, or composition of matter, or any new and useful improvements thereof." Id. at 1396-97. The "utility" requirement of § 101 is separate from the eligible subject matter requirement. Id. at 1396.<sup>4</sup>

(5) The terms "invents" and "discovers" in § 101 are interpreted to require "invention," which is the conception and production of something that did not before exist, as opposed to "discovery," which is to bring to light that which existed before, but which was not known. Id. Of course, the practical application of a discovery of a law of nature may be patentable.

(6) The oft-quoted statement that "Congress intended statutory subject matter to 'include anything under the sun that is made by man,'" Diamond v. Diehr, 450 U.S. 175, 182,

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<sup>4</sup> The Constitution authorizes Congress "To promote the Progress of ... useful Arts." This provision can be mapped onto the statutory provisions as follows: "Arts" corresponds to the eligible statutory subject matter classes of "process, machine, manufacture, or composition of matter" in § 101 ("art" in the statute before 1952 had a different meaning than "useful arts" in the Constitution and was interpreted as practically synonymous with process or method, S. Rep. No. 1979, reprinted in 1952 U.S. Code Cong. & Admin. News at 2398); "useful" in the Constitution corresponds to the "useful" (utility) requirement in § 101; "progress" in the Constitution corresponds to the "new" requirement in § 101 which is defined in the conditions of novelty under § 102 and nonobviousness under § 103. The utility requirement is separate from the eligible subject matter requirement in § 101. See, e.g., Fisher, 421 F.3d at 1378, 76 USPQ2d at 1236 (expressed sequence tag (EST) is a composition of matter that does not meet utility requirement of § 101).

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209 USPQ 1, 6 (1981), quotes from S. Rep. No. 1979, reprinted in  
1952 U.S. Code Cong. & Admin. News at 2399:

A person may have "invented" a machine or manufacture,  
which may include anything under the sun made by man, but it  
is not necessarily patentable under section 101 unless the  
conditions of the title are fulfilled.

This sentence does not mention a "process" or a "composition of  
matter."<sup>5</sup> A "manufacture" has long been defined to be "anything  
made 'by hands of man' from raw materials, whether literally by  
hand or by machinery or by art." In re Hruby, 373 F.2d 997,  
1000, 153 USPQ 61, 65 (CCPA 1967), discussing Riter-Conley Mfg.  
Co. v. Aiken, 203 F. 699 (3d Cir. 1913). We have no doubt that  
Congress intended statutory subject matter to include any  
tangible thing made by man, including man-made compositions of  
matter and man-made living organisms. However, there is a  
fundamental difference in nature between "machines, manufactures,

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<sup>5</sup> As discussed by Justice Breyer at the oral argument in  
Labcorp (transcript on "[http://www.supremecourtus.gov/  
oral\\_arguments/argument\\_transcripts.html](http://www.supremecourtus.gov/oral_arguments/argument_transcripts.html)," Argument 04-607,  
argued 3/21/06, p. 43, line 16, to p. 44, line 4):

JUSTICE BREYER: Does that fall within it? I mean, I  
can't resist pointing, as one of these briefs did, the  
phrase anything under the sun that is made by man comes from  
a committee report that said something different. It said a  
person may have invented a machine or a manufacture, which  
may include anything under the sun that is made by man.

So referring to that doesn't help solve the problem  
where we're not talking about a machine or a manufacture.  
Rather we are talking about what has to be done in order to  
make an abstract idea fall within the patent act. Now,  
sometimes you can make that happen by connecting it with  
some physical things in the world and sometimes you can't.

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or compositions of matter," which are things, and a "process," which refers to acts. Lundgren, 76 USPQ2d at 1397. It is not clear that "anything under the sun made by man" was intended to include every series of acts conceived by man.

(7) "Machines, manufactures, and compositions of matter," as defined by the Supreme Court, refer to physical things having physical structure or substance. Id. at 1397. Machines, manufactures, and man-made compositions of matter broadly cover every possible "thing made by man." Id.

A statutory subject matter problem in these categories arises only in the "special case" of transformation of data by a general purpose machine (e.g., a general purpose computer) claimed as a machine or a machine-implemented process, or a manufacture (a computer program embodied in a tangible medium which is capable of performing certain functions when executed by a machine).<sup>6</sup> Where the transformation of data represents an

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<sup>6</sup> The "special case" arises where the claim recites a programmed general purpose "machine" (e.g., a "computer" or "system"), instead of a new structure; i.e., where what applicant claims is the method to be performed on a known machine. The CCPA and the Federal Circuit have held that a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions. See In re Alappat, 33 F.3d 1526, 1554, 31 USPQ2d 1545, 1558 (Fed. Cir. 1994) (en banc). Nevertheless, a programmed general purpose machine which merely performs an abstract idea, such as a mathematical algorithm, has been held nonstatutory as an attempt to patent the abstract idea itself, see Gottschalk v. Benson, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972) ("nutshell" holding) and In re de Castelet, 562 F.2d 1236, 1243, 195 USPQ 439, 445 (CCPA 1977) (discussing "nutshell" language), whereas a claim

"abstract idea" (e.g., a mathematical algorithm), the fact that the claimed subject matter would otherwise be considered statutory because it nominally recites a "machine" or machine-implemented "process" or "manufacture" storing information to be read by a machine, will not prevent the claim from being held unpatentable. Id. at 1407-08 (citing cases where machine claims for performing mathematical algorithms were held nonstatutory).

(8) A "process" is the most difficult category of § 101 to define. Id. at 1398. Not every process in the dictionary sense

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directed to a new machine structure is clearly a patentable "machine" under § 101.

Although a case has not yet been presented, we believe that a similar "special case" exists for "manufactures" which store programs that cause a machine to perform an abstract idea, e.g., a computer program to perform a mathematical algorithm stored on a tangible medium: the nominal recitation of a "manufacture" does not preclude the claim from being nonstatutory subject matter, just as the nominal recitation of a "machine" does not preclude a claim from being nonstatutory subject matter. Normally, "functional descriptive material," such as data structures and computer programs, on a tangible medium qualifies as statutory subject matter and the nature of the recorded material may not be ignored under the "printed matter" doctrine. See Examination Guidelines for Computer-Related Inventions, 61 Fed. Reg. 7478, 7481-82 (February 28, 1996), 1184 Off. Gaz. Patent and Trademark Office (O.G.) 87, 89 (March 26, 1996) (defining "functional" and "nonfunctional descriptive material"); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994). However, applicants should not be able to evade § 101 by a nominal claim to structure. Computer programs are distinguished from passive non-functional descriptive material stored on a medium (e.g., music or information stored on a compact disc), which is usually addressed as "printed matter" under § 103. But see Alappat, 33 F.3d at 1554, 31 USPQ2d at 1566 (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.").



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constitutes a "process" under § 101. Id. When Congress approved changing "art" to "process" in the 1952 Patent Act, it incorporated the definition of "process" that had evolved in the courts. Id. "Art" in the pre-1952 statute is not the same as the "useful arts" in the Constitution. See footnote 4. The Supreme Court has arguably defined a "process" as "an act, or series of acts, performed on the subject matter to be transformed and reduced to a different state or thing." See Lundgren, 76 USPQ2d at 1398. The subject matter transformed may be tangible (matter) or intangible (some form of energy, such as the conversion of electrical signals or the conversion of heat into other forms of energy (thermodynamics)), but it must be physical. Id. at 1398-99. The transformation test also conforms to many individuals' expectations that they only have to worry about patent infringement when dealing with methods associated with industry and the production of goods. The transformation definition of a "process" provides an objective test to analyze claims for statutory subject matter because one can identify, analyze, and discuss what and how subject matter is transformed.

The transformation test is not without problems as evidenced by the dissent in Labcorp, where the question was whether a "test" step that required a physical transformation of a blood sample made the claim statutory. Justice Breyer stated that "the process described in claim 13 is not a process for transforming

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blood or any other matter," Labcorp, 126 S. Ct. at 2927, 79 USPQ2d at 1070, which can be interpreted to mean that while the test step might require a transformation, no physical transformation steps are recited, and/or that the claim as a whole is not directed to a transformation (it is not to a method of performing a test). The CCPA and the Federal Circuit have addressed such limitations as "data gathering" steps. Lundgren, 76 USPQ2d at 1427-28.

(9) A generally recited "process" claim is not limited to the means disclosed for performing it. Id. at 1400-01. Methods tied to a machine generally qualify as a "process" under § 101 because machines inherently act on and transform physical subject matter, id. at 1400, and new uses for known machines are a "process" under 35 U.S.C. § 100(b). The principal exception is the "special case" of general purpose machine-implemented processes that merely perform an "abstract idea" (the best known example of which is a mathematical algorithm); see id. at 1407-08 (cases where machine-implemented process claims for performing mathematical algorithms were held nonstatutory). Statutory processes are evidenced by physical transformation steps, such as chemical, electrical, and mechanical steps. Id. at 1401. A statutory "process" involving a transformation of physical subject matter can be performed by a human. Id. at 1400-01. Not every step requiring a physical action results in a patentable

physical transformation, e.g., "negotiating a contract,"  
"convening a meeting, etc." Id.

(10) Some subject matter, although invented by man, does not fall within any of the four categories of § 101, e.g., data structures, computer programs, documents, music, art, and literature, etc. Id. at 1401-02.

(11) The judicially recognized exclusions are limited to "laws of nature, natural phenomena, and abstract ideas." Id. at 1402-03. There are no separate "mathematical algorithm" or "business method" exclusions. Id. Of course, this does not mean that "mathematical algorithms" and "business methods" are necessarily statutory, but only that claims cannot be rejected just because they contain mathematical steps or business concepts: the analysis must be framed in terms of the three recognized exclusions.

(12) "Laws of nature" and "natural phenomena" exclusions can be explained by the fact that the "discovery" of a preexisting law of nature, a principle of physical science, or a natural phenomenon does not meet the "invents" requirement of § 101: they are not inventions "made by man," but are manifestations of nature, free to all. Id. at 1403.

(13) "Abstract ideas" refer to disembodied plans, schemes, or theoretical methods. Id. at 1404. "Abstract ideas" can represent a discovery of a "law of nature" or a "physical phenomenon" or a man-made invention.<sup>7</sup> Id. Mathematical algorithms are the most well known example of an abstract idea, but there is no reason why the abstract idea exception should be

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<sup>7</sup> Judge Rader states:

In determining what qualifies as patentable subject matter, the Supreme Court has drawn the distinction between inventions and mere discoveries. On the unpatentable discovery side fall "laws of nature, natural phenomena, and abstract ideas." On the patentable invention side fall anything that is "not nature's handiwork, but [the inventor's] own." [Citations omitted.]

Alappat, 33 F.3d at 1582, 31 USPQ2d at 1590 (Rader, J., concurring). There is no question that any "machine, manufacture, or [man-made] composition of matter" is a man-made physical thing, not a law of nature, natural phenomenon, or abstract idea, and is patentable eligible subject matter under § 101 (subject to the "special case" of general purpose machines and manufactures that merely perform "abstract ideas"). However, we disagree with Judge Rader's statement to the extent it implies that everything conceived by man and claimed as a method is a patentable invention. Unpatentable "abstract ideas" can represent "inventions" made by man as well as "discoveries" of things that existed in nature, and are easily claimed as a series of steps so as to appear to be a "process" under § 101. For example, mathematical algorithms (the best known example of an abstract idea) can be "abstract ideas" that do not represent a discovery of something that existed in nature. See In re Meyer, 688 F.2d 789, 794-95, 215 USPQ 193, 197 (CCPA 1982) ("However, some mathematical algorithms and formulae do not represent scientific principles or laws of nature; they represent ideas or mental processes and are simply logical vehicles for communicating possible solutions to complex problems."). A claim to a method of government would appear to be an unpatentable abstract political idea even though it is a creation of human thinking that can be claimed as a method. Not every claim to a series of steps "invented by man" is a "process" under § 101.

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limited to mathematical algorithms. Id. Abstract ideas are usually associated with method claims because a "machine, manufacture, or composition of matter" are tangible things and not disembodied concepts. Abstract ideas performed on general purpose machines or embodied in a generic manufacture constitute a "special case" where subject matter that appears to be nominally within § 101 is nonstatutory.

One possible identifying characteristic of an abstract idea is the lack of transformation of any physical subject matter according to the definition of a "process" under § 101 described supra. Another possible identifying characteristic is if the claim is so broad that it covers (preempts) any and every possible way that the steps can be performed, because there is no "practical application" if no specific way is claimed to perform the steps. Id. at 1405. This may be illustrated by the claim discussed in the dissent in Labcorp, where the "words 'assaying a body fluid' refer to the use of any test at all, whether patented or not patented," 126 S. Ct. at 2924, 79 USPQ2d at 1067, and "Claim 13 . . . tells the user to use any test at all," id. at 2927, 79 USPQ2d at 1070. See also Tilghman v. Proctor, 102 U.S. 707, 726-27 (1880) (discussing overbreadth of Morse's eighth claim in O'Reilly v. Morse, 56 U.S. 62 (1854) compared to the scope of enablement). Incidental physical limitations, such as data gathering, field of use limitations, and post-solution

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activity are not enough to convert an "abstract idea" into a statutory "process." Lundgren, 76 USPQ2d at 1405 and 1427-28. A method may not be considered an "abstract idea" if it produces an objectively measurable result (e.g., a contract as a result of a negotiation method or a slower heartbeat as a result of a meditation technique), but it may still not qualify as a "process" under § 101 if it does not perform a transformation of physical subject matter.

(14) "Laws of nature, natural phenomena, and abstract ideas" can be thought of as "exclusions" or "exceptions," but the terms are not necessarily synonymous. An "exclusion" refers to subject matter that is not within § 101 by definition. See, e.g., Diamond v. Diehr, 450 U.S. at 185, 209 USPQ at 7 ("This Court has undoubtedly recognized limits to § 101 and every discovery is not embraced within the statutory terms. Excluded from such patent protection are laws of nature, physical phenomena and abstract ideas." (Emphasis added.)). The term "exclusion" (from the Latin, "to shut out") carries more of the connotation a definition that does not encompass certain subject matter. An "exception" (from the Latin, "to take out") tends to refer to subject matter that would fall within § 101 "but for" some exceptional condition. The cases, like ordinary language, do not make strong distinctions between the two words and they tend to use them interchangeably. When the point of view is clear, the

distinction is without a difference. Lundgren, 76 USPQ2d at 1405.

A great deal of confusion -- not to say mischief -- may arise when advocates (or decision makers) mistake the analytical process for the subject matter. For example, the position that not every series of steps is a "process" under § 101 is consistent with the idea that "abstract ideas" are excluded from § 101. On the other hand, if every series of steps is a "process" under § 101, then, in order to preserve the Supreme Court precedent that abstract thoughts are not patentable, it is necessary to recognize that certain "processes" are exceptions to the general rule.

(15) There is a long history of mathematical algorithms as abstract ideas before State Street and AT&T. Id. at 1406-11. One of the main issues after Gottschalk v. Benson was the "special case" of determining when machine claims (including apparatus claims in "means-plus-function" format) and machine-implemented process claims, which recited mathematical algorithms, were unpatentable. This led to the two-part Freeman-Walter-Abele test. Id. at 1409-10.

(16) We interpret the State Street and AT&T test of a "useful, concrete and tangible result" to be limited, at present, to claims to machines and machine-implemented processes, i.e., to the "special cases" of claims that might be within § 101 because

they recite structure, but which involve an abstract idea issue. Id. at 1411-13. The Federal Circuit recognized that "certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, i.e., 'a useful, concrete and tangible result.'" State Street, 149 F.3d at 1373, 47 USPQ2d at 1600-01 (citing In re Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557). The full statement in Alappat reads: "This [claimed invention] is not a disembodied mathematical concept which may be characterized as an 'abstract idea,' but rather a specific machine to produce a useful, concrete, and tangible result." (Emphasis added.) Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557. Alappat, Arrhythmia Research Technology Inc. v. Corazonix Corp., 958 F.2d 1053, 22 USPQ2d 1033 (Fed. Cir. 1992), State Street, and AT&T all involved transformation of data by a machine. The court specifically held that transformation of data representing some real world quantity (a waveform in Alappat, an electrocardiograph signals from a patient's heartbeat in Arrhythmia, or discrete dollar amounts in State Street) by a machine was a practical application of a mathematical algorithm, formula, or calculation that produced "a useful, concrete and tangible result," and that a method of applying a PIC indicator "value through switching and recording mechanisms to create a signal useful for billing purposes," AT&T, 172 F.3d at 1358, 50 USPQ2d at 1452, a machine-



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implemented process, was "a useful, concrete, tangible result."  
See Lundgren, 76 USPQ2d at 1411-16 (APJ Barrett, concurring-in-part and dissenting-in-part) (holding that the State Street test, so far, is limited to transformation of data by machines and machine-implemented processes). The test in Alappat may derive from the classical definition of a "machine": "The term machine includes every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result." Corning v. Burden, 56 U.S. 252, 267 (1854).

However, the fact that the court in AT&T commented on In re Grams, 888 F.2d 835, 12 USPQ2d 1824 (Fed. Cir. 1989), and In re Schrader, 22 F.3d 290, 30 USPQ2d 1455 (Fed. Cir. 1994), which both involved non-machine-implemented process claims, as being "unhelpful" because they did not ascertain if the end result of the claimed process was useful, concrete, and tangible, AT&T, 172 F.3d at 1360, 50 USPQ2d at 1453, leaves open the question of whether the "useful, concrete and tangible result" test is intended to be extended past the original facts of the machine-implemented invention.

(17) Justice Breyer in his dissent in Labcorp stated in dicta that it is highly questionable whether the "useful, concrete and tangible result" test is a general test for statutory subject matter: "[State Street] does say that a process is patentable if it produces a 'useful, concrete, and tangible

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result.' 149 F.3d, at 1373. But this Court has never made such a statement and, if taken literally, the statement would cover instances where this Court has held the contrary." 126 S. Ct. at 2928.

(18) None of Alappat, State Street, or AT&T states where the "useful, concrete and tangible result" terms come from or how they are defined. It seems that "concrete" and "tangible" have essentially the same meaning, and that a "concrete and tangible result" is just the opposite of an "abstract idea." The term "useful" appears to refer to the "utility" requirement in § 101, which is a separate requirement from the patent eligible subject matter requirement. Id. at 1416. Thus, it is not clear to us what is meant by the test. It may be that the test is merely a restatement of existing principles rather than a completely new test. Id. Transformation of data by a machine which represents an abstract idea (for example, but not limited to, a mathematical algorithm) is not statutory just because it is nominally claimed as a machine or a machine-implemented process. Id. at 1407-8. Such "special cases" have always been difficult to address. For now, we interpret the State Street and AT&T test to be a test for when transformation of data by a machine is statutory subject matter. The test could be clarified by the facts of the cases: (1) transformation of data (i.e., electrical signals representing data) is by a machine; (2) the data corresponds to something in

the "real world"; and (3) no physical acts need to occur outside of the machine (internal transformation of electrical signals by the machine is sufficient). Id. at 1411. If the Federal Circuit intends to create a new general test for statutory subject matter regardless of whether it involves transformation of data (signals) by a machine, then further explanation in an appropriate case is needed.

(19) Non-machine-implemented process claims present additional issues to analyze for statutory subject matter. "Process" claims recite acts and are fundamentally different from "machine, manufacture, or composition of matter" claims, which recite things. Process claims do not have to recite structure for performing the acts. Acts are inherently more abstract than structure. While there is seldom disagreement about physical things falling into one of the statutory classes, it is not always easy to determine when a series of steps is a statutory "process" under § 101.

Where the steps define a transformation of physical subject matter (tangible or intangible) to a different state or thing, as normally present in chemical, electrical, and mechanical cases, there is no question that the subject matter is statutory; e.g., "mixing" two elements or compounds is clearly a statutory transformation that results in a chemical substance or mixture

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although no apparatus is claimed to perform the step and although the step could be performed manually. Id. at 1417.

(20) There are several issues that complicate analysis of non-machine-implemented processes: (1) a claim that is so broad that it covers both statutory and nonstatutory subject matter; (2) the statement in In re Musgrave, 431 F.2d at 893, 167 USPQ at 289-90, that it makes no difference whether steps are performed by a machine or mentally, as long as they are in the "technological arts"; (3) how to determine when a transformation of physical subject matter takes place; (4) whether minor physical limitations can define a statutory process; and (5) whether methods that can only be performed by a human, e.g., sports moves, are patentable subject matter. Lundgren, 76 USPQ2d at 1417.

(21) Although this question does not appear to have been formally decided by the Federal Circuit, we are of the opinion that claims that read on statutory and nonstatutory subject matter should be rejected as unpatentable. Id. at 1417-24. This problem is most critical in method claims because method claims do not have to recite what structure is used to perform the steps, making them abstract in nature, whereas claims to things, "machines, manufactures, or compositions of matter," easily fall within § 101 (subject to the "special case" of abstract ideas performed on machines). The USPTO rejects method claims when

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they are interpreted to be so broad that they are directed to the abstract idea itself, rather than a practical implementation thereof; e.g., a series of steps without any recitation of how the steps are performed might be rejected as nonstatutory subject matter as an "abstract idea," whereas the same series of steps, if performed by a machine, might be statutory as a practical application of the abstract idea.

(22) The "technological arts" test for statutory subject matter originated in response to "mental steps" rejections. Where the steps of the claim were so broad that they could be performed mentally by a human operator (although the claim did not recite how the steps were performed), the claim was rejected as not defining statutory subject matter even though if the steps were performed by a machine it would constitute statutory subject matter. This is the situation of the claims reading on statutory and nonstatutory subject matter. The court in Musgrave declined to follow the approach of previous cases of determining whether the claim, interpreted reasonably, read upon mental implementation of the process or was confined to a machine implementation. Id. at 1419. The court held that process claims which could be done by purely mental processes (what might today be called "abstract ideas"), as well as by machine, were statutory as long as the steps were in the "technological arts." Id. at 1420. It was not explained how "technological arts" were

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to be determined. Judge Baldwin concurred, objecting to the majority's analysis and writing, "suppose a claim happens to contain a sequence of operational steps which can reasonably be read to cover a process performable both within and without the technological arts? This is not too far fetched. Would such a claim be statutory? . . . We will have to face these problems some day." Musgrave, 431 F.2d at 896, 167 USPQ at 291. This test, as a separate test, seems to have been implicitly overruled by Gottschalk v. Benson. Lundgren, 76 USPQ2d at 1425.

The Board held in Lundgren that the "technological arts" test is not a separate and distinct test for statutory subject matter. Id. at 1388. Although commentators have read this as eliminating a "technology" requirement for patents, this is not what was stated or intended. As APJ Barrett explained, "[t]he 'technology' requirement implied by 'technological arts' is contained within the definitions of the statutory classes." Id. at 1430. All "machines, manufactures, or [man-made] compositions of matter" are things made by man and involve technology. Methods which define a transformation of physical subject matter from one state or thing to another involve technology and qualify as a statutory "process" under § 101. The definitions of the statutory classes and application of the exclusions are the proper tests. A process may involve technology because it meets the transformation of physical subject matter definition of a

"process" under § 101, even though it does not require performance by a machine. Id. at 1428. The "technological arts" is not a useful, objective test because it was never defined as anything except as a more modern term for the "useful arts." The use of such a test would result in conclusory rejections, which are unreviewable, just as many claims in the past were rejected as "business methods" because they involved some business aspect (e.g., accounting).

(23) Not all physical limitations in a claim directed to an abstract idea (e.g., a mathematical algorithm) were sufficient to define a statutory process prior to State Street. This case law regarding data gathering, field-of-use limitations, and post-solution activity, which includes Supreme Court precedent, should still apply to determining whether non-machine-implemented process claims are directed to an abstract idea or a practical application of that idea. Id. at 1427-28; cf. Labcorp, 126 S. Ct. at 2927-28 (initial step of "assaying a body fluid" does not render the claim patentable). It is difficult to determine when such steps are enough to define statutory subject matter.

(24) Claims that can only be performed by a human, such as dance and sports moves, meditation techniques, etc., present difficult questions under § 101. Id. at 1428-29. Surgical methods are performed by humans, but since they involve the

application of scientific medical knowledge to transform human and animal tissue they are readily classifiable as a type of manufacturing process. Id. at 1429. This issue is not present in this case, but we believe any judicial review of this decision should recognize that the present case is only one in a broad spectrum of cases involving what the USPTO perceives to be nonstatutory subject matter.

(25) The concurrence/dissent in Lundgren concludes that there are three possible existing tests for statutory subject matter of non-machine-implemented methods: (1) the definition of a "process" under § 101 requires a transformation of physical subject matter (which is interpreted to mean matter or some form of energy) to a different state or thing; (2) the judicially recognized exclusions for "abstract ideas, laws of nature, or natural phenomena"; and (3) the "useful, concrete and tangible result" test of State Street. Id. at 1429-30.

(26) In summary, the concurrence/dissent in Lundgren makes the following conclusions about non-machine-implemented method claims, which hopefully will be addressed by the Federal Circuit.

- (a) Not every process in the dictionary sense is a "process" under § 101; i.e., not every series of steps is a "process" under § 101.
- (b) The definition of a "process" under § 101 requires a transformation of physical subject matter to a different state or thing.
  - (i) The physical subject matter transformed can be matter (an object or material) or some form of



energy (e.g., heat into mechanical motion; electromagnetic waves propagating in space into electrical current in a wire; etc.).

- (c) The oft-quoted statement that "Congress intended statutory subject matter to 'include anything under the sun that is made by man,'" is based on the Senate Report statement that "[a] person may have 'invented' a machine or manufacture, which may include anything under the sun made by man." The Senate Report indicates that things made by man ("machines, manufactures, or [man-made] compositions of matter") are statutory, but does not imply that Congress intended every concept conceived by man that can be claimed as a method to be patentable subject matter.
- (d) Some claims that nominally fall within § 101 because they recite a general purpose machine or a method performed on a general purpose machine (e.g., "a computer-implemented method comprising . . .") may nonetheless be nonstatutory subject matter if all that is performed is an "abstract idea." This is a "special case" because the subject matter is technically within § 101 by virtue of the machine, as opposed to an exclusion that was never within § 101.
- (e) "Abstract ideas" can represent ideas "made by man."
- (f) Possible indicia of an "abstract idea" may be (i) the lack of transformation of physical subject matter according to the definition of a "process" under § 101, and/or (ii) the claim covers (preempts) any and every possible way that the steps can be performed.
- (g) Physical steps or limitations in a claim are not necessarily sufficient to convert the claim into statutory subject matter, e.g., data-gathering steps, field of use limitations, and minimal post-solution activity.
- (h) It is possible that a non-machine-implemented method may be nonstatutory subject matter if it does not perform a transformation of physical subject matter even though it contains physical steps that might prevent it from being labeled an "abstract idea."
- (i) The holding of State Street is limited to transformation of data by a machine.

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- (j) AT&T involved a machine-implemented process claim.
- (k) The "useful, concrete and tangible result" test of State Street and AT&T is presently limited to machine claims and machine-implemented process claims.
- (l) The terms "useful, concrete and tangible" have not yet been defined.
- (m) During prosecution, claims that read on statutory and nonstatutory subject matter should be held to be unpatentable.
- (n) There is no separate "technological arts" test for statutory subject matter.

#### Interim Guidelines

After Lundgren, the USPTO published Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility (Interim Guidelines), 1300 Off. Gaz. Patent and Trademark Office (O.G.) 142 (Nov. 22, 2005). The Interim Guidelines do not track the analysis in Lundgren, which principally focused on non-machine-implemented method claims. The Interim Guidelines indicate that statutory subject matter: (1) must fall within one of the statutory categories of § 101, 1300 O.G. at 145; and (2) must not fall within one of the judicially recognized exceptions for "laws of nature, natural phenomena, and abstract ideas," id. The Interim Guidelines state that while "laws of nature, natural phenomena, and abstract ideas" are not eligible for patenting, a practical application may be patented, id. A practical application can be identified by tests: (a) a physical transformation of an article to a

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different state or thing, id. at 146; or (b) the production of a "useful, concrete and tangible result," id., i.e., the State Street test applied to all claims, whether or not machine-implemented. The Interim Guidelines also state that (c) the claim must not preempt every "substantial practical application" of the of nature, natural phenomena, or abstract idea, id.

Guidelines are intended to instruct examiners on how to apply the law to the facts. The Board is not bound by such guidelines,<sup>8</sup> but applies the law directly to the facts. The Interim Guidelines state: "Rejections will be based upon the substantive law and it is these rejections which are appealable. Consequently, any failure by USPTO personnel to follow the Guidelines is neither appealable nor petitionable." Id. at 142, under "Introduction." Although the analysis will apply the Interim Guidelines in the alternative, this exercise underscores, for this panel, several problems with the Interim Guidelines that limit their usefulness severely.

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<sup>8</sup> From the movie Pirates of the Caribbean (Disney 2003):

Elizabeth: You have to take me to shore! According to the Code of the Order of the Brethren.

Barbossa: First, your return to shore was not part of our negotiations nor our agreement, so I 'must' do nothin'. And secondly, you must be a pirate for the pirate's code to apply, and you're not. And thirdly, the code is more what you call guidelines than actual rules. Welcome aboard the Black Pearl, Miss Turner.

First, the Interim Guidelines implicitly concede that any series of steps is a "process" under § 101 and does not address the case law that says that not every process in the dictionary sense is a "process" under § 101. See Gottschalk v. Benson, 409 U.S. at 64, 175 USPQ at 674 ("The question is whether the method described and claimed is a 'process' within the meaning of the Patent Act."); Parker v. Flook, 437 U.S. 584, 588 n.9, 198 USPQ 193, 196 n.9 (1978) ("The statutory definition of 'process' is broad.... An argument can be made, however, that this Court has only recognized a process as within the statutory definition when it either was tied to a particular apparatus or operated to change materials to a 'different state or thing.'"); id. at 589, 198 USPQ at 197 ("The holding [in Gottschalk v. Benson] that the discovery of that method could not be patented as a 'process' forecloses a purely literal reading of § 101."); Lundgren, 76 USPQ2d at 1398-1401. "Process" claims are inherently more abstract than "machine, manufacture, or composition of matter" claims, which are directed to physical things, because a "process" is not limited to, or required to recite, the means for performing the steps. Id. at 1400-01. If it is conceded that every series of steps is a "process" under § 101, then one possible statutory subject matter test is lost.

Second, the Interim Guidelines do not provide any directions for how examiners should determine whether the claimed invention

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is to an "abstract idea, law of nature, or natural phenomenon" except by finding that it is not a practical application as defined by tests (a), (b), and (c). The Interim Guidelines treat "abstract ideas, laws of nature, or natural phenomena" as exceptions rather than exclusions, i.e., claims are statutory "but for" some condition.

Third, the Interim Guidelines state that a transformation or reduction of an article to a different state or thing is a statutory practical application. Interim Guidelines, 1300 O.G. at 146. This perpetuates the misunderstanding that "transformation" requires transformation of a tangible object or article, contrary to cases that explain that the subject matter transformed can be physical, yet intangible, phenomena such as electrical signals. See In re Schrader, 22 F.3d 290, 295 n.12, 30 USPQ2d 1455, 1459 n.12 (Fed. Cir. 1994) ("In the Telephone Cases, 126 U.S. 1 ... (1887), the Court upheld the validity of a claim directed to a method for transmitting speech by impressing acoustic vibrations representative of speech onto electrical signals. If there was a requirement that a physical object be transformed or reduced, the claim would not have been patentable.... Thus, it is apparent that changes to intangible subject matter representative of or constituting physical activity or objects are included in this definition"); Lundgren, 76 USPQ2d at 1398-99.

Fourth, the Interim Guidelines adopt the "useful, concrete and tangible result" test of State Street as a general test for patentable subject matter without addressing the fact that the holding of State Street was qualified by transformation of data by a machine and that AT&T involved a machine-implemented process claim. Id. at 1411-13. It may be that the State Street test can be adapted as a general test, but the factual differences between machine claims or machine-implemented process claims and non-machine-implemented process claims are significant and have not been addressed by the Federal Circuit. Machines inherently act to transform physical subject matter (tangible or intangible) to a different state or thing. As recognized in the earlier Examination Guidelines for Computer-Related Inventions, 61 Fed. Reg. at 7484, 1184 O.G. at 92: "There is always some form of physical transformation within a computer because a computer acts on signals and transforms them during its operation and changes the state of its components during the execution of a process." Machine-implemented processes nominally fit within the definition of a "process" under § 101, but may not necessarily be statutory under the special circumstances involving transformation of data by a machine, which are addressed by the State Street test. The State Street "useful, concrete and tangible result" test is more readily understood and applied if it is limited to machine claims and machine-implemented process claims, which are already

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nominally within § 101, because a machine (almost always a programmed computer) that does no more than perform the steps of an abstract idea is not a practical application of the abstract idea. Thus, the State Street test requires that the practical application must be recited in the claims. The fact that an abstract idea is capable of being practically applied, and that a practical application is disclosed, does not make a broad claim to the abstract idea itself patentable. A claim which covers both statutory and nonstatutory subject matter should be held unpatentable, see Lundgren, 76 USPQ2d at 1417-24.

Fifth, the Interim Guidelines attempt to define the terms "useful," "concrete," and "tangible," but have not cited any support in § 101 cases dealing with patent eligible subject matter. Moreover, the proposed "definitions" seem to be circular and therefore unhelpful. The statutory categories of § 101 ("process, machine, manufacture, or composition of matter") define eligible subject matter, i.e., subject matter that can be patented. The terms "new and useful" in § 101 refer to other conditions for patentability. "It may be useful to think of eligibility as a precondition for patentability, and of utility as one of the three fundamental conditions for patentability, together with novelty ... and nonobviousness ...." Robert L. Harmon, Patents and the Federal Circuit 40 (4th ed. Bureau of National Affairs, Inc. 1998). See Lundgren, 76 USPQ2d at 1395-

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96. "Notwithstanding the words 'new and useful' in § 101, the invention is not examined under that statute for novelty because that is not the statutory scheme of things or the long-established administrative practice." State Street, 149 F.3d at 1373 n.2, 47 USPQ2d at 1600 n.2 (citing In re Bergy, 569 F.2d 952, 960, 201 USPQ 352, 360 (CCPA 1979)). It seems that the "useful result" part of the State Street test refers to the "utility" requirement of § 101, which is a separate requirement from patent eligible subject matter, yet this is not questioned by the Interim Guidelines. The Interim Guidelines define "tangible" as the opposite of "abstract," 1300 O.G. at 146, which adds nothing of substance or guidance to the abstract idea exception, and no case is cited for the definition. The Interim Guidelines define "concrete" as the opposite of "unrepeatable" or "unpredictable," id., yet we find no dictionary that supports this definition. The case cited in support, In re Swartz, 232 F.3d 862, 864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000) (because asserted results in the area of cold fusion were "irreproducible," claims were properly rejected under § 101), relates to utility, not to patent eligible subject matter. In our opinion, the terms "concrete and tangible" essentially say the same thing, that the result is not just an "abstract idea," but is "actual and real."



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Sixth, the Interim Guidelines do not provide any guidance as to how examiners should determine whether the claimed invention preempts an "abstract idea, law of nature, or natural phenomenon."

### Analysis

#### Claim interpretation

The meaning of the claim language is not in dispute.

#### Technological arts

The Board held in Lundgren that the "technological arts" is not a separate and distinct test for statutory subject matter. Lundgren, 76 USP2d at 1388. Accordingly, the examiner's rejection in this case, to the extent that it is based on a "technological arts" test, is reversed.

Nevertheless, the examiner's reasoning that the method is not technological because no specific apparatus is disclosed to perform the steps and because the only way to perform the steps is by a human is not persuasive. "It is probably still true that, as stated in In re Benson, 'machines--the computers--are in the technological field, are a part of one of our best-known technologies, and are in the "useful arts" rather than the "liberal arts," as are all other types of "business machines," regardless of the uses to which their users may put them,' 441 F.2d at 688, 169 USPQ at 553, with the exception noted in

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Gottschalk v. Benson, that a machine which executes a mathematical algorithm is not patentable under § 101." Lundgren, 76 USPQ2d at 1416. The cases do not imply that a process is not in the technological arts if it is not performed on a machine. Musgrave, the case the examiner relies on for the "technological arts" test, did not require a machine and, in fact, held that steps performed mentally could be patentable. Although we disagree that mental steps can be patentable, we conclude that a method performed by a human may be statutory subject matter if there is a transformation of physical subject matter from one state to another; e.g., "mixing" two elements or compounds to produce a chemical substance or mixture is clearly a statutory transformation although no apparatus is claimed to perform the step and although the step could be performed manually.

#### Application of the Lundgren and Guidelines tests

##### Lundgren

The three tests identified in the concurrence/dissent in Lundgren are applied below.

##### (1) Transformation

Claim 1, as is common with method claims, does not recite how the steps of "initiating a series of transactions between said commodity provider and consumers of said commodity," "identifying market participants," and "initiating a series of transactions between said commodity provider and said market

participants," are implemented. Appellants acknowledge "that the steps of the method need not be 'performed' on a computer" (Br6) and, thus, there is no implicit transformation of electrical signals from one state to another as happens in a computer. The steps do not transform any physical subject matter (matter or some form of energy) into a different state or thing. Claim 1 does not involve transformation of data, at least not in the usual sense of a specific, well-defined series of steps (i.e., an algorithm) performed on data as in a computer-implemented process. The last clause of claim 1, "such that said series of market participant transactions balances the risk position of said series of consumer transactions," indicates that what are transformed are the non-physical financial risks and legal liabilities of the commodity provider, the consumer, and the market participants having a counter-risk position to the consumer. Accordingly, the steps of claim 1 do not define a statutory "process" under § 101 using the "transformation" test.

Claim 2 depends on claim 1 and defines the commodity as energy and the market participants as transmission distributors. Claim 3 depends on claim 2 and defines the consumption risk as a weather-related price risk. These claims limit the commodity, the market participants, and the type of risk, but do not add any physical transformation. That the method is limited to a particular environment does not make it statutory subject matter.

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Cf. Diamond v. Diehr, 450 U.S. at 191, 209 USPQ at 10 ("A mathematical formula as such is not accorded the protection of our patent laws, and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment." (Citations omitted.)). Claims 2 and 3 do not define a statutory "process" under § 101 using the "transformation" test.

Independent claim 4 is similar to claim 1, as modified by claims 2 and 3, but also defines the "fixed price" in terms of a mathematical expression. The mathematical expression does not add any transformation of physical subject matter. Claim 4 is directed to nonstatutory subject matter because the claim as a whole does not perform a transformation of physical subject matter, not because it contains a mathematical expression.

Claim 5 depends on claim 4 and defines the location-specific weather indicator as at least one of heating degree days and cooling degree days. This merely qualifies the data and does not add a transformation of physical subject matter. Claim 5 does not define a statutory "process" under § 101 using the "transformation" test.

Claim 6 depends on claim 4 and states that the energy provider seeks a swap receipt to cover the marginal weather-driven cost. It appears that a "swap receipt" is a payment from the other energy market participants, such as a distribution

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company, involved in the swap (specification, pages 5-6). A swap transaction does not involve a transformation of physical subject matter from one state to another, so claim 6 does not define a statutory "process" under § 101 using the "transformation" test.

Claims 7 and 10 depend on claim 4 and recite steps for determining the energy price. The assumptions and mathematical procedures on data do not recite a physical transformation. The claimed subject matter is unpatentable because it does not define a physical transformation, not because it contains mathematical operations. Claims 7 and 10 do not define a statutory "process" under § 101 using the "transformation" test.

Claims 8 and 11 depend on claim 4 and recite steps for establishing a cap on the weather-influenced pricing. The assumptions and mathematical procedures on data do not define a physical transformation of subject matter. Claims 8 and 11 do not define a statutory "process" under § 101 using the "transformation" test.

Claim 9 depends on claim 1 and states that the commodity provider seeks a swap receipt to cover the price risk of the consumer transaction. As noted with respect to claim 6, a swap receipt does not involve a statutory transformation. Claim 9 does not define a statutory "process" under § 101 using the "transformation" test.

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Therefore, claims 1-11 are directed to nonstatutory subject under 35 U.S.C. § 101 under the "transformation" test.

(2) "Abstract idea" exclusion

The subject matter of claim 1 is also directed to an "abstract idea" or, at least, it is nonstatutory because it broadly covers both a nonstatutory "abstract idea" and any specific physical implementation of it that might possibly be statutory. Claim 1 describes a plan or scheme for managing consumption risk cost in terms of a method. It is nothing but an disembodied "abstract idea" until it is instantiated in some physical way so as to become a practical application of the idea. The steps of "initiating a series of transactions" and the step of "identifying market participants" merely describe steps or goals in the plan, and do not recite how those steps are implemented in some physical way: the steps remain disembodied. Because the steps cover ("preempt") any and every possible way of performing the steps of the plan, by human or by any kind of machine or by any combination thereof, we conclude that the claim is so broad that it is directed to the "abstract idea" itself, rather than a practical implementation of the concept. While actual physical acts of individuals or organizations would, no doubt, be required to implement the steps, and while the actual implementation of the plan in some specific way might be considered statutory subject matter, the fact that claim 1 covers

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both statutory and nonstatutory subject matter does not make it patentable. Thus, we further hold that claim 1 is directed to nonstatutory subject matter under the "abstract idea" exclusion.

We consider the "abstract idea" test to be in addition to the transformation test. There may be times where it is easier to analyze the subject matter as an "abstract idea" or where the "abstract idea" test can be used as a backup check on the transformation test. However, there may be times where the steps cannot fairly be considered an "abstract idea," e.g., because of actual physical steps, but where the claims do not define a transformation of physical subject matter.

Claim 2 depends on claim 1 and defines the commodity as energy and the market participants as transmission distributors. Claim 3 depends on claim 2 and defines the consumption risk as a weather-related price risk. This limits the commodity, the market participants, and the type of risk, but does not describe any particular way of performing the steps that would define a practical application, instead of an abstract idea. Claims 2 and 3 are not patentable because they are to an "abstract idea."

Independent claim 4 is similar to claim 1, as modified by claims 2 and 3, but also defines the "fixed price" in terms of a mathematical expression. A mathematical expression by itself is an abstract idea and, therefore, the combined subject matter is

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also an "abstract idea." The claimed subject matter as a whole describes an "abstract idea."

Claim 5 depends on claim 4 and defines the location-specific weather indicator as at least one of heating degree days and cooling degree days. This merely qualifies the data and does not define a practical application. Claim 5 is directed to nonstatutory subject matter under the "abstract idea" exclusion.

Claim 6 depends on claim 4 and states that the energy provider seeks a swap receipt to cover the marginal weather-driven cost. It appears that a "swap receipt" is a payment from the other energy market participants, such as a distribution company, involved in the swap (specification, pages 5-6). Since no specific method of seeking the swap receipt is claimed, no practical application of the abstract idea is claimed. Claim 6 is not patentable because it is an "abstract idea."

Claims 7 and 10 depend on claim 4 and recite steps for determining the energy price. Some of the steps involve assumptions and mathematical procedures on data, which are considered an "abstract idea," and the combined subject matter is therefore still an "abstract idea." Claims 7 and 10 are not statutory subject matter because they are an "abstract idea."

Claims 8 and 11 depend on claim 4 and recite steps for establishing a cap on the weather-influenced pricing. Some of the steps involve assumptions and mathematical procedures on



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data, which are considered an "abstract idea," and the combined subject matter is therefore still an "abstract idea." Claims 8 and 11 are an "abstract idea" and not statutory subject matter.

Claim 9 depends on claim 1 and states that the commodity provider seeks a swap receipt to cover the price risk of the consumer transaction. As noted with respect to claim 6, a swap receipt does not involve a practical application of the abstract idea. Claim 9 is an "abstract idea" and does not define statutory subject matter.

Therefore, claims 1-11 are directed to nonstatutory subject under 35 U.S.C. § 101 as an "abstract idea."

(3) Useful, concrete and tangible result

We held in (1) that the claimed subject matter on appeal does not fall within the definition of a "process" under § 101 because it does not transform physical subject matter to a different state or thing, and held in (2) that it is an "abstract idea." Claim 1 does not recite a "concrete and tangible result" or a "practical application" of the hedging plan under the State Street test, because a "concrete and tangible result" is interpreted to be the opposite of an "abstract idea" and requires some sort of physical instantiation. While the plan may be "useful" in the sense of having potential utility to society, a method that has not been implemented in some specific way is not considered practically useful in a patentability sense. Even if

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the method is "useful," the State Street test requires the result to be "useful" and "concrete" and "tangible," so merely being "useful" is not enough. In addition, it is the result of the claimed process that must be "useful, concrete and tangible," not just one or more steps. Therefore, we also hold that claim 1 is directed to nonstatutory subject matter because it does not recite a "practical application" or produce a "concrete and tangible result" under the State Street test, to the extent that State Street applies to non-machine-implemented process claims.

Claims 2-11 are also rejected as nonstatutory subject matter because they are directed to an "abstract idea," as discussed, and do not recite a "practical application" or produce a "concrete and tangible result" under the State Street test.

Therefore, claims 1-11 are directed to nonstatutory subject under 35 U.S.C. § 101 because they do not recite a "practical application" or a "concrete and tangible result" under the State Street test.

#### Interim Guidelines

The Interim Guidelines are applied as follows.

##### (1) Within a statutory category

The claims are drafted as a series of steps, which the Interim Guidelines considers to be a "process" under § 101.

(2) Judicially recognized exceptions

The Interim Guidelines state that while "laws of nature, natural phenomena, and abstract ideas" are not eligible for patenting, a practical application may be. Only the "abstract idea" category is at issue. The Interim Guidelines say that a practical application can be identified by: (a) a physical transformation of an article to a different state or thing; or (b) the production of a "useful, concrete and tangible result." Presumably, the Interim Guidelines consider the absence of (a) and (b) to indicate an "abstract idea." And, if the claim recites a practical application, (c) it must not preempt every "substantial practical application" of the law of nature, natural phenomena, or abstract idea.

(a) Transformation of article

The claims do not recite a transformation of an article to a different state or thing and, thus, do not recite a practical application under this test. Although we consider this to be too narrow a test, we apply the Interim Guidelines as written.

(b) "Useful, concrete and tangible result"

The Interim Guidelines define these terms, but the definitions are not based on any guidance in State Street or AT&T.

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Since the method has use to society, we conclude that it recites a "useful result." It seems that the utility requirement of § 101 is separate from the subject matter eligibility requirement, but this is not analyzed in the Interim Guidelines.

The Interim Guidelines state that "[t]he opposite of 'concrete' is unrepeatable or unpredictable," id., and cite a case dealing with utility under § 101. We do not find this definition of "concrete" in any dictionaries and, in our judgment, a case dealing with utility has little bearing on eligible subject matter. Accordingly, we do not apply this definition.

The Interim Guidelines state that "the opposite meaning of 'tangible' is 'abstract,'" 1300 O.G. at 146, so presumably a "tangible result" is the opposite of an "abstract idea." We determined in the Lundgren analysis that the claims are directed to an "abstract idea." Since the claims must meet all of the conditions of "useful" and "concrete" and "tangible," and claims 1-11 do not produce a "tangible result," they do not pass the "useful, concrete and tangible result test."

Therefore, claims 1-11 are directed to nonstatutory subject under 35 U.S.C. § 101 because they do not recite a "tangible result" under the Interim Guidelines.

(c) Preemption

We determined in the Lundgren analysis of the "abstract idea" exclusion that the claims are directed to the "abstract idea" because they cover any and every possible manner of performing the steps. Thus, it can also be said that the claims "preempt" the concept in the claimed methods. Therefore, claims 1-11 are directed to nonstatutory subject under 35 U.S.C. § 101 because they "preempt" under the Interim Guidelines.

Conclusion

For all of the reasons stated above, we conclude that claims 1-11 are not directed to statutory subject matter under 35 U.S.C. § 101. Appellants' arguments, addressed next, have been considered in making this decision, but are not persuasive.

Appellants' arguments

Briefs

Appellants argue that they "are unaware of any requirement, statutory or otherwise, which requires a method claim to specify a specific apparatus upon which the method is to be performed" (Br5) and that "no 'specific apparatus upon which the process can be performed' need be specified when claiming a method" (Br5).

It is true that process claims are not required to recite the means (structure) for performing the steps. See Cochrane v. Deener, 94 U.S. 780, 787 (1877); Lundgren, 76 USPQ2d at 1400-01. Although the examiner rejected the claims as nonstatutory subject

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matter, in part, because they did not recite a specific apparatus, this does not form any part of the bases for our new ground of rejection. A method claim can be a "process" under § 101 even when performed by hand. It is the presence of a transformation of physical subject matter that is important, not how the transformation is accomplished. Nevertheless, the absence of any apparatus in appellants' claims is evidence that the claims do not transform physical subject matter as a machine inherently would, and do not recite a practical application of the "abstract idea."

Appellants note that "[t]he specific computer hardware or specific software that one might use to implement the process is not part of the invention" (Br6) and acknowledge "that the steps of the method need not be 'performed' on a computer" (Br6). It is argued that while some steps could be done with a computer, or aided by the use of a computer, they need not be (Br7).

This confirms that appellants do not intend to limit the claims to a machine implementation. Cf. In re Prater, 415 F.2d 1393, 162 USPQ 541 (1969) (the court held that process claim 9, which read on a mental process augmented by pencil and paper markings, which appellants acknowledged was not their invention, as well on as a machine implemented process, fails to comply with the requirement of § 112, second paragraph, which requires "claims particularly pointing out and claiming the

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subject matter which the applicant regard as his invention"). The fact that the steps are not performed on a computer does not make the method nonstatutory. However, where, as here, no machine is claimed, there is no implied physical transformation of physical subject matter (e.g., electrical signals) from one state to another that would nominally indicate a statutory process (and invoke the State Street test).

Appellants argue that the Federal Circuit stated in AT&T that "[s]ince the claims at issue in this case are directed to a process in the first instance, a structural inquiry is unnecessary" and, thus, there is no requirement of a specific apparatus on which the process can be performed (Br8; RBr3).

It is true that process claims are not required to recite the means (structure) for performing the steps. Unlike claims written in means-plus-function language, which require supporting structure in the written description, it is not necessary to inquire whether process steps are supported by physical structure in the specification. However, we contend that a "process" under § 101 must recite steps that transform physical subject matter and must recite more than the "abstract idea."

Appellants argue that the examiner has relied on outdated case law in support of the rejection (Br8-9). In particular, the examiner's reliance on Schrader is argued to be inappropriate because it uses the outdated Freeman-Walter-Abele test which

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focuses on the "physical limitations" requirement (Br8). It is argued (Br8) that the test for patentable subject matter is whether the end result of the claimed process is "useful, concrete and tangible." It is argued that Warmerdam does not apply because "the claimed method involves steps not directed to the solving of a mathematical equation or algorithm" (Br9).

We agree that the Freeman-Walter-Abele test in Schrader is no longer in vogue because it is no longer required to investigate whether a claim contains a mathematical algorithm. Although the examiner rejected the claims as nonstatutory subject matter, in part, because they "solve[] a purely mathematical problem" (FR4), our new ground of rejection is not based on the presence of mathematical algorithms, but focuses on the lack of a physical transformation and the lack of a practical application of the "abstract idea" of risk management in the claims as a whole. Nevertheless, we briefly comment on Schrader and Warmerdam. The court stated in AT&T that Schrader was "unhelpful" because "[t]he focus of the court in Schrader was not on whether the mathematical algorithm was applied in a practical manner since it ended its inquiry before looking to see if a useful, concrete, tangible result ensued," AT&T, 172 F.3d at 1360, 50 USPQ2d at 1453. It is noted that Judge Plager authored both the AT&T and Schrader opinions. Schrader was to a non-machine-implemented method of conducting an auction and Warmerdam



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was to a non-machine-implemented method for generating a data structure. It is not clear why the "practical application, i.e., 'a useful, concrete and tangible result'" test would necessarily be definitive in these situations since State Street and AT&T both involved transformation of data by a machine.

Appellants note that the examiner stated that the method was not drawn to the "technological arts" "because the specification does not disclose specific hardware or software" (Br9). It is argued that "[c]ase law has addressed the issue of whether or not an apparatus is required for a process to be in the "technological arts'" (Br9). It is urged (Br10) that "technological arts" is synonymous with "useful arts" as it appears in Article 1, Section 8 of the Constitution, citing Musgrave and Waldbaum, 457 F.2d 997, 173 USPQ 430 (CCPA 1972). Therefore, it is argued (Br10):

One can therefore conclude that no special meaning need be given to the phrase "technological arts," a phrase that has been devised and defined by the courts, apart from the Constitutional requirement that an invention be in the "useful arts." It is clear from Musgrave that no apparatus need be specified for a process that can be carried out by a human without the aid of an apparatus, as can the present invention under appeal.

We agree with appellants that "technological arts" means "useful arts" as stated in the Constitution, and that apparatus is not required to be claimed in order for a method claim to be a "process" under § 101. The Board held in Lundgren that "technological arts" is not a separate and distinct test for

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statutory subject matter. Although commentators have read this as eliminating a "technology" requirement for patents, this is not what was stated or intended. "The 'technology' requirement implied by 'technological arts' is contained within the definitions of the statutory classes." Lundgren, 76 USPQ2d at 1430. All "machines, manufactures, or [man-made] compositions of matter" are things made by man and involve technology. Methods which recite a transformation of physical subject matter from one state or thing to another, and which do not fall within one of the exclusions for "laws of nature, physical phenomena, and abstract ideas" involve technology and are a "process" under § 101. In our opinion, the statement in Musgrave that a process that can be performed mentally or by a machine is statutory subject matter as long as it is in the "technological arts" has been implicitly overruled because it has never been adopted by the Supreme Court in Gottschalk v. Benson or subsequent cases, and the CCPA and the Federal Circuit have not continued to apply this line of reasoning. A method that is so broadly claimed that it reads on performing the steps mentally should be considered an "abstract idea."

Appellants argue that "[t]he claimed method is patentable because it produces a 'useful, concrete and tangible result'"

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(Br10). Appellants refer to the following statement in  
State Street, 149 F.3d at 1373, 47 USPQ2d at 1601:

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 practical application of a mathematical algorithm, formula, or calculation, because it produces "a useful, concrete and tangible result" a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.

It is argued that "even if the present claimed method only calculated 'first and second fixed rates' as it does in the steps (a) and (c), the method would be patentable, because the fixed rates would be considered a 'useful, concrete and tangible result' as was the share price in State Street [] (here, the fixed rates calculate represent a 'risk position')." (Br11).

Appellants fail to note that the holding in State Street is clearly limited to "transformation of data ... by a machine." AT&T involved a machine-implemented process. Machines are physical things that nominally fall within the class of a "machine" in § 101, and machine-implemented methods inherently act on and transform physical subject matter, such as objects or electrical signals, and nominally fall within the definition of a "process" under § 101. No machine is required by the present claims. Until instructed otherwise, we interpret State Street and AT&T to address the "special case" of subject matter that nominally falls within § 101, a general purpose machine or

machine-implemented process, but which is nonetheless unpatentable because the machine performs an "abstract idea." A general purpose computer which merely performs a mathematical algorithm (one type of abstract idea) on data, where the data is not representative of physical activity or objects, does not produce a "useful, concrete and tangible result."

Appellants argue that the present method goes much further than merely applying a mathematical algorithm (which first appears in independent claim 4) to calculate the first and second fixed rates, and the calculations are only part of the overall process (Br11). It is argued (Br11): "The 'practical application' of the mathematical algorithm in this case is the transactions that are set up using the fixed rates as price points, thereby creating a 'risk position' which minimizes the risk involved with the fluctuation of the price of a commodity for both the buyer and the seller of the commodity." It is further argued (Br11-12):

The overall method also provides a result that is "useful, concrete and tangible." The provision of energy in a cost-efficient manner for all parties involved has value to society in general, and is therefore "useful." Based on the risk positions established by the method disclosed in the application, various parties, including end users, utility companies and resource suppliers are risking real money: therefore, the result is "tangible" and "concrete."

It is argued that the test for statutory subject matter is set forth in AT&T, and "[w]ith respect to process, and especially

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processes involving mathematical algorithms, the result was whether or not a 'useful, concrete and tangible result' ensued from the application of the process" (RBr3). It is further argued (RBr3):

In this case, execution of the process results in the calculation of first and second fixed rates for the buying and selling of commodities, specifically, energy commodities. These fixed rates represent a "risk position." The rates are used by a commodity broker to establish buy/sell positions with both end users and suppliers of the commodity, with the risk for the established positions balancing each other. This is a "useful, concrete and tangible result" and, as a result, the Appellants submit that the process is statutory subject matter.

The present rejection does not rely on the presence of a mathematical algorithm. Claim 1 does not appear to directly or indirectly recite a mathematical algorithm. The Federal Circuit has said that the Freeman-Walter-Abele test is of little value, so there is no longer any need to investigate the presence of a mathematical algorithm. The holding in State Street is limited to the context of "transformation of data ... by a machine" and AT&T involved a machine-implemented process. Thus, it does not appear that the "useful, concrete and tangible result" test applies in the present situation. To the extent the "useful, concrete and tangible result" test is generally applicable, appellants' arguments indicate the difficulty in applying terms that have never been defined. We conclude that a "concrete and tangible result" requires a transformation of physical subject

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matter and/or evidence that the subject matter is more than an "abstract idea." None of the claims recites a transformation of physical subject matter and the claims recite an "abstract idea" rather than a practical implementation of that idea.

Appellants argue that the examiner errs in applying the Guidelines for Computer-Related Inventions, MPEP § 2106 (which is based on the guidelines at 61 Fed. Reg. 7478, 1184 O.G. 87, see footnote 6), "because the Appellants have made it clear that a computer is not part of the invention" (RBr2). It is argued that the examiner erred in applying the standards from the Computer Guidelines and then concluding that "because there is no computer claimed [sic], that no practical application exists, and, as a result, the invention is not statutory" (RBr2).

We agree with appellants that the Computer Guidelines do not apply to the instant non-machine-implemented process claims. We also agree that it was incorrect for the examiner to determine generally that there can be no practical application of a process without a computer and that subject matter cannot be within the "technological arts" without a computer. The presence of a computer makes it much easier to find statutory subject matter, but a method can be statutory subject matter without a machine.

It is argued that "although several steps of the claimed process can be aided through the use of a computer, a computer is not necessary to implement the process" (RBr2) and "[t]herefore

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it is unclear whether the claimed invention should be considered a computer-related invention or not" (RBr2-3). Appellants argue that "assuming, arguendo, that the claimed invention can be considered a computer-related invention, ... it is still statutory subject matter" (RBr3).

We agree with appellants that the claims are not directed to a computer-related invention, but obviously do not agree that the claims are directed to statutory subject matter.

Oral argument

At the oral argument, it was argued that the claims are presumptively directed to a "process" under § 101 because they recite a series of steps. It was argued that § 101 states that "any ... process" is patentable, the statute must be interpreted broadly, and that any change in up to Congress.

As we have made clear throughout this opinion, we disagree. It was stated in State Street:

The plain and unambiguous meaning of § 101 is that any invention falling within one of the four stated categories of statutory subject matter may be patented, provided it meets the other requirements for patentability set forth in Title 35, i.e., those found in §§ 102, 103, and 112, ¶ 2.

The repetitive use of the expansive term "any" in § 101 shows Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in § 101. Indeed, the Supreme Court has acknowledged that Congress intended § 101 to extend to "anything under the sun that is made by man." Thus, it is improper to read limitations into § 101 on the subject matter that may be patented where the legislative

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history indicates that Congress clearly did not intend such limitations.

. . .

The Supreme Court has identified three categories of subject matter that are unpatentable, namely "laws of nature, natural phenomena, and abstract ideas." [Footnotes and citations omitted.]

149 F.3d at 1372-73, 47 USPQ2d at 1600. This is not inconsistent with our position that not every series of steps is a "process" under § 101 because the Supreme Court's definition of a "process" requires a transformation of physical subject matter from one state to another. It would be helpful if the Federal Circuit would address this question directly. If every series of steps is presumptively a "process" under § 101, then it would be almost impossible to hold that such a claim is directed to nonstatutory subject matter because the "abstract idea" exclusion technically refers to subject matter that is not within § 101 (although case law suggests it can refer to subject matter that is within § 101 "but for" some special condition).

Appellants stated that the "rule of nature" and "natural phenomenon" exclusions do not apply, so the rejection must be based on the "abstract idea" exclusion. It was argued that Alappat, 33 F.3d at 1542 n.18, 31 USPQ2d at 1556 n.18, states that abstract ideas constitute disembodied concepts or truths that are not useful until reduced to some practical application. Applicants proposed that the test should be that any series of



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steps having a "real world effect" is a "process" under § 101, because a claim having a real world effect is not an abstract idea and is useful, and under such a test it would not be necessary to look at exceptions. It was argued that the transfer of commodities and the assumption of risk in the claims are real world effects.

It is not clear that adding another test would be useful: it is no easier to determine if there is a "real world effect" than it is to determine whether there is a "practical application." It is hard to define the line between a patentable "practical application" (or "real world effect") and an unpatentable "abstract idea." In this case, the fact that the claims are so broad that they cover ("preempt") any and every way to perform the steps indicates that what is being claimed is the "abstract idea" itself. That is, the claims read as if they are describing the concept without saying how any of the steps would be specifically implemented to produce a "real world effect." In our opinion, the transformation of physical subject matter test is a more objective way to perform the § 101 analysis for non-machine-implemented method claims.

For the reasons stated above, we conclude that appellants' oral arguments are not persuasive.



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McQUADE, Administrative Patent Judge, concurring.

The quest for a bright line test for determining whether a claimed invention embodies statutory subject matter under 35 U.S.C. § 101 is an exercise in futility.

35 U.S.C. § 101 provides that "[w]hoever 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." Congress intended this provision to encompass anything under the sun that is made by man. See Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980). Nonetheless, § 101 has limits and does not embrace every discovery within its statutory terms. Excluded from patent protection are laws of nature, physical phenomena and abstract ideas. See id.; see also Diamond v. Diehr, 450 U.S. 175, 185 (1981); Parker v. Flook, 437 U.S. 584, 589 (1978); and Gottschalk v. Benson, 409 U.S. 63, 67 (1972).

The proper inquiry requires a claim to be considered as a whole. See Flook, 437 U.S. at 594; Diehr, 450 U.S. at 188; AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 1357, 50 USPQ2d 1447, 1451 (Fed. Cir. 1999); and In re Alappat, 33 F.3d 1526, 1543-44, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994). The focus here should center on the essential characteristics of the claimed subject matter rather than on the particular

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statutory category to which the claim is nominally directed: process, machine, manufacture, or composition of matter. See State Street Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 1375, 47 USPQ2d 1596, 1602 (Fed. Cir. 1998). In this regard, undue weight should not be given to the sort of claim limitations that exalt form over substance and would allow a competent draftsman to mask non-statutory subject matter. See Flook, 437 U.S. at 590.

Hence, any assessment to determine whether a claim recites statutory subject matter should be fact-specific and conducted on a case-by-case basis. This approach, of course, does not easily lend itself to a test. The pointlessness of nevertheless attempting to settle on a test is exemplified by the tortured rise and sudden fall of the so-called Freeman-Walter-Abele test.<sup>1</sup> See AT&T, 172 F.3d at 1359, 50 USPQ2d at 1453, quoting State Street, 149 F.3d at 1374, 47 USPQ2d at 1601 ("After Diehr and Chakrabarty, the Freeman-Walter-Abele test has little, if any, applicability to determining the presence of statutory subject matter"). Moreover, the Supreme Court has implicitly cautioned against reliance on tests in this area. See Benson, 409 U.S. at 71 ("We do not hold that no process patent could ever qualify

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<sup>1</sup> This test evolved from the holding in In re Freeman, 573 F.2d 1237, 197 USPQ 464 (CCPA 1978), as modified by In re Walter, 618 F.2d 758, 205 USPQ 397 (CCPA 1980), and further by In re Abele, 684 F.2d 902, 214 USPQ 682 (CCPA 1982).

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if it did not meet the requirements of our prior precedents. . . . It is said we freeze process patents to old technologies, leaving no room for the revelations of the new, onrushing technology. Such is not our purpose."). Per se rules or tests, while arguably easy to apply, simply do not afford the flexibility needed to keep pace with new developments in technology and the law.

As for the merits of the present case, the appellants have not separately argued the patentability of any claim apart from the others. Thus, claims 1-11 stand or fall together. See In re Young, 927 F.2d 588, 590, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); and In re Wood, 582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978). Claim 1, reproduced in the majority opinion, is representative.

Claim 1 recites a method for managing the consumption risk costs of a commodity sold by a commodity provider at a fixed price. In other words, claim 1 pertains to a method of doing business.<sup>2</sup>

As pointed out in the majority opinion, the steps recited in claim 1

do not recite any specific way of implementing the steps; do not expressly or impliedly recite any physical transformation of physical subject matter,

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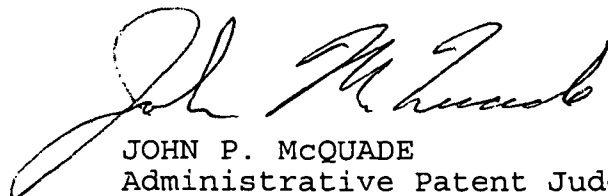
<sup>2</sup> This, in and of itself, does not render the subject matter recited in claim 1 non-statutory. The so-called "business method" exception to statutory subject matter was ill-conceived and has been put to rest. See State Street, 149 F.3d at 1375, 47 USPQ2d at 1602.

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tangible or intangible, from one state into another; do not recite any electrical, chemical, or mechanical acts or results; do not directly or indirectly recite transforming data by a mathematical or non-mathematical algorithm; are not required to be performed on a machine, such as a computer, either as claimed or disclosed; could be performed entirely by human beings; and do not involve making or using a machine, manufacture, or composition of matter [page 6, supra].

Considered collectively, these are powerfully persuasive factual indicators (not tests) that the method recited in claim 1 is, at its core, a disembodied business concept representing nothing more than a non-statutory abstract idea. That the "initiating" and "identifying" steps recited in the claim are drafted as acts required to be performed is of no moment. Given the full context of the claim, these acts are nominal in nature and merely serve to superficially couch the appellants' abstract idea in a method or process format.

For these reasons, the examiner's determination that claim 1, and claims 2-11, which stand or fall therewith, are directed to non-statutory subject matter under 35 U.S.C. § 101 is well founded.

  
JOHN P. McQUADE  
Administrative Patent Judge

) BOARD OF PATENT  
) APPEALS  
) AND  
) INTERFERENCES

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