United States Court of Appeals for the Federal Circuit

CYBERSOURCE CORPORATION,
Plaintiff-Appellant,

v.

RETAIL DECISIONS, INC.,
Defendant-Appellee.

2009-1358

Appeal from the United States District Court for the Northern District of California in case no. 04-CV-03268, Judge Marilyn H. Patel.

Decided: August 16, 2011

J. MICHAEL JAKES, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, of Washington, DC, argued for plaintiff-appellant. With him on the brief were ERIKA H. ARNER and JUSTIN R. LOWERY. Of counsel on the brief was MARC J. PERNICK, Morrison & Forester, LLP, of Palo Alto, California.

SCOTT J. BORNSTEIN, Greenberg Traurig, LLP, of New York, New York argued for defendant-appellee. With him on the brief was ALLAN A. KASSENOFF. Of counsel was JAMES W. SOONG, of E. Palo Alto, California.

Before BRYSON, DYK, and PROST, *Circuit Judges*.

DYK, *Circuit Judge*.

Plaintiff-appellant CyberSource Corporation ("CyberSource") appeals from a decision of the United States District Court for the Northern District of California. The district court granted summary judgment of invalidity of claims 2 and 3 of U.S. Patent No. 6,029,154 ("'154 patent") under 35 U.S.C. § 101 for failure to recite patent-eligible subject matter. *See CyberSource Corp. v. Retail Decisions, Inc.*, 620 F. Supp. 2d 1068 (N.D. Cal. 2009). We affirm.

BACKGROUND

CyberSource is the owner by assignment of the '154 patent, which recites a "method and system for detecting fraud in a credit card transaction between [a] consumer and a merchant over the Internet." '154 patent, at [57]. The '154 patent's specification explains that prior art credit card fraud detection systems—which generally rely on billing addresses and personal identification information—work well for "face-to-face" transactions and transactions where "the merchant is actually shipping a package . . . to the address of a customer." *Id.* col.1 ll.21–24. But for online sales where the product purchased is downloadable content, the patent explains, "address and identity information are not enough to adequately verify that the customer who is purchasing the goods is actually the owner of the credit card." *Id.* col.1 ll.28–30.

The '154 patent purports to solve this problem by using "Internet address" information (IP addresses, MAC addresses, e-mail addresses, etc.) to determine whether an Internet address relating to a particular transaction

"is consistent with other Internet addresses [that have been] used in transactions utilizing [the same] credit card." *Id.* col.3 ll.15–16. As we discuss in detail below, the claims of the '154 patent are broad and essentially purport to encompass any method or system for detecting credit card fraud which utilizes information relating credit card transactions to particular "Internet address[es]."[1]

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[1] Claim 3, as amended during reexamination, reads:

> 3. A method for verifying the validity of a credit card transaction over the Internet comprising the steps of:
>
> a) obtaining information about other transactions that have utilized an Internet address that is identified with the [ ] credit card transaction;
>
> b) constructing a map of credit card numbers based upon the other transactions and;
>
> c) utilizing the map of credit card numbers to determine if the credit card transaction is valid.

J.A. 32 ('154 Patent Reexamination Certificate), col.2 ll.38–47.

Claim 2, as amended during reexamination, reads:

> 2. A computer readable medium containing program instructions for detecting fraud in a credit card transaction between a consumer and a merchant over the Internet, wherein execution of the program instructions by one or more processors of a computer system causes the one or more processors to carry out the steps of:
>
> a) obtaining credit card information relating to the transactions from the consumer; and
>
> b) verifying the credit card information based upon values of plurality of parameters, in

CyberSource brought suit against Retail Decisions, Inc. ("Retail Decisions") on August 11, 2004, alleging infringement of the '154 patent. Retail Decisions thereafter initiated an *ex parte* reexamination of the '154 patent, and the district court stayed its proceedings while the U.S. Patent and Trademark Office ("PTO") conducted the examination. The district court resumed proceedings after the PTO reissued the '154 patent with amended claims on August 5, 2008. On October 30, 2008, this court

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> combination with information that identifies the consumer, and that may provide an indication whether the credit card transaction is fraudulent,
>
> wherein each value among the plurality of parameters is weighted in the verifying step according to an importance, as determined by the merchant, of that value to the credit card transaction, so as to provide the merchant with a quantifiable indication of whether the credit card transaction is fraudulent,
>
> wherein execution of the program instructions by one or more processors of a computer system causes that one or more processors to carry out the further steps of;
>
> [a] obtaining information about other transactions that have utilized an Internet address that is identified with the credit card transaction;
>
> [b] constructing a map of credit card numbers based upon the other transactions; and
>
> [c] utilizing the map of credit card numbers to determine if the credit card transaction is valid.

Id. col.2 ll.9–37.

decided *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (en banc). Retail Decisions thereafter moved for summary judgment of invalidity under 35 U.S.C. § 101. After briefing and a hearing, the district court found that claim 3 recited "an unpatentable mental process for collecting data and weighing values," which did "not become patentable by tossing in references to [I]nternet commerce." *CyberSource*, 620 F. Supp. 2d at 1077. The court further found with respect to claim 2 that "simply appending 'A computer readable media including program instructions . . .' to an otherwise non-statutory process claim is insufficient to make it statutory." *Id.* at 1080. The district court thus granted summary judgment of invalidity. *Id.* at 1078.

CyberSource appealed to this court in April 2009. After the Supreme Court granted certiorari in *Bilski v. Kappos*, 129 S. Ct. 2735 (June 1, 2009), we granted CyberSource's motion to stay the proceedings. Briefing was resumed on October 28, 2010, following the Supreme Court's decision. *See Bilski v. Kappos*, 130 S. Ct. 3218 (2010). We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review grants of summary judgment de novo. *Tokai Corp. v. Easton Enters., Inc.*, 632 F.3d 1358, 1366 (Fed. Cir. 2011). Issues of patent-eligible subject matter are questions of law and are reviewed without deference. *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 867 (Fed. Cir. 2010).

I

Two claims of the '154 patent are at issue in this case. Claim 3 recites a process for verifying the validity of credit card transactions over the Internet. *See* J.A. 32

('154 Patent Reexamination Certificate), col.2 ll.38–47. Claim 2 recites a computer readable medium containing program instructions for executing the same process. *See id.* col.2 ll.9–37.

The categories of patent-eligible subject matter are set forth in § 101, which provides:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

35 U.S.C. § 101. Section 100(b) of the Patent Act defines the "process" category tautologically, stating that:

> The term "process" means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.

35 U.S.C. § 100(b). "In choosing such expansive terms . . . modified by the comprehensive 'any,' Congress plainly contemplated that the patent laws would be given wide scope." *Bilski*, 130 S. Ct. at 3225 (quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980)).

In interpreting § 101, this court concluded in *Bilski* that the "machine-or-transformation" test was the appropriate test for the patentability of process claims. 545 F.3d at 943. Thus, we held that a claimed process would only be "patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus; or (2) it transforms a particular article into a different state or thing." *Id.* at 954. We further held that, to satisfy the machine prong of the test, the use of a machine "must impose meaningful limits on the claim's scope." *Id.* at 961. Applying this test, we found that Bilski's claimed "method of hedging

risk in the field of commodities trading" was unpatentable under § 101. *Id.* at 949, 963–66. The Supreme Court affirmed our *Bilski* decision, but in doing so it rejected use of the machine-or-transformation test as the exclusive test for the patentability of a claimed process. *See Bilski*, 130 S. Ct. at 3226. While the "machine-or-transformation test is a useful and important clue," the Court stated, it "is not the sole test for deciding whether an invention is a patent-eligible 'process.'" *Id.* at 3227. The Court declined to "define further what constitutes a patentable 'process,' beyond pointing to the definition of that term provided in § 100(b) and looking to the guideposts in [the Court's precedents]." *Id.* at 3232. "The Court's precedents provide three specific exceptions to § 101's broad patent-eligibility principles: 'laws of nature, physical phenomena, and abstract ideas.'" *Id.* at 3225 (quoting *Diamond*, 447 U.S. at 309). The Court noted that these judicially created exceptions "have defined the reach of the statute as a matter of statutory *stare decisis* going back 150 years," and are "'part of the storehouse of knowledge of all men . . . free to all men and reserved exclusively to none.'" *Id.* (quoting *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948)). In holding that the machine-or-transformation test is not the exclusive test for a process's patent-eligibility, the Supreme Court expressly left open the door for "the Federal Circuit's development of other limiting criteria that further the purposes of the Patent Act and are not inconsistent with its text." *Id.* at 3231.

II

We first address claim 3 of the '154 patent, which recites a method for verifying the validity of a credit card transaction over the Internet. Claim 3, as amended during reexamination, reads in its entirety:

> 3. A method for verifying the validity of a credit card transaction over the Internet comprising the steps of:
>
> a) obtaining information about other transactions that have utilized an Internet address that is identified with the [ ] credit card transaction;
>
> b) constructing a map of credit card numbers based upon the other transactions and;
>
> c) utilizing the map of credit card numbers to determine if the credit card transaction is valid.

J.A. 32 ('154 Patent Reexamination Certificate), col.2 ll.38–47. CyberSource acknowledges that the "Internet address" recited in step (a) of claim 3 "may be, for example, an Internet protocol (IP) address or an e-mail address for the particular credit card transaction." Appellant's Br. 7. CyberSource further concedes that the "map of credit card numbers" recited in step (b) can be as simple as a list of credit card transactions relating to a particular IP address. *See* Appellant's Br. 9. Finally, step (c) does not limit claim 3 to any specific fraud detection formula or mathematical algorithm, but rather broadly purports to encompass *any* means of "utilizing the map of credit card numbers to determine if the credit card transaction is valid." J.A. 32, col.2 ll.46–47.

The district court found that claim 3 fails to meet either prong of the machine-or-transformation test. *CyberSource*, 620 F. Supp. 2d at 1078. We agree. As the district court correctly held, the method of claim 3 simply requires one to "obtain and compare intangible data pertinent to business risks." *Id.* at 1073. The mere

collection and organization of data regarding credit card numbers and Internet addresses is insufficient to meet the transformation prong of the test, and the plain language of claim 3 does not require the method to be performed by a particular machine, or even a machine at all.

We are not persuaded by the appellant's argument that the claimed method is tied to a particular machine because it "would not be necessary or possible without the Internet." Appellant's Br. 42. Regardless of whether "the Internet" can be viewed as a machine, it is clear that the Internet cannot perform the fraud detection steps of the claimed method. Moreover, while claim 3 describes a method of analyzing data regarding Internet credit card transactions, nothing in claim 3 requires an infringer to use the Internet to obtain that data (as opposed to obtaining the data from a pre-compiled database). The Internet is merely described as the source of the data. We have held that mere "[data-gathering] step[s] cannot make an otherwise nonstatutory claim statutory." *In re Grams*, 888 F.2d 835, 840 (Fed. Cir. 1989) (quoting *In re Meyer*, 688 F.2d 789, 794 (CCPA 1982)).

Thus, the district court did not err in holding that claim 3 fails to meet the machine-or-transformation test. However, our analysis does not end there. In holding that the machine-or-transformation test "is not the sole test for deciding whether an invention is a patent-eligible process," *Bilski*, 130 S. Ct. at 3227, the Supreme Court has made clear that a patent claim's failure to satisfy the machine-or-transformation test is not dispositive of the § 101 inquiry. Nonetheless, we find that claim 3 of the '154 patent fails to recite patent-eligible subject matter because it is drawn to an unpatentable mental process—a subcategory of unpatentable abstract ideas.

The Supreme Court has stated that "[p]henomena of nature, though just discovered, *mental processes*, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work." *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (emphasis added). In *Benson*, the patent at issue claimed a method of programming a general-purpose computer to convert binary-coded decimal ("BCD") numbers into pure binary through the use of a mathematical algorithm. *Id.* at 65. The Court focused in part on the mental character of the claimed process, stating:

> The conversion of BCD numerals to pure binary numerals can be done mentally . . . . The method sought to be patented varies the ordinary arithmetic steps a human would use by changing the order of the steps, changing the symbolism for writing the multiplier used in some steps, and by taking subtotals after each successive operation. The mathematical procedures can be carried out in existing computers long in use, no new machinery being necessary. And, as noted, they can also be performed without a computer.

Id. at 67. Thus, in finding that the process in *Benson* was not patent-eligible, the Supreme Court appeared to endorse the view that methods which can be performed mentally, or which are the equivalent of human mental work, are unpatentable abstract ideas—the "basic tools of scientific and technological work" that are open to all. *Id.*

The Supreme Court reaffirmed and extended its *Benson* holding in the case of *Parker v. Flook*, 437 U.S. 584 (1978). The patent in *Flook* claimed a method for calculating and updating the values of "alarm limits" for alarms that monitor process variables (such as temperature) during the catalytic chemical conversion of hydro-

carbons. *Id.* at 585–86. The "alarm limits" were threshold values which, if exceeded, would trigger a warning alarm to sound. The Court characterized the invention as "simply provid[ing] a new and presumably better method for calculating alarm limit values." *Id.* at 594–95. The Court noted that the calculations, while "primarily useful for computerized [applications]," could still "be made [using a] pencil and paper." *Id.* at 586. The Court rejected the notion that the recitation of a practical application for the calculation could alone make the invention patentable, stating that any "competent draftsman could attach some form of post-solution activity to almost any mathematical formula." *Id.* at 590. The Court thus found the claimed invention unpatentable.

Following the Supreme Court, we have similarly held that mental processes are not patent-eligible subject matter because the "application of [only] human intelligence to the solution of practical problems is no more than a claim to a fundamental principle." *Bilski*, 545 F.3d at 965 (quotation marks omitted); *see also id.* at 952, 960–61. After our en banc decision in *Bilski*, this court—relying on *Benson*, *Flook*, and our prior decisions—noted that we have consistently "refused to find processes patentable when they merely claimed a mental process standing alone and untied to another category of statutory subject matter[,] even when a practical application was claimed." *In re Comiskey*, 554 F.3d 967, 980 (Fed. Cir. 2009).[2] We concluded:

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[2] *See also In re Schrader*, 22 F.3d 290, 291 (Fed. Cir. 1994) (holding unpatentable a "method constitut[ing] a novel way of conducting auctions" to maximize total sales revenue); *In re Warmerdam*, 33 F.3d 1354, 1355, 1360 (Fed. Cir. 1994) (holding unpatentable a process for controlling objects to avoid collisions which described "nothing more than the manipulation of basic mathemati-

> [T]he patent statute does not allow patents on particular systems that depend for their operation on human intelligence alone, a field of endeavor that both the framers and Congress intended to be beyond the reach of patentable subject matter. . . . [I]t is established that the application of human intelligence to the solution of practical problems is not in and of itself patentable.

Id. Thus, because the method of arbitration claims in *Comiskey* essentially sought "to patent the use of human intelligence in and of itself," the claims were drawn to abstract ideas and were invalid under § 101. *Id.* at 981.

It is clear that unpatentable mental processes are the subject matter of claim 3. All of claim 3's method steps can be performed in the human mind, or by a human using a pen and paper. Claim 3 does not limit its scope to any particular fraud detection algorithm, and no algorithms are disclosed in the '154 patent's specification. Rather, the broad scope of claim 3 extends to essentially any method of detecting credit card fraud based on information relating past transactions to a particular "Internet address," even methods that can be performed in the human mind.

First, step (a)—which requires "obtaining information about other transactions that have utilized an Internet address that is identified with the [ ] credit card transac-

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cal constructs, the paradigmatic 'abstract idea'"); *Grams*, 888 F.2d at 836, 840–41 (holding unpatentable "a method of diagnosing an abnormal condition in an individual" that comprised performing clinical tests and thinking about the results); *Meyer*, 688 F.2d at 795–96 (holding unpatentable "a mental process that a neurologist should follow"); *In re Maucorps*, 609 F.2d 481, 482, 486 (CCPA 1979) (holding unpatentable a method of "optimizing the organization of sales representatives in a business").

tion"—can be performed by a human who simply reads records of Internet credit card transactions from a preexisting database. J.A. 32, col.2 ll.40–42. While the '154 patent's specification discusses referencing "a database of Internet addresses," '154 patent, col.3 ll.13–14, CyberSource concedes that claim 3 does not cover the initial creation of the database. Oral Arg. at 1:15–1:30, *available at* http://www.cafc.uscourts.gov/oral-argument-recordings/all/cybersource.html. Moreover, as discussed above, even if some physical steps are required to obtain information from the database (e.g., entering a query via a keyboard, clicking a mouse), such data-gathering steps cannot alone confer patentability. *Grams*, 888 F.2d at 839–40.

Second, a person may "construct[ ] a map of credit card numbers" as required by step (b) by writing down a list of credit card transactions made from a particular IP address. J.A. 32, col.2 ll.43–44. There is no language in claim 3 or in the '154 patent's specification that requires the constructed "map" to consist of anything more than a list of a few credit card transactions. This is readily apparent from the appellant's brief, in which CyberSource provides a sample "map" that merely consists of four listed credit card transactions denoted by their dates, times, cardholder names, card numbers, IP addresses, transaction amounts, and shipping addresses. *See* Appellant's Br. 9.

Finally, step (c)—which requires "utilizing the map of credit card numbers to determine if the credit card transaction is valid"—is so broadly worded that it encompasses literally *any* method for detecting fraud based on the gathered transaction and Internet address data. J.A. 32, col.2 ll.45–46. This necessarily includes even logical reasoning that can be performed entirely in the human mind. For example, a person could literally infringe step

(c) by identifying a likely instance of fraud based on the simple observation that numerous transactions using different credit cards, having different user names and billing addresses, all originated from the same IP address. Indeed, CyberSource's CEO admitted that, before CyberSource created a computer implemented fraud detection system, "[w]e could see just by looking that more than half of our orders were fraudulent." J.A. 375.

Thus, claim 3's steps can all be performed in the human mind. Such a method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101. Methods which can be performed entirely in the human mind are unpatentable not because there is anything wrong with claiming mental method steps as part of a process containing non-mental steps,[3] but rather because computational methods which can be performed *entirely* in the human mind are the types of methods that embody the "basic tools of scientific and technological work" that are free to all men and reserved exclusively to none. *Benson*, 409 U.S. at 67.

III

We turn next to claim 2 of the '154 patent, which recites a so-called "Beauregard claim." A Beauregard claim—named after *In re Beauregard*, 53 F.3d 1583 (Fed. Cir. 1995)—is a claim to a computer readable medium (e.g., a disk, hard drive, or other data storage device) containing program instructions for a computer to perform a particular process. Claim 2, as amended during reexamination, reads in its entirety:

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[3] *See In re Abele*, 684 F.2d 902, 908 (CCPA 1982) (finding a claim patentable that included both mental steps and physical steps).

2. A *computer readable medium containing program instructions* for detecting fraud in a credit card transaction between a consumer and a merchant over the Internet, wherein execution of the program instructions by one or more processors of a computer system causes the one or more processors to carry out the steps of:

a) obtaining credit card information relating to the transactions from the consumer; and

b) verifying the credit card information based upon values of plurality of parameters, in combination with information that identifies the consumer, and that may provide an indication whether the credit card transaction is fraudulent,

wherein each value among the plurality of parameters is weighted in the verifying step according to an importance, as determined by the merchant, of that value to the credit card transaction, so as to provide the merchant with a quantifiable indication of whether the credit card transaction is fraudulent,

wherein execution of the program instructions by one or more processors of a computer system causes that one or more processors to carry out the further steps of;

[a] *obtaining information about other transactions that have utilized an*

> *Internet address that is identified with the credit card transaction*;
>
> [b] *constructing a map of credit card numbers based upon the other transactions*; and
>
> [c] *utilizing the map of credit card numbers to determine if the credit card transaction is valid*.

J.A. 32 ('154 Patent Reexamination Certificate), col.2 ll.9–37 (emphases added). While claim 2 contains somewhat redundant language, it is clear from the emphasized text that claim 2 recites nothing more than a computer readable medium containing program instructions for executing the method of claim 3.

As discussed above, we found claim 3 to be unpatentable because it is drawn to a mental process—i.e., an abstract idea. The method underlying claim 2 is clearly the same method of fraud detection recited in claim 3. Nonetheless, CyberSource contends that claim 2 should be patentable. CyberSource's main argument is that coupling the unpatentable mental process recited in claim 3 with a manufacture or machine renders it patent-eligible.

CyberSource argues that claim 2 is patent-eligible per se because it recites a "manufacture," rather than a "process," under the statutory language of § 101. CyberSource contends that, by definition, a tangible, man-made article of manufacture such as a "computer readable medium containing program instructions" cannot possibly fall within any of the three patent-eligibility exceptions the Supreme Court has recognized for "laws of nature, physical phenomena, [or] abstract ideas." Appellant's Br. 47–48 (quoting *Bilski*, 130 S. Ct. at 3225). We disagree.

Regardless of what statutory category ("process, machine, manufacture, or composition of matter," 35 U.S.C. § 101) a claim's language is crafted to literally invoke, we look to the underlying invention for patent-eligibility purposes. Here, it is clear that the invention underlying both claims 2 and 3 is a method for detecting credit card fraud, not a manufacture for storing computer-readable information. This case is thus similar to *In re Abele*, 684 F.2d 902 (CCPA 1982). In *Abele*, claim 5 of the patent at issue recited "[a] method of displaying data" comprising the steps of "calculating the difference" between two numbers and "displaying the value." *Id.* at 908. The court concluded that claim 5 was not directed to patent-eligible subject matter because it claimed an abstract idea. *Id.* However, claim 7 was argued to be different because it recited an "*[a]pparatus* for displaying data" comprising "*means* for calculating the differences" between two numbers and "*means* for displaying the value." *Id.* at 909 (emphases added). Though claim 7 literally invoked an "[a]pparatus," the court treated it as a method claim for the purpose of its § 101 analysis. Due to its "broad" and "functionally-defined" nature, the court found that treating claim 7 as an apparatus claim would "exalt form over substance since the claim is really to the method or series of functions itself." *Id.* (citation omitted). Accordingly, the court placed "the burden . . . on the applicant to demonstrate that the claims [were] truly drawn to [a] specific apparatus distinct from other apparatus[es] capable of performing the identical functions." *Id.* (citation omitted).

In the present case, CyberSource has not met its burden to demonstrate that claim 2 is "truly drawn to a specific" computer readable medium, rather than to the underlying method of credit card fraud detection. To be sure, after *Abele*, we have held that, as a general matter,

programming a general purpose computer to perform an algorithm "creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software." *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994). But we have never suggested that simply reciting the use of a computer to execute an algorithm that can be performed entirely in the human mind falls within the *Alappat* rule. Thus, despite its Beauregard claim format, under *Abele*, we treat claim 2 as a process claim for patent-eligibility purposes.

Analyzing claim 2 as a process claim, CyberSource first asserts that claim 2 satisfies the transformation prong of the machine-or-transformation test because it recites a patentable transformation of data representing Internet credit card transactions. According to CyberSource, the claimed technique uses an "Internet address" such as an IP address or e-mail address and constructs a "map" of credit card numbers from Internet transactions that have utilized that Internet address. We agree with the district court that the claimed process manipulates data to organize it in a logical way such that additional fraud tests may be performed. The mere manipulation or reorganization of data, however, does not satisfy the transformation prong. Thus, claim 2 fails to meet the transformation test.

CyberSource additionally argues that claim 2 satisfies the machine prong of the machine-or-transformation test, since the recited "computer readable medium" contains software instructions that can only be executed by "one or more processors of a computer system." J.A. 32, col.2 ll.12–14. As we stated in *Bilski*, to impart patent-eligibility to an otherwise unpatentable process under the theory that the process is linked to a machine, the use of

the machine "must impose meaningful limits on the claim's scope." 545 F.3d at 961. In other words, the machine "must play a significant part in permitting the claimed method to be performed." *SiRF Tech., Inc. v. Int'l Trade Comm'n*, 601 F.3d 1319, 1333 (Fed. Cir. 2010). Here, the incidental use of a computer to perform the mental process of claim 3 does not impose a sufficiently meaningful limit on the claim's scope. As such, the "computer readable medium" limitation of claim 2 does not make the otherwise unpatentable method patent-eligible under § 101. *See Grams*, 888 F.2d at 840–41 (after finding claims unpatentable for being drawn to a mental process, the court found that claim 16's requirement "that the [same] method be performed with a programmed computer" did not alter the method's unpatentability under § 101). *Abele* made clear that the basic character of a process claim drawn to an abstract idea is not changed by claiming only its performance by computers, or by claiming the process embodied in program instructions on a computer readable medium. Thus, merely claiming a software implementation of a purely mental process that could otherwise be performed without the use of a computer does not satisfy the machine prong of the machine-or-transformation test.

That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*. As discussed above, the Supreme Court found in *Benson* that a claim to a method of programming a general-purpose computer to convert BCD numbers into pure binary was unpatentable because the conversion of BCD numerals to pure binary numerals "can be done mentally," 409 U.S. at 65–67, and because the process was "so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion," *id.* at 71. The Court

expressly noted that the algorithm had "no substantial practical application except in connection with a digital computer." *Id.* The Court reached that conclusion even though one of the claims the Court found unpatentable (claim 8) specifically recited the use of a computer readable medium, including steps such as "storing the [BCD] signals in a reentrant shift register"—a physical computer memory component. *Id.* at 73–74. Nonetheless, the Court found that claim 8 was drawn to an unpatentable abstract idea.

Following *Benson*, as noted earlier, the Supreme Court in *Flook* and *Bilski* found other method claims invalid under § 101 for being drawn to abstract ideas. In so holding, the Court did not indicate that those claims could have avoided invalidity under § 101 by merely requiring a computer to perform the method, or by reciting a computer readable medium containing program instructions for performing the method.[4]

This is entirely unlike cases where, as a practical matter, the use of a computer is required to perform the

[4] The Supreme Court in *Diamond v. Diehr* characterized *Flook* as a case involving the use of a mathematical formula in the abstract, regardless of whether the patent "is intended to cover all uses of the formula or only limited uses." 450 U.S. 175, 192 n.14 (1981). Significantly, the *Diehr* Court noted that, in *Flook*, "the patent application did not purport to explain how the variables used in the formula were to be selected, nor did the application contain any disclosure relating to chemical processes at work or the means of setting off an alarm or adjusting the alarm unit." *Id.* The analogy with the claims in this case is a close one: here, the claims contain no hint as to how the information regarding the Internet transactions will be sorted, weighed, and ultimately converted into a useable conclusion that a particular transaction is fraudulent. The claims in this case are therefore even more abstract than the claims in *Flook*.

claimed method. For example, in *SiRF Tech.*, we found that claims to a "method for calculating an absolute position of a GPS receiver and an absolute time of reception of satellite signals" recited patent-eligible subject matter. 601 F.3d at 1331. The court noted that we were "not dealing with . . . a method that [could] be performed without a machine" and that there was "no evidence . . . that the calculations [could] be performed entirely in the human mind." *Id.* at 1333. To the contrary, we found it was "clear that the methods at issue could not be performed without the use of a GPS receiver." *Id.* at 1332.

Similarly, in *Research Corp. Techs. v. Microsoft Corp.*, 627 F.3d 859 (Fed. Cir. 2010), we upheld the patentability of a claimed method "for rendering a halftone image of a digital image by comparing, pixel by pixel, the digital image against a blue noise mask." *Id.* at 868. Because the method required the manipulation of computer data structures (e.g., the pixels of a digital image and a two-dimensional array known as a mask) and the output of a modified computer data structure (a halftoned digital image), the method could not, as a practical matter, be performed entirely in a human's mind.

In contrast, it is clear in the present case that one could mentally perform the fraud detection method that underlies both claims 2 and 3 of the '154 patent, as the method consists of only the general approach of obtaining information about credit card transactions utilizing an Internet address and then using that information in some undefined manner to determine if the credit card transaction is valid. Because claims 2 and 3 attempt to capture unpatentable mental processes (i.e., abstract ideas), they are invalid under § 101.

AFFIRMED