

**United States Court of Appeals
for the Federal Circuit**

CLS BANK INTERNATIONAL,
Plaintiff-Appellee,

AND

CLS SERVICES LTD.,
Counterclaim Defendant-Appellee,

v.

ALICE CORPORATION PTY. LTD.,
Defendant-Appellant.

2011-1301

Appeal from the United States District Court for the District of Columbia in No. 07-CV-974, Judge Rosemary M. Collyer.

Decided: May 10, 2013

MARK A. PERRY, Gibson, Dunn & Crutcher LLP, of Washington, DC, argued for plaintiff-appellee and counterclaim-defendant appellee on rehearing en banc. With him on the brief were BRIAN M. BUROKER, MICHAEL F. MURRAY and ALEXANDER N. HARRIS. Of counsel on the brief was MICHAEL A. VALEK, of Dallas, Texas.

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on rehearing en banc. With him on the brief were RICHARD F. PHILLIPS, ExxonMobil Chemical Company, of Houston, Texas and KEVIN H. RHODES, 3M Innovative Properties Company, of St. Paul Minnesota.

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CHARLES K. VERHOEVEN, Quinn Emanuel Urquhart & Sullivan, of San Francisco, California, for amicus curiae Bancorp Services, LLC, on rehearing en banc. With him on the brief was DAVID A. PERLSON. Of counsel on the brief was IAN S. SHELTON, of Los Angeles, California.

DALE R. COOK, ICT Law & Technology LLC, of Seattle, Washington, for amicus curiae Dale R. Cook on rehearing en banc. With him on the brief was STEVEN F. BORSAND, Trading Technologies International, Inc., of Chicago, Illinois.

ANN M. MCCRACKIN, of Minneapolis, Minnesota, for amicus curiae University of New Hampshire School of Law Intellectual Property Clinic on rehearing en banc. With her on the brief was J. JEFFREY HAWLEY, University of New Hampshire, of Concord, New Hampshire.

Before RADER, *Chief Judge*, NEWMAN, LOURIE, LINN, DYK, PROST, MOORE, O'MALLEY, REYNA, and WALLACH, *Circuit Judges*.*

Opinion for the court filed PER CURIAM.

Concurring opinion filed by LOURIE, *Circuit Judge*, in which DYK, PROST, REYNA, and WALLACH, *Circuit Judges*, join.

Concurring-in-part and dissenting-in-part opinion filed by RADER, *Chief Judge*, LINN, MOORE, and O'MALLEY, *Circuit Judges*, as to all but part VI of that opinion. RADER, *Chief Judge*, and MOORE, *Circuit Judge*, as to part VI of that opinion.

Dissenting-in-part opinion filed by MOORE, *Circuit Judge*, in which RADER, *Chief Judge*, and LINN and O'MALLEY, *Circuit Judges*, join.

Concurring-in-part and dissenting-in-part opinion filed by NEWMAN, *Circuit Judge*.

Dissenting opinion filed by LINN and O'MALLEY, *Circuit Judges*.

Additional reflections filed by RADER, *Chief Judge*.

PER CURIAM.

Upon consideration en banc, a majority of the court affirms the district court's holding that the asserted method and computer-readable media claims are not directed to eligible subject matter under 35 U.S.C. § 101.

* Circuit Judge Taranto did not participate in this decision.

An equally divided court affirms the district court's holding that the asserted system claims are not directed to eligible subject matter under that statute.

AFFIRMED

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Decided: May 10, 2013

LOURIE, *Circuit Judge*, concurring, with whom *Circuit Judges* DYK, PROST, REYNA, and WALLACH join.

Alice Corporation (“Alice”) appeals from the grant of summary judgment in favor of declaratory judgment plaintiffs CLS Bank International and CLS Services, Ltd. (collectively, “CLS”) by the United States District Court

for the District of Columbia holding that certain claims of Alice’s U.S. Patents 5,970,479 (the “479 patent”), 6,912,510 (the “510 patent”), 7,149,720 (the “720 patent”), and 7,725,375 (the “375 patent”) are invalid under 35 U.S.C. § 101. *CLS Bank Int’l v. Alice Corp.*, 768 F. Supp. 2d 221 (D.D.C. 2011). On July 9, 2012, a panel of this court reversed, holding that the claims at issue, including claims drawn to methods, computer-readable media, and systems, were all patent eligible under § 101. *CLS Bank Int’l v. Alice Corp.*, 685 F.3d 1341 (Fed. Cir. 2012), *vacated*, 484 F. App’x 559 (Fed. Cir. 2012). CLS filed a petition for rehearing en banc, which was granted on October 9, 2012. *CLS Bank Int’l v. Alice Corp.*, 484 F. App’x 559 (Fed. Cir. 2012).

As described more fully below, we would affirm the district court’s judgment in its entirety and hold that the method, computer-readable medium, and corresponding system claims before us recite patent-ineligible subject matter under 35 U.S.C. § 101.¹

BACKGROUND

I. Alice’s Patents

Alice, an Australian company, owns the ’479, ’510, ’720, and ’375 patents by assignment. The patents, which

¹ While Chief Judge Rader is correct to note that no single opinion issued today commands a majority, seven of the ten members, a majority, of this en banc court have agreed that the method and computer-readable medium claims before us fail to recite patent-eligible subject matter. In addition, eight judges, a majority, have concluded that the particular method, medium, and system claims at issue in this case should rise or fall together in the § 101 analysis.

all derive from the same family and share substantially the same specification, concern “the management of risk relating to specified, yet unknown, future events.” ’479 patent col. 1, ll. 8–10. In particular, the patents relate to a computerized trading platform used for conducting financial transactions in which a third party settles obligations between a first and a second party so as to eliminate “counterparty” or “settlement” risk. *CLS Bank*, 768 F. Supp. 2d at 224. Settlement risk refers to the risk to each party in an exchange that only one of the two parties will actually pay its obligation, leaving the paying party without its principal or the benefit of the counterparty’s performance. Alice’s patents address that risk by relying on a trusted third party to ensure the exchange of either both parties’ obligations or neither obligation. *Id.*

For example, when two parties agree to perform a trade, in certain contexts there may be a delay between the time that the parties enter a contractual agreement obligating themselves to the trade and the time of settlement when the agreed trade is actually executed. Ordinarily, the parties would consummate the trade by paying or exchanging their mutual obligations after the intervening period, but in some cases one party might become unable to pay during that time and fail to notify the other before settlement. *Id.* As disclosed in Alice’s patents, a trusted third party can be used to verify each party’s ability to perform before actually exchanging either of the parties’ agreed-upon obligations. *Id.*; *see also* ’479 patent col. 5 ll. 61–63 (“The invention also encompasses apparatus and method dealing with the handling of contracts at maturity, and specifically the transfer of entitlement.”).

The claims currently before the court include claims 33 and 34 of the ’479 patent and all claims of the ’510, ’720, and ’375 patents. The relevant claims of the ’479 and ’510 patents recite methods of exchanging obligations between parties, the claims of the ’720 patent are drawn

to data processing systems, and the claims of the '375 patents claim data processing systems as well as computer-readable media containing a program code for directing an exchange of obligations.

II. District Court Proceedings

On May 24, 2007, CLS filed suit against Alice seeking a declaratory judgment of noninfringement, invalidity, and unenforceability as to the '479, '510, and '720 patents. Alice answered and counterclaimed, alleging infringement. By the agreement of the parties, the district court allowed limited initial discovery, addressing only the questions of (i) the operations of CLS, and (ii) CLS's relationship with the accused CLS system. *CLS Bank Int'l v. Alice Corp.*, No. 07-cv-00974 (D.D.C. Feb. 21, 2008), ECF No. 24 (Scheduling Order).

In March 2009, following limited discovery, CLS moved for summary judgment on the bases that any possible infringement could not be said to have occurred in the United States and that Alice's asserted claims were drawn to ineligible subject matter and therefore invalid under 35 U.S.C. § 101. Alice filed cross-motions on both issues. The district court denied CLS's motion as to extraterritoriality on October 13, 2009, finding that CLS's alleged infringing acts fell within the reach of domestic patent law. *CLS Bank Int'l v. Alice Corp.*, 667 F. Supp. 2d 29, 33–38 (D.D.C. 2009). Regarding subject-matter eligibility under § 101, the district court summarily denied the parties' motions on June 16, 2009, without prejudice to re-filing, after the Supreme Court granted certiorari to review our decision in *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (en banc), cert. granted sub. nom. *Bilski v. Doll*, 129 S. Ct. 2735 (2009).

In the meantime, the '375 patent issued, and Alice filed amended counterclaims additionally asserting that

CLS infringed each claim of the '375 patent. After the Supreme Court issued its decision in *Bilski v. Kappos*, 130 S. Ct. 3218 (2010), the parties renewed their cross-motions for summary judgment on the question of validity under § 101, with CLS adding invalidity contentions drawn to the newly issued '375 patent. Along with the parties' briefing, the district court also had before it (i) the asserted patents themselves, (ii) excerpts from the patents' prosecution histories, (iii) various guidelines issued by the United States Patent and Trademark Office ("PTO") regarding the application of § 101 during patent examination, and (iv) a declaration submitted by Alice's expert Paul Ginsberg. In particular, Mr. Ginsberg explained the operation of Alice's systems and methods, *see generally CLS Bank*, 768 F. Supp. 2d at 224, and opined that a person of skill in the art reading the asserted patents would conclude that the claimed inventions must be implemented electronically using "some type of computing processor and memory." Ginsberg Decl., ECF No. 95-3, Ex. 1 ¶ 41.

The district court did not conduct claim construction before reaching the merits of the § 101 issue, but the parties agreed for purposes of deciding their summary judgment motions that Alice's claims should all be interpreted to require a computer including at least "a processor and memory." *CLS Bank*, 768 F. Supp. 2d at 236; *see id.* at 235–36 ("The Court has yet to construe the terms of these claims [F]or purposes of these motions, CLS has agreed to assume a construction of terms favorable to Alice."). With the parties' assent, the district court assumed that all of the asserted claims required electronic implementation, noting consistent disclosures in the patents' specifications as well as the statements of Alice's expert, Mr. Ginsberg. *Id.* at 236.

With that understanding of the claims, the district court granted summary judgment in favor of CLS, holding

each of the asserted claims of Alice’s patents invalid under § 101. The district court concluded that Alice’s method claims “are directed to an abstract idea of employing an intermediary to facilitate simultaneous exchange of obligations in order to minimize risk.” *Id.* at 243. Further, the district court held the asserted system claims similarly ineligible, as those claims “would preempt the use of the abstract concept of employing a neutral intermediary to facilitate simultaneous exchange of obligations in order to minimize risk on any computer, which is, as a practical matter, how these processes are likely to be applied.” *Id.* at 252. The asserted media claims failed on the same ground as “directed to the same abstract concept despite the fact they nominally recite a different category of invention.” *Id.* at 255.

Accordingly, the district court entered final judgment in favor of CLS, and Alice timely appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

I. Standard of Review

We review the grant or denial of summary judgment applying the law of the relevant regional circuit. *Teva Pharm. Indus. v. AstraZeneca Pharm. LP*, 661 F.3d 1378, 1381 (Fed. Cir. 2011). The D.C. Circuit considers a district court’s grant of summary judgment without deference. *Theodore Roosevelt Conservation P’ship v. Salazar*, 661 F.3d 66, 72 (D.C. Cir. 2011). We apply our own law, however, with respect to issues of substantive patent law. *Aero Prods. Int’l, Inc. v. Intex Recreation Corp.*, 466 F.3d 1000, 1016 (Fed. Cir. 2006). Patent eligibility under § 101 presents an issue of law that we review *de novo*. *Bancorp Servs., LLC v. Sun Life Assurance Co. of Can.*, 687 F.3d 1266, 1273 (Fed. Cir. 2012).

II. Section 101

A. Statutory Subject Matter and Common Law Exceptions

“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 (2006). Short and unadorned, § 101 appears deceptively simple on its face, yet its proper application to computer-implemented inventions and in various other fields of technology has long vexed this and other courts.

The statute sets forth four broadly stated categories of patent-eligible subject matter: processes, machines, manufactures, and compositions of matter. As the Supreme Court has explained, Congress intended that the statutory categories would be broad and inclusive to best serve the patent system’s constitutional objective of encouraging innovation. *See Diamond v. Chakrabarty*, 447 U.S. 303, 308–09 (1980) (“In choosing such expansive terms as ‘manufacture’ and ‘composition of matter,’ modified by the comprehensive ‘any,’ Congress plainly contemplated that the patent laws would be given wide scope.”); *Bilski*, 130 S. Ct. at 3225 (“Congress took this permissive approach to patent eligibility to ensure that ‘ingenuity should receive a liberal encouragement.’” (quoting *Chakrabarty*, 447 U.S. at 308)).

It is also important to recognize that § 101, while far-reaching, only addresses patent *eligibility*, not overall *patentability*. The statute directs that an invention that falls within one of its four enumerated categories “may” qualify for a patent; thus, inventions that are patent eligible are not necessarily patentable. As § 101 itself explains, the ultimate question of patentability turns on whether, in addition to presenting a patent-eligible inven-

tion, the inventor also satisfies “the conditions and requirements of this title,” namely, the novelty, nonobviousness, and disclosure requirements of 35 U.S.C. §§ 102, 103, and 112, among others. *See* 35 U.S.C. § 101. Congress’s broad approach to subject-matter eligibility ensures that the patent office doors remain open to most inventions, but even so, those that gain entry still must surmount various substantive and procedural hurdles that stand between patent eligibility and a valid patent. *See Diamond v. Diehr*, 450 U.S. 175, 191 (1981).

While the categories of patent-eligible subject matter recited in § 101 are broad, their scope is limited by three important judicially created exceptions. “[L]aws of nature, natural phenomena, and abstract ideas” are excluded from patent eligibility, *id.* at 185, because such fundamental discoveries represent “the basic tools of scientific and technological work,” *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972). Thus, even inventions that fit within one or more of the statutory categories are not patent eligible if drawn to a law of nature, a natural phenomenon, or an abstract idea. The underlying concern is that patents covering such elemental concepts would reach too far and claim too much, on balance obstructing rather than catalyzing innovation. But danger also lies in applying the judicial exceptions too aggressively because “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012). Taken too far, the exceptions could swallow patent law entirely.

Accordingly, the basic steps in a patent-eligibility analysis can be summarized as follows. We must first ask whether the claimed invention is a process, machine, manufacture, or composition of matter. If not, the claim is ineligible under § 101. If the invention falls within one of the statutory categories, we must then determine

whether any of the three judicial exceptions nonetheless bars such a claim—is the claim drawn to a patent-ineligible law of nature, natural phenomenon, or abstract idea? If so, the claim is not patent eligible. Only claims that pass both inquiries satisfy § 101.

While simple enough to state, the patent-eligibility test has proven quite difficult to apply. The difficulty lies in consistently and predictably differentiating between, on the one hand, claims that would tie up laws of nature, natural phenomena, or abstract ideas, and, on the other, claims that merely “embody, use, reflect, rest upon, or apply” those fundamental tools. *Mayo*, 132 S. Ct. at 1293. For example, deciding whether or not a particular claim is abstract can feel subjective and unsystematic, and the debate often trends toward the metaphysical, littered with unhelpful analogies and generalizations. What is needed is a consistent, cohesive, and accessible approach to the § 101 analysis—a framework that will provide guidance and predictability for patent applicants and examiners, litigants, and the courts. As set forth below, the Supreme Court’s foundational § 101 jurisprudence offers the guideposts to such a system, one that turns primarily on the practical likelihood of a claim preempting a fundamental concept. We would adopt this approach to address the abstractness of the specific computer-implemented inventions presented in this case, but it might also inform patent-eligibility inquiries arising in other contexts.

B. Foundational Section 101 Precedents

1. *Gottschalk v. Benson*

In *Benson*, the Supreme Court considered claims to computer-implemented methods “for converting binary-coded decimal (BCD) numerals into pure binary numerals.” 409 U.S. at 64. The claims each recited a series of

data manipulation steps for effecting the indicated numerical conversion and “purported to cover any use of the claimed method in a general-purpose digital computer of any type.” *Id.*

Analyzing the claimed processes in view of its historical precedents, the Supreme Court concluded that the abstract ideas exception to patent eligibility applied. The Court identified the particular abstraction at issue as the freestanding “algorithm” or “generalized formulation” for performing BCD to pure binary conversion. *Id.* at 65. Next, the Court measured the scope of the claims against the scope of that overarching abstract idea. In practice, the claims were “so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion” and would thus reach every application of the basic conversion algorithm, in contrast to earlier cases concerning patent-eligible process claims that had been cabined to discrete applications “sufficiently definite to confine the patent monopoly within rather definite bounds.” *Id.* at 68–69. Furthermore, even though the claims required a computer,² the Court did not view that as a meaningful limitation: “The mathematical formula involved here has no substantial practical application except in connection with a digital computer, which means that if the judgment below is affirmed, the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself.”

² Claim 8 required a computer on its face, but the literal terms of claim 13 were not so limited. *See Benson*, 409 U.S. at 73–74. The CCPA, however, had interpreted both claims as requiring a computer and had upheld them on that basis, *see In re Benson*, 441 F.2d 682, 687–88 (CCPA 1971), and the Supreme Court appeared to adopt that assumption.

Id. at 71–72. Accordingly, the claims were held ineligible for patenting under § 101.

2. *Parker v. Flook*

Six years later, in *Parker v. Flook*, 437 U.S. 584 (1978), the Supreme Court again considered the patent eligibility of a computerized process—in particular, a method for updating alarm limits for continuously monitored industrial process variables (*e.g.*, temperature or pressure) according to a disclosed mathematical formula. *See id.* at 585–86. The claim required three steps: measuring the present value of a process variable, using the mathematical formula to calculate a new alarm limit in view of the present value, and adjusting the previous alarm limit to the newly calculated limit. *Id.*; *see also id.* at 596–97 (claim 1). A further preamble limitation restricted the claim to processes “comprising the catalytic chemical conversion of hydrocarbons,” *id.* at 596, so the claim did not cover “every conceivable application of the formula,” *id.* at 586.

Although the claim would not “wholly preempt” the mathematical formula, *id.* at 589, the Court nonetheless held that the claimed process fell under the abstract ideas exception to patent eligibility. In its analysis, the Court viewed the formula as an abstract principle and stated that the case must “be considered as if the principle or mathematical formula were well known.” *Id.* at 592. The Court then asked whether, to confer patent eligibility, the claim contained sufficient substance beyond the abstract mathematical formula itself—that is, “some other inventive concept in its application.” *Id.* at 594; *see also id.* at 590 (“A competent draftsman could attach some form of post-solution activity to almost any mathematical formula”). Concluding that the field-of-use, monitoring, adjusting, and computer limitations were trivial or “well known” under such an analysis, the Court held that the

claims were not patent eligible: “[I]f a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory.” *Id.* at 594–95 (quoting *In re Richman*, 563 F.2d 1026, 1030 (CCPA 1977)).

3. *Diamond v. Diehr*

The claims at issue in *Diehr* were drawn to processes for curing synthetic rubber that included “the use of a mathematical formula and a programmed digital computer.” 450 U.S. at 177. The claimed methods included steps for operating a rubber molding press that included constantly determining the temperature inside the mold, repetitively calculating the necessary cure time using a mathematical formula known as the Arrhenius equation, and opening the press whenever the elapsed cure time equaled the calculated necessary cure time. *See id.* at 179 n.5.

The Supreme Court held the claims to be patent eligible, a conclusion that was “not altered by the fact that in several steps of the process a mathematical equation and a programmed digital computer are used.” *Id.* at 185. In contrast to *Benson* and *Flook*, the claims in *Diehr* employed a mathematical concept but did “not seek to preempt the use of that equation. Rather, they [sought] only to foreclose from others the use of that equation in conjunction with all of the other steps in their claimed process.” *Id.* at 187. In particular, the Court distinguished *Flook* on the basis that the claim there provided no substantive details regarding the method’s actual performance—rather, “[a]ll that it provides is a formula for computing an updated alarm limit.” *See id.* at 186–87 (quoting *Flook*, 437 U.S. at 586). In contrast, in *Diehr*, the claimed process incorporating the Arrhenius equation also called for steps including “constantly measuring the

actual temperature inside the mold,” a step that was said to be new in the art. *See id.* at 178–79.

The Court also explained that a claim “does not become nonstatutory simply because it uses a mathematical formula, computer program, or digital computer” because “an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.” *Id.* at 187. Because the applicant claimed a specific application, rather than an abstract idea in isolation, the claims satisfied § 101.

4. *Bilski v. Kappos*

Bilski concerned claims to processes for participants in energy commodities markets to hedge against the risk of price changes in those commodities. The claims recited the hedging strategy as a series of steps involving transactions between a commodity provider and commodity consumers and between the commodity provider and other market participants “having a counter-risk position” to the consumers in order to balance risk; other claims articulated the hedging strategy as “a simple mathematical formula.” 130 S. Ct. at 3223–24. The claims did not require a computer.

Applying *Benson*, *Flook*, and *Diehr*, the Supreme Court held that the claims failed to recite a patent-eligible process because they covered the abstract idea of hedging against risk. “Allowing [the claims] would pre-empt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea.” *Id.* at 3231. In addition, the Court reiterated *Flook*’s admonition that such claims cannot be made patent eligible by “limiting an abstract idea to one field of use or adding token postsolution components.” *Id.* The Court therefore affirmed the rejection of the claims at issue under § 101.

5. *Mayo v. Prometheus*

The Supreme Court’s most recent guidance regarding patent eligibility drew heavily on the foregoing precedents in applying the “laws of nature” exception to claims covering medical diagnostic methods. The claims in *Mayo* recited methods for optimizing thiopurine administration in a patient based on a natural correlation between the therapeutic efficacy of a particular dose of a thiopurine and the resulting concentration of thiopurine metabolites in the patient’s blood. Too little metabolite and the dose was insufficient; too much suggested that the dose should be reduced to avoid toxicity. *Mayo*, 132 S. Ct. at 1294–95. Accordingly, the claims recited the specific steps of administering the thiopurine drug and determining the resulting metabolite concentration in the patient’s blood, wherein a concentration above or below predefined thresholds indicated a need to adjust the drug dose. *See id.* at 1295 (claim 1).

The Supreme Court held that those claims failed the § 101 test for subject-matter eligibility. The Court began its analysis by noting that the claims “set forth laws of nature—namely, relationships between concentrations of certain metabolites in the blood and the likelihood that a dosage of a thiopurine drug will prove ineffective or cause harm.” *Id.* at 1296. Therefore, the question was “whether the claims do significantly more than simply describe these natural relations”; did they “add *enough*” to the natural law to render the claimed processes patent eligible? *Id.* at 1297. Examining the other limitations, the Court concluded that the “administering” and “determining” steps were insufficiently limiting or inventive to confer patent eligibility: “Anyone who wants to make use of these [natural] laws must first administer a thiopurine drug and measure the resulting metabolite concentrations, and so the combination amounts to nothing significantly more than an instruction to doctors to apply the

applicable laws when treating their patients.” *Id.* at 1298. Because these additional steps were mere “routine, conventional activity previously engaged in by scientists who work in the field,” the Court concluded that they did not transform the law of nature into a patent-eligible application of that law. *Id.*

C. An Integrated Approach to § 101

Several common themes that run through the Supreme Court’s decisions should frame our analysis in this and other § 101 cases.

First and foremost is an abiding concern that patents should not be allowed to preempt the fundamental tools of discovery—those must remain “free to all . . . and reserved exclusively to none.” *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948). Preemption features prominently in the Supreme Court’s recent § 101 decisions, *see Mayo*, 132 S. Ct. at 1301 (“The Court has repeatedly emphasized . . . a concern that patent law not inhibit further discovery by improperly tying up the future use of laws of nature.”); *Bilski*, 130 S. Ct. at 3231 (concluding that the disputed claims “would pre-empt [risk hedging] in all fields, and would effectively grant a monopoly over an abstract idea”); *Diehr*, 450 U.S. at 187 (“Their process admittedly employs a well-known mathematical equation, but they do not seek to pre-empt the use of that equation.”); *Benson*, 409 U.S. at 72 (“[I]f the judgment below is affirmed, the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself.”), and traces back to the earliest judicial decisions addressing subject-matter eligibility, *see, e.g., O’Reilly v. Morse*, 56 U.S. 62, 113 (1853) (rejecting a claim that would have broadly conferred “a monopoly” in the use of electromagnetism, “however developed, for the purpose of printing at a distance”). Guarding against the wholesale preemption of

fundamental principles should be our primary aim in applying the common law exceptions to § 101.

To be clear, the proper focus is not preemption *per se*, for some measure of preemption is intrinsic in the statutory right granted with every patent to exclude competitors, for a limited time, from practicing the claimed invention. *See* 35 U.S.C. § 154. Rather, the animating concern is that claims should not be coextensive with a natural law, natural phenomenon, or abstract idea; a patent-eligible claim must include one or more substantive limitations that, in the words of the Supreme Court, add “significantly more” to the basic principle, with the result that the claim covers significantly *less*. *See Mayo* 132 S. Ct. at 1294. Thus, broad claims do not necessarily raise § 101 preemption concerns, and seemingly narrower claims are not necessarily exempt. What matters is whether a claim threatens to subsume the full scope of a fundamental concept, and when those concerns arise, we must look for meaningful limitations that prevent the claim as a whole from covering the concept’s every practical application. *See id.* at 1302 (“The laws of nature at issue here are narrow laws that may have limited applications, but the patent claims that embody them nonetheless implicate this concern.”).

Next, the cases repeatedly caution against overly formalistic approaches to subject-matter eligibility that invite manipulation by patent applicants. Allowing the determination of patent eligibility to “depend simply on the draftsman’s art . . . would ill serve the principles underlying the prohibition against patents for ‘ideas’ or phenomena of nature.” *Flook*, 437 U.S. at 593. Thus, claim drafting strategies that attempt to circumvent the basic exceptions to § 101 using, for example, highly stylized language, hollow field-of-use limitations, or the recitation of token post-solution activity should not be credited. *See Bilski*, 130 S. Ct. at 3230 (“[T]he prohibition

against patenting abstract ideas ‘cannot be circumvented by attempting to limit the use of the formula to a particular technological environment’ or adding ‘insignificant postsolution activity.’” (quoting *Diehr*, 450 U.S. at 191–92)); *Flook*, 437 U.S. at 590 (rejecting such an approach as “exalt[ing] form over substance”). The Supreme Court’s precedents require that we look past such devices when analyzing a claim to consider its true practical effect with respect to the purpose of § 101—preserving the “basic tools” of scientific discovery for common use.

Finally, the cases urge a flexible, claim-by-claim approach to subject-matter eligibility that avoids rigid line drawing. Bright-line rules may be simple to apply, but they are often impractical and counterproductive when applied to § 101. Such rules risk becoming outdated in the face of continual advances in technology—they risk “freez[ing] process patents to old technologies, leaving no room for the revelations of the new, onrushing technology.” *Benson*, 409 U.S. at 71. Stringent eligibility formulas may also lead to misplaced focus, requiring courts to “pose questions of such intricacy and refinement that they risk obscuring the larger object of securing patents for valuable inventions without transgressing the public domain.” *Bilski*, 130 S. Ct. at 3227. Accordingly, the Supreme Court has rejected calls for a categorical exclusion of so-called business method claims and has held that the formulaic “machine-or-transformation” test cannot be the exclusive means for determining the patent eligibility of process claims. *Id.* at 3227–29. What is needed is a flexible, pragmatic approach that can adapt and account for unanticipated technological advances while remaining true to the core principles underlying the fundamental exceptions to § 101.

With these basic principles in mind, the following analysis should apply in determining whether a computer-implemented claim recites patent-eligible subject

matter under § 101 or falls into the common law exception for abstract ideas.

The first question is whether the claimed invention fits within one of the four statutory classes set out in § 101. Assuming that condition is met, the analysis turns to the judicial exceptions to subject-matter eligibility. A preliminary question in applying the exceptions to such claims is whether the claim raises § 101 abstractness concerns at all. Does the claim pose any risk of preempting an abstract idea? In most cases, the answer plainly will be no. *Cf. Honeywell Inc. v. Sperry Rand Corp.*, No. 4-67-cv-138, 180 USPQ 673, 1973 WL 903 (D. Minn. Oct. 19, 1973) (early computer hardware patents).

Where bona fide § 101 concerns arise, however, it is important at the outset to identify and define whatever fundamental concept appears wrapped up in the claim so that the subsequent analytical steps can proceed on a consistent footing. Section 101 is concerned as much with preserving narrow “basic tools” as it is with abstract concepts that have far-reaching implications—for example, risk hedging or transmitting information at a distance using electricity—and the breadth of acceptable exclusion may vary accordingly. *See Mayo*, 132 S. Ct. at 1302–03. In short, one cannot meaningfully evaluate whether a claim preempts an abstract idea until the idea supposedly at risk of preemption has been unambiguously identified. Although not required, conducting a claim construction analysis before addressing § 101 may be especially helpful in this regard by facilitating a full understanding of what each claim entails. *See Bancorp*, 687 F.3d at 1273–74.

The § 101 inquiry next proceeds to the requisite preemption analysis. With the pertinent abstract idea identified, the balance of the claim can be evaluated to determine whether it contains additional substantive

limitations that narrow, confine, or otherwise tie down the claim so that, in practical terms, it does not cover the full abstract idea itself. *See Mayo*, 132 S. Ct. at 1300 (discussing a patent-eligible process claim that involved a law of nature but included additional steps “that confined the claims to a particular, useful application of the principle”); *Bilski*, 130 S. Ct. at 3231 (rejecting claims that “add [too little] to the underlying abstract principle”); *Diehr*, 450 U.S. at 187 (“[T]hey do not seek to pre-empt the use of that equation. Rather, they seek only to foreclose from others the use of that equation in conjunction with all of the other steps in their claimed process.”).

The requirement for substantive claim limitations beyond the mere recitation of a disembodied fundamental concept has “sometimes” been referred to as an “inventive concept.” *See Mayo*, 132 S. Ct. at 1294 (citing *Flook*, 437 U.S. at 594). We do not read the Court’s occasional use of that language in the § 101 context as imposing a requirement that such limitations must necessarily exhibit “inventiveness” in the same sense as that term more commonly applies to two of the statutory requirements for patentability, *i.e.*, novelty and nonobviousness. *See* 35 U.S.C. §§ 102, 103. The phrase “inventive concept” originated with *Flook*, yet the Court began its discussion of § 101 in that case by stating that the question of patent-eligible subject matter “does not involve the familiar issues of novelty and obviousness that routinely arise under §§ 102 and 103.” 437 U.S. at 588. The Court has since reiterated that those separate inquiries do not bear on the question of subject-matter eligibility under § 101. *Diehr*, 450 U.S. at 188–89 (“The ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.”); *id.* at 191 (“A rejection on either of these [anticipation or obviousness] grounds does not affect the determination that respondents’ claims recited subject

matter which was eligible for patent protection under § 101.”); *see also Mayo*, 132 S. Ct. at 1298–1300, 1302 (holding was consistent with *Diehr* and *Flook* and did not “depart from case law precedent”).

An “inventive concept” in the § 101 context refers to a genuine human contribution to the claimed subject matter. “The underlying notion is that a scientific principle . . . reveals a relationship that has always existed.” *Flook*, 437 U.S. at 593 n.15. From that perspective, a person cannot truly “invent” an abstract idea or scientific truth. He or she can discover it, but not invent it. Accordingly, an “inventive concept” under § 101—in contrast to whatever fundamental concept is also represented in the claim—must be “a product of human ingenuity.” *See Chakrabarty*, 447 U.S. at 309.

In addition, that human contribution must represent more than a trivial appendix to the underlying abstract idea. The § 101 preemption analysis centers on the practical, real-world effects of the claim. *See, e.g., Mayo*, 132 S. Ct. at 1294 (“[A] process that focuses upon the use of a natural law [must] also contain other elements . . . sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the natural law itself.”); *Bilski*, 130 S. Ct. at 3231 (rejecting claims that would “effectively grant a monopoly over an abstract idea”); *Benson*, 409 U.S. at 71–72 (“[T]he patent . . . in practical effect would be a patent on the algorithm itself.”). Limitations that represent a human contribution but are merely tangential, routine, well-understood, or conventional, or in practice fail to narrow the claim relative to the fundamental principle therein, cannot confer patent eligibility.

For example, the “administering” and “determining” steps in *Mayo* might have appeared to be concrete limitations representing true human contributions to the

claimed methods; it is difficult to see how giving a particular man-made drug to a patient or drawing and testing blood could be considered purely abstract or preordained. Yet the Court held that those steps failed to render the claims patent eligible because, as a practical matter, they were necessary to every practical use of what it found to be a natural law and therefore were not truly limiting. *Mayo*, 132 S. Ct. at 1298 (“Anyone who wants to make use of these laws must first administer a thiopurine drug and measure the resulting metabolite concentrations”); *see also Benson*, 409 U.S. at 71 (noting that the “mathematical formula involved here has no substantial practical application except in connection with a digital computer”). Also in *Mayo*, the Court instructed that the added steps, apart from the natural law itself, must amount to more than “well-understood, routine, conventional activity previously engaged in by researchers in the field.” 132 S. Ct. at 1294. Similarly, token or trivial limitations, *see Diehr*, 450 U.S. at 191–92 (stating that “insignificant post-solution activity will not transform an unpatentable principle into a patentable process”), or vague limitations cast in “highly general language,” *Mayo*, 132 S. Ct. at 1302, have failed to satisfy § 101. Finally, bare field-of-use limitations cannot rescue a claim from patent ineligibility where the claim as written still effectively preempts all uses of a fundamental concept within the stated field. *Bilski*, 130 S. Ct. at 3230 (discussing *Flook* and *Diehr*). Whether a particular claim satisfies the § 101 standard will vary based on the balance of factors at play in each case, and the fact that there is no easy bright-line test simply emphasizes the need for the PTO and the courts to apply the flexible analysis above to the facts at hand.

Thus, the Supreme Court used the language “routine” and “conventional” in *Mayo* to indicate what qualities added to a natural law do not create patent-eligible subject matter. *See Mayo*, 132 S. Ct. at 1298. We do not

therefore understand that language to be confused with novelty or nonobviousness analyses, which consider whether particular steps or physical components together constitute a new or nonobvious invention. Analyzing patent eligibility, in contrast, considers whether steps combined with a natural law or abstract idea are so insignificant, conventional, or routine as to yield a claim that effectively covers the natural law or abstract idea itself.

Two other considerations are worth noting with respect to the § 101 analysis. First, some have argued that because § 101 is a “threshold test,” *Bilski*, 130 S. Ct. at 3225, district courts must always consider subject-matter eligibility first among all possible bases for finding invalidity. That is not correct. District courts are rightly entrusted with great discretion to control their dockets and the conduct of proceedings before them, including the order of issues presented during litigation. *See, e.g., Amado v. Microsoft Corp.*, 517 F.3d 1353, 1358 (Fed. Cir. 2008) (“District courts . . . are afforded broad discretion to control and manage their dockets, including the authority to decide the order in which they hear and decide issues pending before them.”). In addition, district courts may exercise their discretion to begin elsewhere when they perceive that another section of the Patent Act might provide a clearer and more expeditious path to resolving a dispute. *See MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250, 1258–62 (Fed. Cir. 2012); Dennis Crouch & Robert P. Merges, *Operating Efficiently Post-Bilski by Ordering Patent Doctrine Decision-Making*, 25 Berkeley Tech. L.J. 1673 (2010).

Second, it bears remembering that all issued patent claims receive a statutory presumption of validity. 35 U.S.C. § 282; *Microsoft Corp. v. i4i Ltd. P’ship*, 131 S. Ct. 2238 (2011). And, as with obviousness and enablement, that presumption applies when § 101 is raised as a basis

for invalidity in district court proceedings. *See OSRAM Sylvania, Inc. v. Am. Induction Techs., Inc.*, 701 F.3d 698, 706 (Fed. Cir. 2012) (obviousness); *Nat’l Recovery Techs., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1195 (Fed. Cir. 1999) (enablement).

* * *

Applying the above considerations to assess the patent eligibility of the specific computer-implemented claims at issue in this appeal, we conclude that the district court correctly held that the asserted claims drawn to methods, computer-readable media, and systems are not patent eligible and are hence invalid under § 101.

III. The Patents in Suit

In this case, Alice has asserted four patents against CLS. As described, the asserted patents share substantially the same specification and disclose and claim computerized methods, computer-readable media, and systems that are useful for conducting financial transactions using a third party to settle obligations between a first and second party so as to mitigate “settlement risk.” Briefly, the asserted claims are as follows: claims 33 and 34 of the ’479 patent recite methods; all claims of the ’510 patent also recite methods; all claims of the ’720 patent recite data processing systems; and the claims of the ’375 patent recite either data processing systems (claims 1–38 and 42–47) or computer-readable storage media having a computer program stored therein (claims 39–41). CLS contends that the asserted claims fall into the abstract ideas exception to § 101 and are therefore invalid as directed to patent-ineligible subject matter.

A. Method Claims

Claim 33 of the '479 patent is representative of the asserted method claims:

33. A method of exchanging obligations as between parties, each party holding a credit record and a debit record with an exchange institution, the credit records and debit records for exchange of predetermined obligations, the method comprising the steps of:

- (a) creating a shadow credit record and a shadow debit record for each stakeholder party to be held independently by a supervisory institution from the exchange institutions;
- (b) obtaining from each exchange institution a start-of-day balance for each shadow credit record and shadow debit record;
- (c) for every transaction resulting in an exchange obligation, the supervisory institution adjusting each respective party's shadow credit record or shadow debit record, allowing only these transactions that do not result in the value of the shadow debit record being less than the value of the shadow credit record at any time, each said adjustment taking place in chronological order; and
- (d) at the end-of-day, the supervisory institution instructing ones of the exchange institutions to exchange credits or debits to the credit record and debit record of the respective parties in accordance with the adjustments of the said permitted transactions, the credits and debits being irrevocable, time invariant obligations placed on the exchange institutions.

'479 patent col. 65 ll. 23–50. The claim thus recites a method for facilitating a previously arranged exchange between two parties requiring the use of “shadow” records

maintained by a third-party “supervisory institution.” Briefly, the claimed process requires the supervisory institution to create shadow records for each party that mirror the parties’ real-world accounts held at their respective “exchange institutions.” At the start of each day, the supervisory institution updates its shadow records to reflect the value of the parties’ respective accounts. Transactions are then referred to the supervisory institution for settlement throughout the day, and the supervisory institution responds to each in sequence by adjusting the shadow records and permitting only those transactions for which the parties’ updated shadow records indicate sufficient resources to satisfy their mutual obligations. At the end of each day, the supervisory institution irrevocably instructs the exchange institutions to carry out the permitted transactions. Although claim 33 does not expressly recite any computer-based steps,³ the parties have agreed that the recited shadow records and transactions require computer implementation. *CLS Bank*, 768 F. Supp. 2d at 236.

Claim 33 plainly recites a process. The issue presented then becomes whether that process amounts to no more than a patent-ineligible abstract idea. As described, the first step in that analysis requires identifying the abstract idea represented in the claim. The methods claimed here draw on the abstract idea of reducing settlement risk by effecting trades through a third-party intermediary (here, the supervisory institution) empowered to verify that both parties can fulfill their obligations before allowing the exchange—*i.e.*, a form of escrow. CLS

³ The method claims of the ’510 patent state that the supervisory institution “electronically adjust[s]” the shadow records. *E.g.*, ’510 patent col. 64 ll. 11–12.

describes that concept as “fundamental and ancient,” but the latter is not determinative of the question of abstractness. Even venerable concepts, such as risk hedging in commodity transactions, *see Bilski*, 130 S. Ct. at 3231, were once unfamiliar, just like the concepts inventors are unlocking at the leading edges of technology today. But whether long in use or just recognized, abstract ideas remain abstract. The concept of reducing settlement risk by facilitating a trade through third-party intermediation is an abstract idea because it is a “disembodied” concept, *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994) (*en banc*), a basic building block of human ingenuity, untethered from any real-world application. Standing alone, that abstract idea is not patent-eligible subject matter.

The analysis therefore turns to whether the balance of the claim adds “significantly more.” Apart from the idea of third-party intermediation, the claim’s substantive limitations require creating shadow records, using a computer to adjust and maintain those shadow records, and reconciling shadow records and corresponding exchange institution accounts through end-of-day transactions. None of those limitations adds anything of substance to the claim.

First, the requirement for computer implementation could scarcely be introduced with less specificity; the claim lacks *any* express language to define the computer’s participation. In a claimed method comprising an abstract idea, generic computer automation of one or more steps evinces little human contribution. There is no specific or limiting recitation of essential, *see SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319, 1332–33 (Fed. Cir. 2010), or improved computer technology, *see Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 865, 868–69 (Fed. Cir. 2010), and no reason to view the computer limitation as anything but “insignificant post-solution activity” relative to the abstract idea, *see Fort*

Props., Inc. v. Am. Master Lease LLC, 671 F.3d 1317, 1323–24 (Fed. Cir. 2012). Furthermore, simply appending generic computer functionality to lend speed or efficiency to the performance of an otherwise abstract concept does not meaningfully limit claim scope for purposes of patent eligibility. *Bancorp*, 687 F.3d at 1278; *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012); *Fort Props.*, 671 F.3d at 1323–24. That is particularly apparent in this case. Because of the efficiency and ubiquity of computers, essentially all practical, real-world applications of the abstract idea implicated here would rely, at some level, on basic computer functions—for example, to quickly and reliably calculate balances or exchange data among financial institutions. At its most basic, a computer is just a calculator capable of performing mental steps faster than a human could. Unless the claims require a computer to perform operations that are not merely accelerated calculations, a computer does not itself confer patent eligibility. In short, the requirement for computer participation in these claims fails to supply an “inventive concept” that represents a nontrivial, non-conventional human contribution or materially narrows the claims relative to the abstract idea they embrace.

Nor does requiring the supervisory institution to create and adjust a “shadow credit record” and a “shadow debit record” narrow the claims from the realm of abstraction. With the term “shadow record,” the claim uses extravagant language to recite a basic function required of any financial intermediary in an escrow arrangement—tracking each party’s obligations and performance. Viewed properly as reciting no more than the necessary tracking activities of a supervisory institution, the steps relating to creating a “shadow record” and then obtaining and adjusting its balance are insignificant “[pre]-solution activity,” *Mayo*, 132 S. Ct. at 1298 (alteration in original) (quoting *Flook*, 437 U.S. at 590), and ancillary “data-gathering steps,” *CyberSource Corp. v. Retail Decisions*,

Inc., 654 F.3d 1366, 1370 (Fed. Cir. 2011), and therefore add nothing of practical significance to the underlying idea of reducing settlement risk through intermediation.

Finally, providing end-of-day instructions to the exchange institutions to reconcile the parties' real-world accounts with the day's accumulated adjustments to their shadow records is a similarly trivial limitation that does not distinguish the claimed method. According to the claim, each permitted transaction during the day prompts corresponding shadow record adjustments, which the exchange institutions must honor as "irrevocable" payment obligations. *E.g.*, '479 patent col. 65 ll. 36–50. Whether the instructions are issued in real time, every two hours, or at the end of every day, there is no indication in the record that the precise moment chosen to execute those payments makes any significant difference in the ultimate application of the abstract idea.

In sum, there is nothing in the asserted method claims that represents "significantly more" than the underlying abstract idea for purposes of § 101. But for the implied requirement for computer implementation, the broad, non-technical method claims presented here closely resemble those in *Bilski*, which also explained a "basic concept of . . . protecting against risk." 130 S. Ct. at 3231. And, as described, adding generic computer functions to facilitate performance provides no substantial limitation and therefore is not "enough" to satisfy § 101. As in *Bilski*, upholding Alice's claims to methods of financial intermediation "would pre-empt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea." *Id.* Consequently, the method claims are drawn to patent-ineligible subject matter and invalid under § 101.

We note that, while other opinions of judges in this case use different language and reasoning, two other

judges, in addition to those joining this opinion, join in the result of patent ineligibility as to Alice’s asserted method claims.

B. Computer-Readable Medium Claims

Claims 39–41 of the ’375 patent are so-called “*Beauregard* claims,” named for *In re Beauregard*, 53 F.3d 1583 (Fed. Cir. 1995). Claims in *Beauregard* format formally recite a tangible article of manufacture—a computer-readable medium, such as a computer disk or other data storage device—but such claims also require the device to contain a computer program for directing a computer to carry out a specified process. Claim 39 of the ’375 patent reads:

39. A computer program product comprising *a computer readable storage medium having computer readable program code embodied in the medium* for use by a party to exchange an obligation between a first party and a second party, the computer program product comprising:
program code for causing a computer to send a transaction from said first party relating to an exchange obligation arising from a currency exchange transaction between said first party and said second party; and
program code for causing a computer to allow viewing of information relating to processing, by a supervisory institution, of said exchange obligation, wherein said processing includes (1) maintaining information about a first account for the first party, independent from a second account maintained by a first exchange institution, and information about a third account for the second party, independent from a fourth account maintained by a second exchange institution; (2) electronically adjusting

said first account and said third account, in order to effect an exchange obligation arising from said transaction between said first party and said second party, after ensuring that said first party and/or said second party have adequate value in said first account and/or said third account, respectively; and (3) generating an instruction to said first exchange institution and/or said second exchange institution to adjust said second account and/or said fourth account in accordance with the adjustment of said first account and/or said third account, wherein said instruction being an irrevocable, time invariant obligation placed on said first exchange institution and/or said second exchange institution.

'375 patent col. 68 ll. 5–35 (emphasis added).

Claim 39 thus nominally recites as its subject matter a physical device—a “computer readable storage medium” that would fall into a § 101 category separate from the methods discussed above and would at first blush seem less susceptible to abstractness concerns. But under § 101 we must look past drafting formalities and let the true substance of the claim guide our analysis. Here, although the claim’s preamble appears to invoke a physical object, the claim term “computer readable storage medium” is stated in broad and functional terms—incidental to the claim—and every substantive limitation presented in the body of the claim (as well as in dependent claims 40 and 41) pertains to the method steps of the program code “embodied in the medium.” Therefore, claim 39 is not “truly drawn to a specific computer readable medium, rather than to the underlying method” of reducing settlement risk using a third-party intermediary. *CyberSource*, 654 F.3d at 1374–75 (internal quotation marks omitted). Despite their *Beauregard* format,

Alice’s “computer readable medium claims” are thus equivalent to the methods they recite for § 101 purposes. In other words, they are merely method claims in the guise of a device and thus do not overcome the Supreme Court’s warning to avoid permitting a “competent draftsman” to endow abstract claims with patent-eligible status.

Of course, all claims are normally to be considered separately, but discrete claims reciting subject matter only nominally from different statutory classes may warrant similar substantive treatment under § 101 when, in practical effect, they cover the same invention. That may be particularly apparent where, as here, a claim presents a physical recitation of an abstract method, and parallel claims from the same patent family claim that same abstract method in the same or similar terms. So considered, claims 39–41 of the ’375 patent fail the patent-eligibility test for the same reasons as the cognate method claims discussed above. The “program code” of claim 39 “caus[es] a computer” to perform a method of escrow that is indistinguishable from that recited in claim 33 of the ’479 patent, and no less abstract. Accordingly, claims 39–41 of the ’375 patent are invalid under § 101. As with the method claims, two other judges of this court, in addition to those joining this opinion, similarly conclude that the computer-readable medium claims are not patent eligible.

C. System Claims

The remaining claims in this appeal recite “data processing systems” configured to enable the exchange of mutual obligations through an intermediary—in these claims, the computer system itself. Before addressing these claims in particular, we again note that our colleagues on the court, other than those joining this opinion, have agreed that, at least in this case, the method, medium, and system claims should be considered together for

purposes of § 101. Three other judges on this court—for a total of eight—have so concluded.

Claim 1 of the '720 patent is representative of the contested system claims:

1. A data processing system to enable the exchange of an obligation between parties, the system comprising:
 - a data storage unit* having stored therein information about a shadow credit record and shadow debit record for a party, independent from a credit record and debit record maintained by an exchange institution; and
 - a computer*, coupled to said data storage unit, that is configured to (a) receive a transaction; (b) electronically adjust said shadow credit record and/or said shadow debit record in order to effect an exchange obligation arising from said transaction, allowing only those transactions that do not result in a value of said shadow debit record being less than a value of said shadow credit record; and (c) generate an instruction to said exchange institution at the end of a period of time to adjust said credit record and/or said debit record in accordance with the adjustment of said shadow credit record and/or said shadow debit record, wherein said instruction being an irrevocable, time invariant obligation placed on said exchange institution.

'720 patent col. 65 ll. 42–61 (emphases added). As is apparent, the claim recites a computerized system configured to carry out a series of steps that mirror Alice's method claims—maintaining shadow records, allowing only those transactions supported by adequate value in the shadow records, adjusting the shadow records pursuant to such transactions, and later instructing exchange

institutions to execute the allowed transactions. Indeed, Alice’s method and system claims use similar and often identical language to describe those actions. *Compare id.* col. 65 ll. 44–61, *with* ’479 patent col. 65 ll. 28–50. The system claims are different, however, in that they also recite tangible devices as system components, including at least “a computer” and “a data storage unit.” Other claims specify additional components, such as a “first party device” and a “communications controller.” *See, e.g.*, ’375 patent col. 66 ll. 65–66. Similar to the computer readable medium claims, the system claims are formally drawn to physical objects and therefore raise a question whether they deserve to be evaluated differently under the abstract ideas exception from the accompanying method claims discussed above. Careful analysis shows that they do not.

For some system claims, the abstract ideas exception may indeed be plainly inapplicable, and such claims will face little difficulty passing through the § 101 filter. But applying a presumptively different approach to system claims generally would reward precisely the type of clever claim drafting that the Supreme Court has repeatedly instructed us to ignore. As illustrated by the obvious parallels between the method and system claims now before us, it is often a straightforward exercise to translate a method claim into system form, and vice versa. That much has long been recognized. *See In re Johnston*, 502 F.2d 765, 773 (CCPA 1974) (Rich, J., dissenting) (noting that “[e]very competent draftsman” knows how to cast method claims “in machine system form”). Thus, when § 101 issues arise, the same analysis should apply regardless of claim format: Does the claim, in practical effect, place an abstract idea at risk of preemption? And, if so, do the limitations of the claim, including any computer-based limitations, add “enough” beyond the abstract idea itself to limit the claim to a narrower, patent-eligible application of that idea? Or, is it merely a Trojan horse

designed to enable abstract claims to slide through the screen of patent eligibility?

The computer-based limitations recited in the system claims here cannot support any meaningful distinction from the computer-based limitations that failed to supply an “inventive concept” to the related method claims. The shadow record and transaction limitations in Alice’s method claims require “a computer,” *CLS Bank*, 768 F. Supp. 2d at 236, evidently capable of calculation, storage, and data exchange. The system claims are little different. They set forth the same steps for performing third-party intermediation and provide for computer implementation at an incrementally reduced, though still striking level of generality. Instead of wholly implied computer limitations, the system claims recite a handful of computer components in generic, functional terms that would encompass any device capable of performing the same ubiquitous calculation, storage, and connectivity functions required by the method claims.

For example, method claim 33 of the ’479 patent requires “creating a shadow credit record and a shadow debit record for each stakeholder party to be held independently by a supervisory institution from the exchange institutions.” ’479 patent col. 65 ll. 28–31. In system claim 26 of the ’375 patent, which is among the system claims that recite the most computer hardware, “a data storage unit” performs the analogous function. That claim recites “a data storage unit having stored therein (a) information about a first account for a first party, independent from a second account maintained by a first exchange institution, and (b) information about a third account for a second party, independent from a fourth account maintained by a second exchange institution.” ’375 patent col. 67 ll. 1–7.

Likewise, other steps of method claim 33 include (i) “for every transaction . . . adjusting each respective party’s shadow credit record or shadow debit record, allowing only these transactions that do not result in the value of the shadow debit record being less than the value of the shadow credit record at any time,” and (ii) “instructing ones of the exchange institutions to exchange credits or debits . . . in accordance with the adjustments of the said permitted transactions.” ’479 patent col. 65 ll. 36–48. Similarly, system claim 26 recites:

[A] computer, coupled to said data storage unit and said communications controller, that is configured to (a) receive a transaction from said first party device via said communications controller; (b) electronically adjust said first account and said third account . . . after ensuring that said first party and/or said second party have adequate value in said first account and/or said third account, respectively; and (c) generate an instruction to said first exchange institution and/or said second exchange institution to adjust said second account and/or said fourth account in accordance with the adjustment of said first account and/or said third account

’375 patent col. 67 ll. 8–23.

Despite minor differences in terminology, *e.g.*, first and third “independent” accounts instead of “shadow” records, the asserted method and system claims require performance of the same basic process. Although the system claims associate certain computer components with some of the method steps, none of the recited hardware offers a meaningful limitation beyond generally linking “the use of the [method] to a particular technological environment,” that is, implementation via computers. *Bilski*, 130 S. Ct. at 3230 (quoting *Diehr*, 450 U.S. at 191)

(internal quotation marks omitted); *see Mayo*, 132 S. Ct. at 1301 (“[The Court in *Benson*] held that simply implementing a mathematical principle on a physical machine, namely a computer, was not a patentable application of that principle.”). For all practical purposes, *every* general-purpose computer will include “a computer,” “a data storage unit,” and “a communications controller” that would be capable of performing the same generalized functions required of the claimed systems to carry out the otherwise abstract methods recited therein.

Therefore, as with the asserted method claims,⁴ such limitations are not actually limiting in the sense required under § 101; they provide no significant “inventive concept.” The system claims are instead akin to stating the abstract idea of third-party intermediation and adding the words: “apply it” on a computer. *See Mayo*, 132 S. Ct. at 1294. That is not sufficient for patent eligibility, and the system claims before us fail to define patent-eligible subject matter under § 101, just as do the method and computer-readable medium claims.

One of the separate opinions in this case, concurring in part in the judgment, takes aim at this opinion, asserting that the system claims here are simply claims to a patent-eligible machine, a tangible item one can put on one’s desk. Machines are unquestionably eligible for

⁴ To be clear, the fact that one or more related method claims has failed under § 101, as here, does not dictate that all associated system claims or even all associated method claims must suffer the same fate. For example, a system claim that builds on the same abstract idea as a patent-ineligible method may well incorporate sufficient additional limitations, computer-based or otherwise, to transform that idea into a patent-eligible application. But that is not the case here.

patenting, states the opinion, although the system claims here clearly track the method claims that the separate opinion concedes are not patent eligible.

That conclusion is surely correct as an abstract proposition. A particular computer system, composed of wires, plastic, and silicon, is no doubt a tangible machine. But that is not the question. The question we must consider is whether a *patent claim* that ostensibly describes such a system on its face represents something more than an abstract idea in legal substance. Claims to computers were, and still are, eligible for patent. No question should have arisen concerning the eligibility of claims to basic computer hardware under § 101 when such devices were first invented. But we are living and judging now (or at least as of the patents' priority dates), and have before us not the patent eligibility of specific types of computers or computer components, but computers that have routinely been adapted by software consisting of abstract ideas, and claimed as such, to do all sorts of tasks that formerly were performed by humans. And the Supreme Court has told us that, while avoiding confusion between § 101 and §§ 102 and 103, merely adding existing computer technology to abstract ideas—mental steps—does not as a matter of substance convert an abstract idea into a machine.

That is what we face when we have a series of claims to abstract methods and computers fitted to carry out those methods. We are not here faced with a computer *per se*. Such are surely patent-eligible machines. We are faced with abstract methods coupled with computers adapted to perform those methods. And that is the fallacy of relying on *Alappat*, as the concurrence in part does. Not only has the world of technology changed, but the legal world has changed. The Supreme Court has spoken since *Alappat* on the question of patent eligibility, and we must take note of that change. Abstract methods do not

become patent-eligible machines by being clothed in computer language.

CONCLUSION

As described, we agree with the district court and conclude that the asserted method, computer-readable medium, and system claims of Alice's '479, '510, '720, and '375 patents are invalid under § 101 for failure to recite patent-eligible subject matter.

**United States Court of Appeals
for the Federal Circuit**

CLS BANK INTERNATIONAL,
Plaintiff-Appellee,

AND

CLS SERVICES LTD.,
Counterclaim Defendant-Appellee,

v.

ALICE CORPORATION PTY. LTD.,
Defendant-Appellant.

2011-1301

Appeal from the United States District Court for the District of Columbia in No. 07-CV-974, Judge Rosemary M. Collyer.

RADER, *Chief Judge*, LINN, MOORE, and O'MALLEY, *Circuit Judges*, as to all but part VI, concurring-in-part and dissenting-in-part. RADER, *Chief Judge*, and MOORE, *Circuit Judge*, as to part VI.¹

¹ No portion of any opinion issued today other than our Per Curiam Judgment garners a majority. The court is evenly split on the patent eligibility of the system

This court again addresses questions regarding patent eligible subject matter. After consideration of the Patent Act and case law precedents, we would reverse the district court's holding that the asserted system claims are not patent eligible. Chief Judge Rader and Judge Moore would, however, affirm the district court's conclusion that the asserted method and media claims are not eligible for patenting. Judges Linn and O'Malley write separately as to these latter claims. Accordingly, we would remand for additional proceedings consistent with this opinion.

I

Alice Corporation (Alice) owns U.S. Patent Nos. 5,970,479 (the '479 Patent), 6,912,510 (the '510 Patent), 7,149,720 (the '720 Patent), and 7,725,375 (the '375 Patent). Generally, these patents relate to methods and a computerized system for exchanging obligations in which a trusted third party settles obligations between a first and second party in order to eliminate "settlement risk." Settlement risk is the risk that only one party will meet its payment obligation. In simple terms, the invention eliminates this risk with a trusted third party that exchanges either both or neither party's obligation.

Alice's expert testified by declaration that "[w]hen obligations arise from a trade made between two parties, *e.g.*, a trade of stock or a trade of foreign currency, typically, there is a gap in time between when the obligation

claims. Although a majority of the judges on the court agree that the method claims do not recite patent eligible subject matter, no majority of those judges agrees as to the legal rationale for that conclusion. Accordingly, though much is published today discussing the proper approach to the patent eligibility inquiry, nothing said today beyond our judgment has the weight of precedent.

arises and when the trade is ‘settled.’” Alice Corp. Pty. Ltd.’s Renewed Cross-Motion for Partial Summary Judgment as to Subject Matter Eligibility, Declaration of Stanley E. Fisher, Exhibit 1, Declaration of Paul Ginsberg at ¶ 21, *CLS Bank Int’l v. Alice Corp.*, 768 F. Supp. 2d 221 (D.D.C. 2011) (No. 1:07-cv-974), ECF No. 95-3 (Ginsberg Decl.) “In a number of financial contexts, the process of exchanging obligations, or settlement, is separate from the process of entering into a contract to perform a trade.” *Id.* For example, if two banks want to exchange currency, they would agree to make a transaction but would postpone the actual exchange until confirmation of the price—typically two days later. After that, both banks would “settle” the trade by paying their predetermined amounts to each other. But the time delay presents a risk that one bank would, at settlement time, no longer have sufficient funds to satisfy its obligations.

The asserted patent claims—claims 33 and 34 of the ’479 Patent, and all claims of the ’510, ’720, and ’375 Patents—seek to minimize this risk. The relevant claims of the ’479 and ’510 Patents are method claims. The claims of the ’720 and ’375 Patents are system and product (media) claims.

In May 2007, CLS Bank International and CLS Services Ltd. (collectively, CLS Bank) sued Alice, seeking a declaration that the asserted claims are invalid, unenforceable, or otherwise not infringed. In August 2007, Alice counterclaimed, alleging that CLS Bank infringed claims 33 and 34 of the ’479 Patent, and all claims of the ’510 and ’720 Patents. The U.S. filing dates of the patents range from 1993 to 2005, with claims to priority going back even earlier.

The parties filed cross-motions for summary judgment on whether the asserted claims were eligible subject matter under Section 101. In May 2010, the ’375 Patent

issued to Alice, and Alice soon filed amended counterclaims asserting that CLS Bank also infringed all of its claims. After the Supreme Court decided *Bilski v. Kappos*, 130 S. Ct. 3218 (2010) (*Bilski*), the parties renewed their cross-motions for summary judgment, with CLS Bank asserting that the newly-added '375 Patent also did not claim eligible subject matter under Section 101.

The district court granted CLS Bank's motion for summary judgment and denied Alice's cross-motion. The district court held that no asserted claim contained patent eligible subject matter. *CLS Bank Int'l v. Alice Corp.*, 768 F. Supp. 2d 221 (D.D.C. 2011), *vacated*, 484 F. App'x 559 (Fed. Cir. 2012). Alice timely appealed, and this court has jurisdiction under 28 U.S.C. § 1295(a)(1). A panel of this court reversed. *CLS Bank Int'l v. Alice Corp.*, 685 F.3d 1341 (Fed. Cir. 2012). CLS Bank filed a petition for rehearing en banc. In its order granting en banc reconsideration, this court invited the parties and others to address two questions:

- a. What test should the court adopt to determine whether a computer-implemented invention is a patent ineligible "abstract idea"; and when, if ever, does the presence of a computer in a claim lend patent eligibility to an otherwise patent-ineligible idea?
- b. In assessing patent eligibility under 35 U.S.C. § 101 of a computer-implemented invention, should it matter whether the invention is claimed as a method, system, or storage medium; and should such claims at times be considered equivalent for § 101 purposes?

CLS Bank Int'l v. Alice Corp., 484 F. App'x. 559 (Fed. Cir. 2012).

II

We begin with the text of the statute. *See Diamond v. Diehr*, 450 U.S. 175, 182 (1981); *see also Bilski*, 130 S. Ct. at 3225; *In re Alappat*, 33 F.3d 1526, 1542 (Fed. Cir. 1994) (en banc). Section 101 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.

Section 100(b) further provides 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.”

To understand these provisions in context, the Supreme Court has advised that the “new” requirement in Section 101 is now governed by Section 102. *Diehr*, 450 U.S. at 189; *see* S. Rep. No. 82-1979, at 6 (1952) (“Section 102 . . . includes, in effect, an amplification and definition of ‘new’ in section 101.”) (S. Rep. 82-1979). Similarly, as shown below, whether a new process, machine, and so on is “inventive” is not an issue under Section 101; the condition for “more” than novelty is contained only in Section 103. Thus, so long as the “conditions and requirements” of patentability are met, a person who invents or discovers a useful process, or an improvement to one, may obtain a patent—and may do so even if the process includes only a new use of an old machine. *See Bilski*, 130 S. Ct. at 3225; *Alappat*, 33 F.3d at 1542.

Underscoring its breadth, Section 101 both uses expansive categories and modifies them with the word “any.” 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) (some internal quotation marks omitted)).

Defining one of those expansive categories, Section 100(b) confirms the statute’s intended breadth. At first examination, the Act’s definition of “process” to include a new use of a known machine seems superfluous. After all, if “any” process may be patented under Section 101, Section 100(b) seems wholly unnecessary. An examination of the context for adding Section 100(b) informs the analysis of Section 101. Specifically, the 1952 amendments added Section 100(b) to ensure that doubts about the scope of a “process” under the pre-1952 version of the patent statute would not be read into the new Act. P.J. Federico,² *Commentary on the New Patent Act*, reprinted in 75 J. Pat. & Trademark Off. Soc’y 161, 177 (1993) (*Federico’s Commentary*) (“Remarks have appeared in a few decisions and elsewhere that new uses are not patentable. . . . [I]f such remarks are interpreted to mean that a new use or application of an old machine, manufacture or composition cannot result in anything patentable then such statements are not and have never been an accurate statement of the law.”); Hearing Before Sub-

² P.J. Federico, one of the 1952 Patent Act’s “principal authors,” was also a chief patent examiner. *Hodosh v. Block Drug Co.*, 833 F.2d 1575, 1578 (Fed. Cir. 1987). *Federico’s Commentary* constitutes “an invaluable insight into the intentions of the drafters of the Act.” *Symbol Techs., Inc. v. Lemelson Med.*, 277 F.3d 1361, 1366 (Fed. Cir. 2002); see also George M. Sirilla & Hon. Giles S. Rich, 35 U.S.C. . . . 103: *From Hotchkiss to Hand to Rich, the Obvious Patent Law Hall-of-Famers*, 32 J. Marshall L. Rev. 437, 509 (1999) (discussing Federico’s and Judge Rich’s role as the drafters of the 1952 Act).

comm. No. 3 of the Comm. on the Judiciary, at 37 (1951) (1951 Hearings) (Federico testifying that the “definition of ‘process’ has been added . . . to clarify the present law as to certain types of methods as to which some doubts have been expressed . . .”). The 1952 Act shows that the “primary significance” of adding Section 100(b) was to make clear that a method was not “vulnerable to attack, on the ground of not being within the field of patentable subject matter, merely because it may recite steps conventional from a procedural standpoint and the novelty resides in the recitation of a particular substance, which is old as such, used in the process.” *Federico’s Commentary* at 177; see S. Rep. No. 82-1979, at 17 (“The . . . definition clarifies the status of processes or methods which involve merely the new use of a known process, machine, manufacture, composition of matter, or material; they are processes or methods under the statute and may be patented provided the conditions of patentability are satisfied.”).

In addition, in testimony requested by the Committee, P.J. Federico, a chief patent examiner at the United States Patent & Trademark Office (Patent Office), explained that under the proposed amendment a machine or manufacture may include “anything that is under the sun that is made by man.” 1951 Hearings at 37; see S. Rep. No. 82-1979, at 5 (stating the same principle: so long as the conditions of patentability are met, anything made by man is patentable). The Supreme Court summarized the intent and meaning of these changes when it quoted and approved this famous statement. See *Diehr*, 450 U.S. at 182.

Indeed, to achieve these ends, the 1952 Act did not merely rely on the breadth of Section 101 and the expanded definition of “process” in Section 100(b), but also added the words “or discovered” to the definition of “invention” in Section 100(a). By definition, Congress made it irrele-

vant whether a new process, machine, and so on was “discovered” rather than “invented.” Both inventions and discoveries are eligible for patenting. This addition confirmed the principle articulated again in Section 103 that an invention “shall not be negated by the manner in which [it] . . . was made.” 35 U.S.C. § 103. The language of the Act shows that the authors of the 1952 Act wanted that principle incorporated into the eligibility section of the Act as well as the patentability sections.

One final point confirming the breadth of Section 101 is the 1952 Act’s deliberate decision to place the substantive requirement for “invention” in Section 103. Before 1952, the courts had used phrases including “creative work,” “inventive faculty,” and “flash of creative genius” which compared the existing invention to some subjective notion of sufficient “inventiveness” as the test for patentability—by definition a hindsight analysis. *See* Giles S. Rich, *Principles of Patentability*, 28 Geo. Wash. L. Rev. 393, 404 (1960). These standardless terms and tests created wildly disparate approaches to determine sufficiency for “invention.” *Id.* at 403–04. Judge Rich observed that with “invention” as the test, “judges did whatever they felt like doing according to whatever it was that gave the judge his feelings—out of the evidence coupled with his past mental conditioning—and then selected those precedents which supported his conclusions.” Sirilla, 32 J. Marshall L. Rev. at 501 (internal quotation marks omitted).

The 1952 Act focused its central purpose on correcting this systemic problem. “One of the great technical weaknesses of the patent system” prior to 1952 was “the lack of a definitive yardstick as to what is invention.” Victor L. Edwards, Cong. Research Serv., *Efforts to Establish a Statutory Standard for Invention*, at 2 (1958) (Study on Standard for Invention). As Judge Rich testified at the beginning of this legislative effort in 1948, “the matter of

defining invention” was “what we are trying to get away from.” *Id.* at 4. As Federico put it, “invention” was “an unmeasurable quantity having different meanings for different persons.” *Federico’s Commentary* at 183 (making the statements in the context of explaining why Congress added Section 103); *Principles of Patentability*, 28 Geo. Wash. L. Rev. at 407 (“The drafters of the present statute did their best to take out of the law the undefinable concept of ‘invention.’ Whether lawyers will now take advantage of the terminology . . . and stop talking nonsense is up to them.”).

After deliberate effort, the 1952 Act replaced any need for an “invention” or “inventiveness” measure with an objective test for “obviousness” in Section 103. *See Dann v. Johnston*, 425 U.S. 219, 225-26 (1976) (explaining that although “an exercise of the inventive faculty” had been used as a judicial test, “it was only in 1952 that Congress, in the interest of uniformity and definiteness, articulated the requirement in a statute, framing it as a requirement of ‘nonobviousness.’” (internal quotation marks and footnote omitted)). The official “Revision Notes” explain that Section 103 became an “explicit statement” of the “holding of patents invalid by the courts[] on the ground of lack of invention.” S. Rep. No. 82-1979, at 18; *see Federico’s Commentary* at 180 (explaining that one of the two major changes made by the 1952 amendments was “incorporating a requirement for invention in section 103.” (internal quotation marks omitted)); Study for Statutory Standard of Invention (extensively reviewing Congressional efforts to redefine “invention,” which culminated in adoption of Section 103). Thus, the central thrust of the 1952 Act removed “unmeasurable” inquiries into “inventiveness” and instead supplied the nonobviousness requirement of Section 103.

After enactment of the 1952 Act, both of its principal architects recognized the significance of the elimination of

a subjective test for “invention.” Judge Rich, a House Committee architect of the 1952 Act and later an esteemed jurist, applauded the fact that the Patent Act of 1952 makes no “reference to ‘invention’ as a legal requirement.” *Principles of Patentability*, 28 Geo. Wash. L. Rev. at 405 (emphasis omitted). Judge Rich emphasized that using “the past tense in referring to” what “*used* to be called the requirement of ‘invention’” could not be over-emphasized. *Id.* (emphasis in original). Federico expressed the same sentiments. *See Federico’s Commentary* at 182-83 (explaining that while perhaps the word “invented” in the prior patent act may have been the source of judicial demand for more than just novelty, Section 103 replaced any requirement for “invention”).

Contemporaneous commentators also recognized that any need for “invention” had been rejected in favor of nonobviousness. *See generally*, Karl B. Lutz, *The New 1952 Patent Statute*, 35 J. Pat. Off. Soc’y 155, 157-58 (1953) (explaining that courts had long ago decided that novelty was not enough and had disagreed on how to determine how much more was necessary, but that that issue was now addressed solely by Section 103); Dean O.S. Colclough, *A New Patent Act—But the Same Basic Problem*, 35 J. Pat. Off. Soc’y 501, 510 (1953) (explaining that the “condition of inventiveness has been expressed in a variety of ways by the courts,” but the “new provision on inventiveness” in Section 103 was intended to replace and codify prior law). And indeed the courts, including this court, implemented the new statute carefully and religiously. *See Graham v. John Deere Co.*, 383 U.S. 1, 14 (1966) (“Section 103, for the first time in our statute, provides a condition which exists in the law and has existed for more than 100 years, but only by reason of decisions of the courts.” (internal quotation marks omitted)); *W.L. Gore & Assocs., Inc v. Garlock, Inc.*, 721 F.2d 1540, 1548 (Fed. Cir. 1983) (Markey, C.J.) (recognizing the district court improperly relied upon one step of a

multi-step process to determine nonobviousness); *Gardner v. TEC Sys., Inc.*, 725 F.2d 1338, 1349–50 (Fed. Cir. 1984) (recognizing that Section 103 sets forth the standard, and so “synergism” of a known combination is not required). Thus, any requirement for “inventiveness” beyond sections 102 and 103 is inconsistent with the language and intent of the Patent Act.

With an eye to the statutory language and its background, the Supreme Court recognized Section 101 as “a ‘dynamic provision designed to encompass new and unforeseen inventions.’” *Bilski*, 130 S. Ct. at 3227 (quoting *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int’l, Inc.*, 534 U.S. 124, 135 (2001)). Indeed, the broad interpretation of Section 101 has constitutional underpinnings. “The subject-matter provisions of the patent law have been cast in broad terms to fulfill the constitutional and statutory goal of promoting ‘the Progress of . . . the useful Arts’” *Chakrabarty*, 447 U.S. at 315.

In sum, any analysis of subject matter eligibility for patenting must begin by acknowledging that any new and useful process, machine, composition of matter, or manufacture, or an improvement thereof, is eligible for patent protection. While a claim may not later meet the rigorous conditions for patentability, Section 101 makes these broad categories of claimed subject matter eligible for that consideration.

III

We turn now to the limited exceptions to the broad statutory grant in Section 101 which the Supreme Court has identified: “[l]aws of nature, natural phenomena, and abstract ideas” are not patent eligible. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012) (quoting *Diehr*, 450 U.S. at 185); *see also Bilski*, 130 S. Ct. at 3225. The motivation for the exceptions to

eligibility is to prevent the “monopolization” of the “basic tools of scientific and technological work,” which “might tend to impede innovation more than it would tend to promote it.” *Prometheus*, 132 S. Ct. at 1293 (internal quotation marks omitted).

A. Scope of the Exception

1. Generally

As the Supreme Court has explained, the relevant inquiry under the exceptions is whether the claim covers merely an abstract idea, law of nature, or natural phenomenon; or whether the claim covers a particular application of an abstract idea, law of nature, or natural phenomenon. See *Prometheus*, 132 S. Ct. at 1294 (“[T]o transform an unpatentable law of nature into a patent-eligible *application* of such a law, one must do more than simply state the law of nature while adding the words ‘apply it.’” (emphasis in original)); *Bilski*, 130 S. Ct. at 3230 (“[W]hile an abstract idea, law of nature, or mathematical formula could not be patented, an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.” (emphasis in original) (internal quotation marks omitted)); *Diehr*, 450 U.S. at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.” (emphasis in original)); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (“He who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. If there is to be invention from such a discovery, it must come from the *application* of the law of nature to a new and useful end.” (emphasis added) (internal quotation marks omitted)).

The claims are key to this patent eligibility inquiry. A court must consider the asserted claim *as a whole* when assessing eligibility:

In determining the eligibility of respondents' claimed process for patent protection under § 101, their claims must be considered *as a whole*. It is inappropriate to dissect the claims into old and new elements and then to ignore the presence of the old elements in the analysis. This is particularly true in a process claim because a new combination of steps in a process may be patentable even though all the constituents of the combination were well known and in common use before the combination was made.

Diehr, 450 U.S. at 188 (emphasis added). And, a court must consider the *actual* language of each claim. The majority in *Diehr* rejected the minority's approach ignoring portions of the claims: "[i]n order for the dissent to reach its conclusion it is necessary for it to read out of respondents' patent application all the steps in the claimed process which it determined were not novel or 'inventive.' That is not the purpose of the § 101 inquiry . . ." *Id.* at 193 n.15 (citations omitted).

Any claim can be stripped down, simplified, generalized, or paraphrased to remove all of its concrete limitations, until at its core, something that could be characterized as an abstract idea is revealed. Such an approach would "if carried to its extreme, make all inventions unpatentable because all inventions can be reduced to underlying principles of nature which, once known, make their implementation obvious." *Id.* at 189 n.12; *see also Prometheus*, 132 S. Ct. at 1293. A court cannot go hunting for abstractions by ignoring the concrete, palpable, tangible limitations of the invention the patentee actually claims.

Different claims will have different limitations; each must be considered as actually written. The inquiry is a practical one to determine whether the claim, as a whole with all of its limitations, in effect covers a patent ineligible abstract idea or a patent eligible application of that idea. Thus, while the analysis will be different for each claim based on its particular limitations, the form of the analysis remains the same.

The claims in *O'Reilly v. Morse*, 56 U.S. (15 How.) 62 (1854), and a case described therein, illustrate the distinction between a patent ineligible abstract idea and a practical application of an idea. The “difficulty” in *Morse* arose with the claim in which *Morse*

d[id] not propose to limit [him]self to the specific machinery or parts of machinery described in the . . . specification and claims; the essence of [his] invention being the use of the motive power of the electric or galvanic current . . . however developed for marking or printing intelligible characters, signs, or letters, at any distances

Id. at 112 (internal quotation marks omitted). In considering *Morse*’s claim, the Supreme Court referred to an earlier English case that distinguished ineligible claims to a “principle” from claims “applying” that principle:

[I]t seems that the court at first doubted, whether it was a patent for any thing more than the discovery that hot air would promote the ignition of fuel better than cold. And if this had been the construction, the court, it appears, would have held his patent to be void; because the discovery of a principle in natural philosophy or physical science, is not patentable.

But after much consideration, it was finally decided that this principle must be regarded as well known, and that the plaintiff had invented a mechanical mode of applying it to furnaces; and that his invention consisted in interposing a heated receptacle, between the blower and the furnace, and by this means heating the air after it left the blower, and before it was thrown into the fire. Whoever, therefore, used this method of throwing hot air into the furnace, used the process he had invented, and thereby infringed his patent, although the form of the receptacle or the mechanical arrangements for heating it, might be different from those described by the patentee.

Id. at 116. The claim in *Morse* itself was impermissible because it covered “an effect produced by the use of electro-magnetism, distinct from the process or machinery necessary to produce it.” *The Telephone Cases*, 126 U.S. 1, 534 (1888) (quoting *Morse*, 56 U.S. (15 How.) at 120). This was in contrast to a sustained claim that was limited to:

making use of the motive power of magnetism, when developed by the action of such current or currents, substantially as set forth in the . . . description, . . . as means of operating or giving motion to machinery, which may be used to imprint signals upon paper or other suitable material, or to produce sounds in any desired manner, for the purpose of telegraphic communication at any distances.

Id. (first ellipsis added, second ellipsis in original) (quoting *Morse*, 56 U.S. (15 How.) at 85). “The effect of [*Morse*] was, therefore, that the use of magnetism as a motive power, without regard to the particular process with which it was connected in the patent, could not be

claimed, but that its use in that connection could.” *Benson*, 409 U.S. at 68 (quoting *The Telephone Cases*, 126 U.S. at 534).

These examples illustrate that the inquiry under the abstract ideas exception deals not merely with breadth, because the “hot air” claims were broad and covered many “mechanical arrangements” but yet found patent eligible. The concern, which has become clearer through the Supreme Court’s more recent precedents, is whether the claim seeks to patent an idea itself, rather than an application of that idea.

2. Meaningful limitations

The relevant inquiry must be whether a claim includes *meaningful* limitations restricting it to an application, rather than merely an abstract idea. See *Prometheus*, 132 S. Ct. at 1297 (“[D]o the patent claims add *enough* to their statements of the correlations to allow the processes they describe to qualify as patent-eligible processes that *apply* natural laws?” (emphasis in original)); see also *Fort Props., Inc. v. Am. Master Lease LLC*, 671 F.3d 1317, 1323 (Fed. Cir. 2012) (“[T]o 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.” (internal quotation marks omitted)). An abstract idea is one that has no reference to material objects or specific examples—*i.e.*, it is not concrete. See Merriam-Webster’s Collegiate Dictionary 5 (11th ed. 2003) (defining abstract as “disassociated from any specific instance . . . expressing a quality apart from an object <the word *poem* is concrete, *poetry* is [abstract]>”). A claim may be premised on an abstract idea—the question for patent eligibility is whether the claim contains limitations that meaningfully tie that idea to a concrete reality or actual application of that idea.

Indeed, the Supreme Court repeatedly has stated that a claim touching upon a natural phenomenon, abstract idea, or law of nature is not, for that reason alone, ineligible for patenting. The Supreme Court clarified the “commonplace” principle “that an *application* of a law of nature or mathematical formula to a known structure . . . may well be deserving of patent protection.” *Diehr*, 450 U.S. at 187 (emphasis in original). For these reasons, a claim does not become ineligible simply because it applies a basic tool. *Id.*; see *Prometheus*, 132 S. Ct. at 1294 (explaining that the fact that a claim uses a basic tool does not mean it is not eligible for patenting). The struggle is in drawing the line between claims that are and are not meaningfully limited; fortunately, the Supreme Court’s own cases provide the guideposts for doing so.

First, we know a claim is not meaningfully limited if it merely describes an abstract idea or simply adds “apply it.” See *Prometheus*, 132 S. Ct. at 1294, 1297. The broad claim in *Morse* provides a striking example of this. We also know that, if a claim covers all practical applications of an abstract idea, it is not meaningfully limited. See *id.* at 1301-02. For example, “[a]llowing petitioners to patent risk hedging would pre-empt use of this approach in *all fields*, and would effectively grant a monopoly over an abstract idea.” *Bilski*, 130 S. Ct. at 3231 (emphasis added). While this concept is frequently referred to as “pre-emption,” it is important to remember that all patents “pre-empt” some future innovation in the sense that they preclude others from commercializing the invention without the patentee’s permission. Pre-emption is only a subject matter eligibility problem when a claim preempts all practical uses of an abstract idea. For example, the claims in *Benson* “purported to cover *any* use of the claimed method in a general-purpose digital computer of any type.” 409 U.S. at 64 (emphasis added). The claims were not allowed precisely because they pre-empted essentially all uses of the idea:

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

Id. at 71-72 (emphasis added). When the steps of the claim “must be taken in order to apply the [abstract idea] in question,” the claim is essentially no different from saying apply the abstract idea. *Prometheus*, 132 S. Ct. at 1299-1300. It is not the breadth or narrowness of the abstract idea that is relevant, but whether the claim covers every practical application of that abstract idea.³

And, we know that, even if a claim does not wholly pre-empt an abstract idea, it still will not be limited meaningfully if it contains only insignificant or token pre- or post-solution activity—such as identifying a relevant audience, a category of use, field of use, or technological environment. *See Prometheus*, 132 S. Ct. at 1297-98, 1300-01; *Bilski*, 130 S. Ct. at 3230-31; *Diehr*, 450 U.S. at

³ The pre-emption analysis must also recognize that the Patent Act does not halt or impede academic research, without commercial ends, to test, confirm, or improve a patented invention. *See Sawin v. Guild*, 21 F. Cas. 554, 555 (C.C.D. Mass. 1813) (No. 12,391) (Story, J.) (infringement does not occur when the invention is used “for the mere purpose of philosophical experiment, or to ascertain the verity and exactness of the specification”).

191-92 & n.14; *Parker v. Flook*, 437 U.S. 584, 595 n.18 (1978).

Finally, the Supreme Court has told us that a claim is not meaningfully limited if its purported limitations provide no real direction, cover all possible ways to achieve the provided result, or are overly-generalized. See *Prometheus*, 132 S. Ct. at 1300 (“[S]imply appending conventional steps, specified at a high level of generality, to laws of nature, natural phenomena, and abstract ideas cannot make those laws, phenomena, and ideas patentable.”); *Fort Props.*, 671 F.3d at 1323 (“Such a broad and general limitation does not impose meaningful limits on the claim’s scope.” (internal quotation marks omitted)). For example, in *Prometheus*, “the ‘determining’ step tells the doctor to determine the level of the relevant metabolites in the blood, through whatever process the doctor or the laboratory wishes to use.” 132 S. Ct. at 1297. *Diehr* explained that the application in *Flook* “did not purport to explain how these other variables were to be determined, nor did it purport to contain any disclosure relating to the chemical processes at work, the monitoring of process variables, or the means of setting off an alarm or adjusting an alarm system,” and that “[a]ll that it provides is a formula for computing an updated alarm limit.” *Diehr*, 450 U.S. at 186-87 (footnote omitted) (internal quotation marks omitted).

Just as the Supreme Court has told us when a claim likely should not be deemed meaningfully limited, it has also given us examples of meaningful limitations which likely remove claims from the scope of the Court’s judicially created exceptions to Section 101. Thus, a claim is meaningfully limited if it requires a particular machine implementing a process or a particular transformation of matter. See *Bilski*, 130 S. Ct. at 3227 (“This Court’s precedents establish that the machine-or-transformation test is a useful and important clue . . . for determining

whether some claimed inventions are processes under § 101.”); *see also Prometheus*, 132 S. Ct. at 1302-03; *Diehr*, 450 U.S. at 184, 192. A claim also will be limited meaningfully when, in addition to the abstract idea, the claim recites added limitations which are essential to the invention. In those instances, the added limitations do more than recite pre- or post-solution activity, they are central to the solution itself. And, in such circumstances, the abstract idea is not wholly pre-empted; it is only pre-empted when practiced in conjunction with the other necessary elements of the claimed invention. *See Diehr*, 450 U.S. at 187 (“[T]he respondents here do not seek to patent a mathematical formula. Instead, they seek patent protection for a process of curing synthetic rubber. Their process admittedly employs a well-known mathematical equation, but they do not seek to pre-empt the use of that equation. Rather, they seek only to foreclose from others the use of that equation in conjunction with all of the other steps in their claimed process.”); *see also Prometheus*, 132 S. Ct. at 1298-99 (discussing *Diehr*, 450 U.S. 175).⁴

3. Computer-specific limitations

When assessing computer implemented claims, while the mere reference to a general purpose computer will not

⁴ Judge Lourie’s opinion concludes that the system claims are not patent eligible in part because it is *now* routine for computers to perform the functions described—because the world has changed, as the opinion puts it. Lourie Op. at 37. Using what *has become* routine in 2013 to determine what *was* inherent in a concept in the early 1990s injects hindsight into the eligibility analysis and fails to recognize that patent eligibility, like all statutory patentability questions, is to be measured as of the filing date. *See, e.g.*, 35 U.S.C. §§ 102, 103.

save a method claim from being deemed too abstract to be patent eligible, the fact that a claim is limited by a tie to a computer is an important indication of patent eligibility. *See Bilski*, 130 S. Ct. at 3227. This is true both because its tie to a machine moves it farther away from a claim to no more than an idea and because that same tie makes it less likely that the claims will pre-empt all practical applications of the idea.

The key to this inquiry is whether the claims tie the otherwise abstract idea to a *specific way* of doing something with a computer, or a *specific computer* for doing something; if so, they likely will be patent eligible, unlike claims directed to *nothing more than the idea* of doing that thing on a computer. While no particular type of limitation is necessary, meaningful limitations may include the computer being part of the solution, being integral to the performance of the method, or containing an improvement in computer technology. *See SiRF Tech., Inc. v. Int'l Trade Comm'n*, 601 F.3d 1319, 1332-33 (Fed. Cir. 2010) (noting that “a machine,” a GPS receiver, was “integral to each of the claims at issue” and “place[d] a meaningful limit on the scope of the claims”). A special purpose computer, *i.e.*, a new machine, specially designed to implement a process may be sufficient. *See Alappat*, 33 F.3d at 1544 (“Although many, or arguably even all, of the means elements recited in claim 15 represent circuitry elements that perform mathematical calculations, which is essentially true of all digital electrical circuits, the claimed invention as a whole is directed to a combination of interrelated elements which combine to form a machine for converting discrete waveform data samples into anti-aliased pixel illumination intensity data to be displayed on a display means. This 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.” (footnotes omitted)); *see also id.* at 1545 (“We have held that such programming

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.”).

At bottom, where the claim is tied to a computer in such a way that the computer plays a meaningful role in the performance of the claimed invention, and the claim does not pre-empt virtually all uses of an underlying abstract idea, the claim is patent eligible.

B. What the Exception Is Not About

In specifying what the scope of the abstract idea exception to patent eligibility is, it is also important to specify what the analysis is *not*. *Flook* suggested that an abstract idea is to be “treated as though it were a familiar part of the prior art.” 437 U.S. at 592. *Prometheus* used the language of “inventive concept” to describe the “other elements or a combination of elements . . . sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the natural law itself” and described purported limitations as “routine” or “conventional.” 132 S. Ct. at 1294, 1298-99. Such language should not be read to conflate principles of patent eligibility with those of validity, however. Nor should it be read to instill an “inventiveness” or “ingenuity” component into the inquiry.

The eligibility inquiry is not an inquiry into obviousness, novelty, enablement, or any other patent law concept. Each section plays a different role and no one section is more important than any other. Section 112 of Title 35 protects the public by ensuring that patents fully disclose, enable, and particularly claim the invention. Sections 102 and 103 ensure that the public is free to use what was previously known and the obvious variants thereof. The Section 101 eligibility inquiry determines

whether a claim is limited meaningfully to permissible subject matter, as distinct from the validity requirements of the other sections.

The Supreme Court repeatedly has cautioned against conflating the analysis of the conditions of patentability in the Patent Act with inquiries into patent eligibility. *See Diehr*, 450 U.S. at 190 (“The question therefore of whether a particular invention is novel is wholly apart from whether the invention falls into a category of statutory subject matter.” (internal quotation marks omitted)); *see also Prometheus*, 132 S. Ct. at 1304 (recognizing that “to shift the patent-eligibility inquiry entirely to [§§ 102, 103, and 112] risks creating significantly greater legal uncertainty, while assuming that those sections can do work that they are not equipped to do”). Because a new combination of old steps is patentable, as is a new process using an old machine or composition, subject matter eligibility must exist even if it was obvious to use the old steps with the new machine or composition. Otherwise the eligibility analysis ignores the text of sections 101 and 100(b), and reads Section 103 out of the Patent Act.

The Supreme Court’s reference to “inventiveness” in *Prometheus* must be read as shorthand for its inquiry into whether implementing the abstract idea in the context of the claimed invention inherently requires the recited steps. Thus, in *Prometheus*, the Supreme Court recognized that the additional steps were those that *anyone* wanting to use the natural law would *necessarily* use. *See Prometheus*, 132 S. Ct. at 1298. If, to implement the abstract concept, one *must* perform the additional step, then the step merely separately restates an element of the

abstract idea, and thus does not further limit the abstract concept to a practical application.⁵

C. Nature of Our Inquiry

Because we are assessing judicially created exceptions to a broad statutory grant, one of the principles that must guide our inquiry is that judge-made exceptions to properly enacted statutes are to be narrowly construed. Indeed, the Supreme Court has cautioned that, to avoid improper narrowing by courts of congressional enactments, resort to judge-made exceptions to statutory grants must be rare. *See, e.g., W. Union Tel. Co. v. Lenroot*, 323 U.S. 490, 514 (1945) (“[T]he judicial function does not allow us to disregard that which Congress has plainly and constitutionally decreed and to formulate exceptions which we think, for practical reasons, Congress might have made had it thought more about the problem.”); *United States v. Rutherford*, 442 U.S. 544, 559 (1979) (“Whether, as a policy matter, an exemption should be created is a question for legislative judgment, not judicial inference.”).

⁵ Judge Lourie’s opinion takes the reference to an “inventive concept” in *Prometheus* and imbues it with a life that is neither consistent with the Patent Act’s description of Section 101 nor with the totality of Supreme Court precedent regarding the narrow exceptions thereto. He concludes that “inventive concept” must refer to a “genuine human contribution to the claimed subject matter.” Lourie Op. at 20. He, thus, injects an “ingenuity” requirement into the abstract exception inquiry. It is inconceivable to us that the Supreme Court would choose to undo so much of what Congress tried to accomplish in the 1952 Patent Act, and to do so by the use of one phrase in one opinion.

Congress drafted Section 101 broadly and clearly, and anything beyond a narrow exception would be impermissibly in tension with the statute’s plain language and design. See *Chakrabarty*, 447 U.S. at 308 (“In choosing such expansive terms as ‘manufacture’ and ‘composition of matter,’ modified by the comprehensive ‘any,’ Congress plainly contemplated that the patent laws would be given wide scope.”); *id.* at 315 (“Broad general language is not necessarily ambiguous when congressional objectives require broad terms.”); *cf. Bilski*, 130 S. Ct. at 3226 (“This Court has not indicated that the existence of these well-established exceptions gives the Judiciary *carte blanche* to impose other limitations that are inconsistent with the text and the statute’s purpose and design.”). As the Supreme Court has made clear, too broad an interpretation of these exclusions from the statutory grant of Section 101 “could eviscerate patent law.” *Prometheus*, 132 S. Ct. at 1293. It is particularly important that Section 101 not be read restrictively to exclude “unanticipated inventions” because the most beneficial inventions are “often unforeseeable.” See *Chakrabarty*, 447 U.S. at 316; see also *J.E.M. Ag Supply*, 534 U.S. at 135 (describing Section 101 as “a dynamic provision designed to encompass new and unforeseen inventions.”). Broad inclusivity is the Congressional goal of Section 101, not a flaw. Judicially created exceptions must not be permitted to thwart that goal.

Mindful of these admonitions, we turn to CLS Bank’s contention that the presumption of validity should not apply to patent eligibility challenges. CLS Bank contends that the presumption of validity only applies to *statutory* bases for invalidating a patent—35 U.S.C. Sections 102, 103, 112, and 251. Thus, although the Supreme Court invalidated the patent before it in *Prometheus* because it fell within one of the exceptions to patent eligibility—the law of nature exception—CLS Bank contends that the Section 101 inquiry does not involve the presumption of

validity in the same way the statutory bases for invalidity do. We disagree.⁶

Before issuing a patent, the Patent Office rejects claims if they are drawn to ineligible subject matter, just as it rejects claims if not compliant with Sections 102, 103, or 112. Thus, when a patent issues, it does so after the Patent Office assesses and endorses its eligibility under Section 101, just as it assesses and endorses its patentability under the other provisions of Title 35. See *Microsoft Corp. v. i4i Ltd. P'ship*, 131 S. Ct. 2238, 2242, (2011) (“Congress has set forth the prerequisites for issuance of a patent, which the PTO must evaluate in the examination process. To receive patent protection a claimed invention must, among other things, fall within one of the express categories of patentable subject matter, § 101, and be novel, § 102, and nonobvious, § 103.”). We see no reason not to apply the same presumption of validity to that determination as we do to the Patent Office’s other patentability determinations.

Because we believe the presumption of validity applies to all challenges to patentability, including those under Section 101 and the exceptions thereto, we find that any attack on an issued patent based on a challenge to the eligibility of the subject matter must be proven by clear and convincing evidence. *Cf. Microsoft*, 31 S. Ct. at 2242 (“We consider whether § 282 requires an invalidity defense to be proved by clear and convincing evidence. We hold that it does.”). We believe, moreover, that appli-

⁶ In its reply brief, CLS Bank intimates that the presumption of validity does not apply because a challenge to patent eligibility is not a listed defense to infringement under 35 U.S.C. § 282(b). This issue, however, was not fully briefed by the parties and, accordingly, we do not address it.

cation of this presumption and its attendant evidentiary burden is consistent with the Supreme Court’s admonition to cabin the judicially created exceptions to Section 101 discussed above.

With these principles in mind, we turn to the specific claims here. We start with the system claims, which all four of us agree are patent-eligible.

IV

At the outset, a computer-implemented invention is eligible for patenting under Section 101. Computers are “machines.” Machines are expressly eligible subject matter under Section 101. Having said that, however, were it not for software, programmable computers would be useless. A computer without software collects dust, not data. The operation of the software changes the computer, altering its ability to perform one function or another as the software indicates. This court long ago recognized that a computer programmed to perform a specific function is a new machine with individualized circuitry created and used by the operation of the software. *See Alappat*, 33 F.3d at 1545. The combination of machine and software “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.” *Id.*; *see Morse*, 56 U.S. (15 How.) at 113 (“[H]e says he does not confine his claim to the machinery or parts of machinery, which he specifies”); *cf. Bilski*, 130 S. Ct. at 3227 (an important clue that a claim embracing an abstract idea is patent eligible is if its use is tied to a machine).

The combination of new software and a computer machine accomplishes wonders by reducing difficult processes—like determining where someone is on the earth, instantly translating Chinese to English, or performing hundreds of functions in a hand-held device called a “smart phone”—into a series of simple steps. For example, the Supreme Court upheld precisely this kind of combination for the computer-implemented parameters to run a rubber press—breaking the known steps into tiny mathematical calculations that advanced a known function beyond prior capabilities. *See Diehr*, 450 U.S. at 179. Indeed, much of the innovative energy and investment of the past few decades have focused on software improvements that have produced revolutions in modern life, including the “smart phone.”

Nonetheless we must examine whether, despite falling within the plain language of Section 101, clear and convincing evidence shows that a claim to a computer-implemented invention is barred from patent eligibility by reason of the narrow judicial prohibition against claiming an abstract idea. In *Bilski*, the Court analyzed whether, and under what circumstances, a method claim’s tie to a machine could make it a practical application of the underlying idea, and thus patent-eligible. The Court explained that a machine tie, though not required, is a “useful and important clue” that a method claim is patent-eligible. *Bilski*, 130 S. Ct. at 3227. If tying a method to a machine can be an important indication of patent-eligibility, it would seem that a claim embodying the *machine itself*, with all its structural and functional limitations, would rarely, if ever, be an abstract idea. *Cf. Diehr*, 450 U.S. at 187.

Indeed, in theory, an inventor could claim a machine combination with circuitry, transistors, capacitors, and other tangible electronic components precisely arrayed to accomplish the function of translating Chinese to English.

These complex interrelated machine components would squarely fit within the terms of Section 101 and involve nothing theoretical, highly generalized, or otherwise abstract. The fact that innovation has allowed these machines to move from vacuum-tube-filled specialized mechanical behemoths, to generalized machines changed by punch cards, to electronically programmable machines that can fit in the palm of your hand, does not render them abstract.⁷

Analyzing each asserted system claim as a whole, as we are required to do, demonstrates that each does not claim anything abstract in its machine embodiments. Especially in light of the fact that this appeal involves summary judgment of invalidity, and so requires clear and convincing evidence of invalidity, for the following reasons we would reverse the district court.

⁷ We must disagree with Judge Lourie that a computer must do something other than what a computer does before it may be considered a patent-eligible invention. *See* Lourie Op. at 27 (“At its most basic, a computer is just a calculator capable of performing mental steps faster than a human could. Unless the claims require a computer to perform operations that are not merely accelerated calculations, a computer does not itself confer patent eligibility.”). Everything done by a computer can be done by a human. Requiring a computer to do something that a human could not would mean that computer implementation could never produce patent eligibility. If a computer can do what a human can in a better, specifically limited way, it could be patent eligible. Indeed, even an increase in speed alone may be sufficient to result in a meaningful limitation; if a computer can perform a process that would take a human an entire lifetime, a claim covering that solution should be sufficiently limited to be patent eligible.

V

Claim 26 of the '375 Patent is typical of Alice's system claims and recites:

A data processing system to enable the exchange of an obligation between parties, the system comprising:

a communications controller,

a first party device, coupled to said communications controller,

a data storage unit having stored therein

(a) *information about a first account for a first party, independent from a second account maintained by a first exchange institution, and*

(b) *information about a third account for a second party, independent from a fourth account maintained by a second exchange institution; and*

a computer, coupled to said data storage unit and said communications controller, that is configured to

(a) *receive a transaction from said first party device via said communications controller;*

(b) *electronically adjust said first account and said third account in order to effect an exchange obligation arising from said transaction between said first party and*

said second party after ensuring that said first party and/or said second party have adequate value in said first account and/or said third account, respectively; and

(c) *generate an instruction* to said first exchange institution and/or said second exchange institution to adjust said second account and/or said fourth account in accordance with the adjustment of said first account and/or said third account, wherein said instruction being an irrevocable, time invariant obligation placed on said first exchange institution and/or said second exchange institution.

'375 Patent claim 26 (emphases added).

Even viewed generally, the claim covers the use of a computer and other hardware specifically programed to solve a complex problem. Specifically, the claimed data processing system is limited to an implementation of the invention that includes at least four separate structural components: a *computer*, a first party *device*, a data storage *unit*, and a communications *controller* coupled via machine components to the computer and the first party device. The claim further limits the system by requiring a structural configuration that “receive[s],” “electronically adjust[s],” and “generate[s]” according to the specific requirements of the system. These are traditional hardware claims and the '375 Patent discloses at least thirty-two figures which provide detailed algorithms for the software with which this hardware is to be programmed.

Lest it be said that these structural and functional limitations are mere conventional post-solution activity that is not integral to the performance of the claimed system, the specification explains implementation of the

recited special purpose computer system. It states, for example, that the “core of the system hardware is a collection of data processing units.” ’375 Patent col. 7 ll. 22–23. Each processing unit “is operably connected with . . . one or more mass data storage units . . . to store all data received from stakeholders, and other data relating to all other software operations generating or retrieving stored information.” *Id.* col. 7 ll. 39–43. The specification also explains that the communications controllers “effect communications between the processing units . . . and the various external hardware devices used by the stakeholders to communicate data or instructions to or from the processing units.” *Id.* col. 7 ll. 46–52. The computer can connect to the communications controller by means of another machine, a modem. *Id.* col. 7 ll. 57–60.

The specification also includes numerous flowcharts that provide algorithm support for the functions recited in the claims. Each processor in the claimed system runs applications software that is written to implement the algorithms in Figures 8 to 16 and 18 to 40. *See id.* col. 7 ll. 26–31. As just one example, the system performs the algorithm depicted in Figure 16 (shown below) to confirm that parties are able to exchange obligations (“matched order confirmation”). *See, e.g., id.* col. 20 l. 54 – col. 21 l. 18.

The specification states that the confirmation algorithm includes the step of “creating transactions in the payment shadow file.” *Id.* col. 20 ll. 62–64. This step corresponds to blocks 1624 and 1625 in Figure 16. After creating these transactions, the system “checks that ‘consideration payment’ was effected successfully” (block 1626 in Figure 16), which requires determining whether the required consideration amount is available in the payment shadow file. *Id.* col. 20 l. 64–col. 21 l. 1. If there is insufficient consideration, the matched order is rejected (block 1627). *Id.* col. 21 ll. 1–4. This portion of the specification thus provides algorithm support for the “electronically adjust” element of claim 26, in which the system adjusts accounts “after ensuring that said first party and/or said second party have adequate value in” their accounts. *Id.* claim 26.

Labeling this system claim an “abstract concept” wrenches all meaning from those words, and turns a narrow exception into one which may swallow the expansive rule (and with it much of the investment and innovation in software). Nor is claim 26 even the narrowest, most detailed claim on appeal. The patents at issue contain dependent claims which include additional structural and functional limitations that render the system even more concrete. Claim 36, for example, further comprises “means for allowing said first party to acquire an item from said second party, wherein the exchange obligation relates to said item.” This means-plus-function element is limited to the specific algorithms that the specification teaches as performing the recited function. Dependent claim 37 limits the data processing system to one that “further compris[es] a second party device, wherein said computer is further configured to receive a transaction from said second party device via said communications controller.” This adds a fifth structure, the second party device, to the required system.

The '720 Patent's claims recite similar structure and programming. The claims recite a data processing system comprising a data storage unit coupled to a computer. *See, e.g.*, '720 Patent claim 1. The computer is configured (programmed) to perform the "receive," "electronically adjust," and "generate" functions. *Id.* Certain dependent claims add additional structural and functional limitations that show even more clearly that the claims are directed to a concrete and practical application of any underlying idea. Claims 27, 59, 67, 79, and 84, for example, limit the system to one with "means for allowing said first party to acquire an item from said second party." The specific structure and functions recited in these claims, which are integral to performing the invention, show that the '720 Patent's claims are directed to practical applications of the underlying idea and thus are patent-eligible.

The claims do not claim only an abstract concept without limitations that tie it to a practical application. Confirming this, someone can use an escrow arrangement in many other applications, without computer systems, and even with computers but in other ways without infringing the claims. *See* Appellant's En Banc Resp. Br. 40. Nor is this simply a case where a claim has been limited to a particular field. *Cf. Bilski*, 130 S. Ct. at 3231. Indeed, because they require a machine, the claims cannot be infringed even in this field, and even if a human performs the claimed steps through a combination of physical or mental steps. It would be improper for the court to ignore these limitations and instead attempt to identify some "gist" or "heart" of the invention. *See Diehr*, 450 U.S. at 188 (it is improper to dissect the claims; they must be considered as a whole); *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 345 (1961) ("[T]here is no legally recognizable or protected 'essential' element, 'gist' or 'heart' of the invention.").

We next test the additional elements in addition to any abstract idea of an escrow present in the claim. The recited steps are not inherent in the process of using an escrow. One can conduct an escrow without a data processing system that includes a data storage unit coupled to a computer which has been modified by software to receive transactions, adjust records, and generate electronic instructions according to specific structural limitations in both software and hardware formats. These structural elements are additional steps to an escrow, not inherent in it.

Further, we detect no clear and convincing evidence in this record that as of the critical time the steps recited were used commonly in computer implemented prior art practicing the abstract concept implicated here. As explained above, whether the additional steps were routine in some other context is not the inquiry: a combination of old processes is patent eligible subject matter. 35 U.S.C. § 100(b). As discussed above, nonobviousness is not an issue under Section 101; neither is “invention.” Instead, the question is whether these steps are inherent in an escrow. This record contains no clear and convincing evidence to that effect. Instead, much of the information relied upon by CLS Bank is not even “prior art,” especially given that some claims may have priority to the early 1990’s. *See* Respondent’s Br. at 28. A use of a computer is not inherent in an escrow, and the record gives no reason to conclude that use of machines in the specific claimed system would “involve well-understood, routine, conventional activity previously engaged in by researchers in the field.” *Prometheus*, 132 S. Ct. at 1294. Rapid changes in computer and telecommunication technology occurred in the early 1990’s. While apparently routine at the present time to use computers to perform instantaneous international financial transactions, this court will not engage in the hindsight error of speculating about the state of that technology over twenty years ago.

Finally, these limitations are not stated at a high level of generality. These system limitations do not recite only using the steps of an escrow as applied to a particular field of commerce. Because of the number and specificity of the structural limitations, these claims have narrow, if any, relevant pre-emptive effect. Under Section 101, even a process made up of old processes is patent eligible; so too must be a new machine made to perform even old processes.

The claims here are analogous to those found patent eligible in *Diehr*. The claims related to a method that used a machine, an abstract idea, and other steps to cure rubber. *See Diehr*, 450 U.S. at 179 n.5. The examiner rejected the claims because he deemed the additional steps were “conventional and necessary to the process.” *Id.* at 180-81 (internal quotation marks omitted). Those steps included steps that sound utterly old and routine: “heating said mold,” “comparing” data, “constantly determining the temperature of the mold,” “repetitively calculating,” and “opening the press.” *Id.* at 179 n.5. Indeed, even the Arrhenius equation was well-known in the art, but in combination was eligible.

The Supreme Court acknowledged these fact findings about the known status of various elements of the claim in *Diehr*, but it nonetheless reversed. It stated that the claims were patent eligible because they were “drawn to an industrial process for the molding of rubber products.” *Id.* at 192–93. In doing so, the Court explained that the claims “describe[d] a process of curing rubber beginning with the loading of the mold and ending with the opening of the press and the production of a synthetic rubber product.” *Id.* at 193 n.15. Indeed, the computer system supplied the speed, accuracy, reliability, and automaticity that enhanced and applied the known rubber molding process and formulae. Moreover, as the Supreme Court also explained in *Bilski*, a method linked to a machine

exhibits a “useful and important clue” that even the process alone (let alone a system claim that expressly recites complex machine combinations) is patent-eligible. *Bilski*, 130 S. Ct. at 3227.

Here, the claim recites a machine and other steps to enable transactions. The claim begins with the machine acquiring data and ends with the machine exchanging financial instructions with other machines. The “abstract idea” present here is not disembodied at all, but is instead integrated into a system utilizing machines. In sum, the system claims are indistinguishable from those in *Diehr*. For these reasons, the system claims are not directed to patent ineligible subject matter. We would therefore reverse the summary judgment of invalidity for ineligibility of the system claims and remand them for further consideration.

VI

Claim 33 of the '479 Patent is representative of the method claims and recites:

A method of exchanging obligations as between parties, each party holding a credit record and a debit record with an exchange institution, the credit records and debit records for exchange of predetermined obligations, the method comprising the steps of:

- (a) creating a shadow credit record and a shadow debit record for each stakeholder party to be held independently by a supervisory institution from the exchange institutions;
- (b) obtaining from each exchange institution a start-of-day balance for each shadow credit record and shadow debit record;

(c) for every transaction resulting in an exchange obligation, the supervisory institution adjusting each respective party's shadow credit record or shadow debit record, allowing only these [sic] transactions that do not result in the value of the shadow debit record being less than the value of the shadow credit record at any time, each said adjustment taking place in chronological order; and

(d) at the end-of-day, the supervisory institution instructing one of the exchange institutions to exchange credits or debits to the credit record and debit record of the respective parties in accordance with the adjustments of the said permitted transactions, the credits and debits being irrevocable, time invariant obligations placed on the exchange institutions.

'479 Patent col. 65 ll. 23–50. Alice concedes that claims 39 to 41 of the '375 Patent rise or fall with the method claims, and so we will not separately analyze them. Petitioner's Br. 50 n.3.

At the outset, the invention claims a “process.” By definition, a process is statutory subject matter under Section 101—whether or not the recited elements are “old.” 35 U.S.C. § 100(b). Thus, the inquiry shifts to seek clear and convincing evidence that the claim, nonetheless, is ineligible for patenting because it falls within one of the judicial exceptions. Here, the question asks whether the claim is abstract.

The claim describes the general and theoretical concept of using a neutral intermediary in exchange transactions to reduce risk that one party will not honor the deal, *i.e.*, an escrow arrangement. The record in this case

shows that this area of art has used the fundamental concept of an intermediary in this context for centuries, if not longer. *See* Petitioners’ Br. 36. Thus, this claim embodies elements of abstractness which propel this court into a further examination of its eligibility. Obviously, the claim does not simply state “use an escrow.” Consequently, we must determine whether the recited steps are inherent in an escrow and claimed at a high level of generality, such that in fact the claim is not to a practical application of the concept of an escrow, but in effect claims the abstract concept of an escrow. If this claim exhibits those infirmities, it is likely to also exhibit a broad pre-emptive effect. Thus, we turn to the additional limitations.

The first claimed step involves creating shadow credit and debit records for the parties to the transaction. This highly generalized step is nothing but a recitation of a step inherent in the concept of an escrow. Further, the record again shows that bookkeepers have long kept track of accounts in this fashion as a basic form of bookkeeping. Appellant’s Br. 39 (citing Richard A. Brown, *A History of Accounting and Accountants* 93 (1905)). The step is not just predominant in the prior art, but an inherent part of any escrow arrangement.

The second claimed step involves obtaining the values for the previously created accounts to allow for their later manipulation. This generalized step is also inherent in the concept of an escrow. To determine the credit to one party and the debit to the other requires a starting place for the adjustments. *Cf. Bilski*, 130 S. Ct. at 3231 (holding claim not directed to patent-eligible subject matter because establishing “inputs” for the equation required done according to well-known techniques). This step only recites another inherent feature of an escrow. Similarly, the third step involves adjusting the account balances to reflect the parties’ trading activity. The fourth step

likewise adds nothing beyond the well-known procedures used in the concept of an escrow: an instruction to pay or deduct funds is made. Again, the record shows that an intermediary cannot perform an escrow arrangement without either paying or ordering someone to pay the proper amounts.

Thus, each step individually recites merely a general step inherent within the concept of an escrow, using a third party intermediary in this fashion. While the claim certainly limits use of an escrow to the context of this particular field, that attempted limitation is not enough. *Cf. Bilski*, 130 S. Ct. at 3231 (stating that “limiting an abstract idea to one field of use or adding token post-solution components did not make the concept patentable”); *see Flook*, 437 U.S. at 586 (explaining that other steps in the process did not limit the claim to a particular application, even though they applied generally to hydrocarbon conversion processes).

Finally, we note that the method claims do not mention a computer. *CLS Bank*, 768 F. Supp. 2d at 236. Even so, the district court assumed “the single fact” that the “method claims are implemented by computer” *Id.* Putting to the side whether this construction was correct, *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc) (courts generally should not read limitations from the specification into a claim), even assuming the method claims require use of a computer in some unspecified way, this implicit reference to computer “implementation” is not, by itself, enough.

To sum up, the claim as a whole embraces using an escrow to avoid risk of one party’s inability to pay—an abstract concept. Viewed as a whole, the claim is indistinguishable from the claim in *Bilski*, 130 S. Ct. at 3231. Viewed individually, the recited elements only recite the steps inherent in that concept (stated at a high level of

generality) and implement those steps according to methods long used in escrows according to the record in this case. As explained, the attempt to limit the escrow concept to a particular field is not sufficient. *See id.* Thus, like Judge Lourie, we would hold the method claims in this case are not eligible under Section 101, but would do so for different reasons than he articulates.

VII

For the reasons stated above, Chief Judge Rader and Judges Linn, Moore, and O'Malley would reverse the district court's determination that the system claims address subject matter that is not patent eligible. Chief Judge Rader and Judge Moore, however, would affirm the district court's conclusion that the method and media claims are patent ineligible. Chief Judge Rader and Judge Moore, thus, dissent in part and concur in part in the judgment the court enters today.

Judges Linn and O'Malley believe that, if the method claims could be interpreted as in part VI, they would be patent ineligible. But, for the reasons stated in their separate opinion, they believe that, as properly construed on this record and in this procedural posture, the method claims are patent eligible. Accordingly, they dissent from all aspects of the judgment the court enters today.

With these results in mind, all four of us would remand for further consideration of the conditions and requirements of the Patent Act and further proceedings, as appropriate.

**United States Court of Appeals
for the Federal Circuit**

CLS BANK INTERNATIONAL,
Plaintiff-Appellee,

AND

CLS SERVICES LTD.,
Counterclaim-Defendant-Appellee,

v.

ALICE CORPORATION PTY. LTD,
Defendant-Appellant.

2011-1301

Appeal from the United States District Court for the District of Columbia in Case No. 07-CV-0974, Judge Rosemary M. Collyer.

Decided: May 10, 2013

Dissenting-in-part opinion filed by MOORE, *Circuit Judge*, in which RADER, *Chief Judge*, and LINN and O'MALLEY, *Circuit Judges*, join.

I am concerned that the current interpretation of § 101, and in particular the abstract idea exception, is

causing a free fall in the patent system. The Supreme Court has taken a number of our recent decisions and, in each instance, concluded that the claims at issue were not patent-eligible. *See Bilski, Prometheus, Myriad* (under consideration). Today, several of my colleagues would take that precedent significantly further, lumping together the asserted method, media, and system claims, and holding that they are all patent-ineligible under § 101. Holding that all of these claims are directed to no more than an abstract idea gives staggering breadth to what is meant to be a narrow judicial exception. And let's be clear: if all of these claims, including the system claims, are not patent-eligible, this case is the death of hundreds of thousands of patents, including all business method, financial system, and software patents as well as many computer implemented and telecommunications patents.¹

¹ If all of the claims of these four patents are ineligible, so too are the 320,799 patents which were granted from 1998-2011 in the technology area "Electrical Computers, Digital Processing Systems, Information Security, Error/Fault Handling." *See* U.S. Patent & Trademark Office, Selected Technology Report, *available at* http://www.uspto.gov/web/offices/ac/ido/oeip/taf/ec_dps_is_efh.htm. Every patent in this technology category covers inventions directed to computer software or to hardware that implements software. In 2011 alone, 42,235 patents were granted in this area. *Id.* This would render ineligible nearly 20% of all the patents that actually issued in 2011. If the reasoning of Judge Lourie's opinion were adopted, it would decimate the electronics and software industries. There are, of course, software, financial system, business method and telecom patents in other technology classes which would also be at risk. So this is quite frankly a low estimate. There has never been

My colleagues believe that the trajectory the Supreme Court has set for § 101 requires us to conclude that *all* of the claims at issue here are directed to unpatentable subject matter. Respectfully, my colleagues are wrong.

To get to their conclusion, my colleagues trample upon a mountain of precedent that requires us to evaluate each claim as a whole when analyzing validity. As the Supreme Court recognized in *Bilski*, whether a claim is tied to a machine is “an important and useful tool” for assessing that it is directed to patent eligible subject matter. *Bilski v. Kappos*, 130 S. Ct. 3218, 3227 (2010). The claimed data processing system at issue here does not incorporate a machine into the claim in a manner that would constitute insignificant pre- or post-solution activity. These claims are to a system of tangible machine components with limited specialized functions programmed consistent with detailed algorithms disclosed in the patent. How can this system, with its first party device, data storage unit, second party device, computer, and communications controller, be an “abstract idea”? Although these claims could certainly be challenged under § 102 or § 103 or even § 112, no contortion of the term “abstract idea” can morph this physical system into an abstract idea.

Our court is irreconcilably fractured over these system claims and there are many similar cases pending before our court and the district courts. It has been a very long time indeed since the Supreme Court has taken a case which contains patent eligible claims. This case presents the opportunity for the Supreme Court to distinguish between claims that *are* and *are not* directed to patentable subject matter. For the reasons explained herein, I write separately to explain why the system

a case which could do more damage to the patent system than this one.

claims at issue are directed to patent eligible subject matter.

I.

Although the Supreme Court’s recent decisions in *Prometheus* and *Bilski* do not address system claims, they certainly provide guidance on the abstract idea exception. In *Bilski*, the Court held that claims directed to a method of hedging risk in the energy market were not patent-eligible because they covered no more than an abstract idea. 130 S. Ct. at 3231. The Court held that while the machine-or-transformation test is not the “sole test” for deciding whether an invention is patent eligible, it “is a useful and important clue.” *Id.* at 3227. *Bilski* makes clear the Court’s view that a method claim may be patent-eligible under § 101 *even if* it is not tied in any way to a machine. *Id.* The Court reasoned that requiring a machine tie would risk stifling innovation by “creat[ing] uncertainty as to the patentability of software, advanced diagnostic medicine techniques, and inventions based on linear programming, data compression, and the manipulation of digital signals.” *Id.*

Although the Court held that a machine tie is not *necessary*, it explained that a method claim’s recitation of machine limitations is a “useful and important clue” that the claim is patent-eligible. *Id.* This is because incorporating machine elements, such as computer hardware, helps to limit the claim to a practical application of any underlying idea. It is true that, if the machine is mere insignificant post-solution activity or data gathering antecedent to performance of a claimed method, then its incorporation into a claim to an otherwise patent-ineligible abstract idea would not be sufficient to avoid the abstract idea exception to patent-eligibility. *See Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1301 (2012); *Bilski*, 130 S. Ct. at 3231. But if meaningfully tying a method to a machine can be an

important indication of patent-eligibility, how can a claim to the *machine itself*, with all its structural and functional limitations, *not* be patent-eligible?

In *Prometheus*, the Court held that claims directed to a method of optimizing therapeutic efficacy of a drug were not patent-eligible. *Prometheus*, 132 S. Ct. at 1305. The Court, however, also cautioned that “too broad an interpretation” of the abstract idea exception to § 101 “could eviscerate patent law” because “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Id.* at 1293. The Court thus reiterated the rule from *Diehr* that, although an abstract idea itself is not patent-eligible, “an application of a law of nature or mathematical formula to a *known structure* or process may well be deserving of patent protection.” *Id.* at 1293-94. This distinction between an abstract idea and its application reflects a delicate balance between promoting innovation through patents and preventing monopolization of the basic tools of scientific and technological work. *Id.* at 1293, 1301-02. The key question is thus whether a claim recites a sufficiently concrete and practical application of an abstract idea to qualify as patent-eligible.

Prometheus instructs us to answer this question by determining whether a process involving a natural law or abstract idea also contains an “inventive concept,” which it defined as “other elements or a combination of elements . . . sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the natural law itself.” *Id.* at 1294. The Court reiterated that the “inventive concept” must be something more than limiting the invention to a particular technological environment or adding data-gathering steps or other insignificant post-solution activity. *Id.* at 1294, 1299. In other words, “one must do more than simply state the law of nature while adding the words ‘apply it.’” *Id.* at 1294. This language is a reminder of the long-understood prin-

ciple that adding insignificant pre- or post-solution activity to an abstract idea does not make the claim any less abstract. See, e.g., *Diehr*, 450 U.S. at 191-92 (“[I]nsignificant post-solution activity will not transform an unpatentable principle into a patentable process.”); *Parker v. Flook*, 437 U.S. 584, 590 (1978) (“The notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance.”).

My colleagues erroneously apply *Prometheus*’s “inventive concept” language by stripping away all known elements from the asserted system claims and analyzing only whether what remains, as opposed to the claim as a whole, is an abstract idea. See *Lourie Op.* at 35-36. From this flawed analysis, they conclude that “the system claims are little different” from the asserted method claims. *Lourie Op.* at 34. This approach is inconsistent with the 1952 Patent Act, and years of Supreme Court, CCPA, and Federal Circuit precedent that abolished the “heart of the invention” analysis for patentability.

Moreover, my colleagues’ analysis imbues the § 101 inquiry with a time-dependency that is more appropriately the province of §§ 102 and 103. It is true that the analyses of patent-eligibility under § 101 and novelty under § 102 may sometimes overlap. See *Prometheus*, 132 S. Ct. at 1304. But § 101 is not a moving target—claims should not become abstract simply through the passage of time. Under my colleagues’ approach, however, a system claim that passes § 101 when the patent issues could later magically transform into an abstract idea simply because certain computer hardware elements no longer seem inventive.

Bilski and *Prometheus* follow on a long line of Supreme Court cases that distinguish between machine claims and method claims on the basis that a machine covers an *application* of any underlying idea rather than

the idea itself. For example, although a claim's statutory class is not dispositive of the § 101 inquiry, the Supreme Court explained in *Burr v. Duryee* that a machine is a concrete thing, not an idea:

A machine is a concrete thing, consisting of parts, or of certain devices and combinations of devices. The principle of a machine is properly defined to be 'its mode of operations,' or that peculiar combination of devices which distinguish it from other machines. A machine is not a principle or an idea.

68 U.S. (1 Wall.) 531, 570 (1863) (emphases added). The Court explained that, “[b]ecause the law requires a patentee to explain the mode of operation of his peculiar machine, which distinguishes it from others, it does not authorize a patent for a ‘mode of operations as exhibited in a machine.’” *Id.* In other words, the requirement of specifying the particular limitations and structure of a claimed machine meaningfully limits the claim, such that it amounts to more than the principle or idea that it embodies. The Court later reiterated this distinction, stating that “[a] machine is a thing. A process is an act, or a mode of acting. The one is visible to the eye,—an object of perpetual observation. The other is a conception of the mind, seen only by its effects when being executed or performed.” *Expanded Metal Co. v. Bradford*, 214 U.S. 366, 384 (1909) (quoting *Tilghman v. Proctor*, 102 U.S. 707, 728 (1880)).

Our court, sitting en banc, applied these principles to hold patent-eligible a claim that would read on a general purpose computer programmed to carry out the operations recited in the claim. *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994) (en banc). We stated that, although many of the means-plus-function elements recited in the only asserted independent claim represent circuitry elements that perform mathematical calculations, “the claimed invention as a whole is directed to a combination

of interrelated elements which combine to form a machine” for performing the invention’s anti-aliasing technique. *Id.* at 1544. We explained that “[t]his is not a disembodied mathematical concept which may be characterized as an ‘abstract idea,’ but rather a specific machine.” *Id.* The patent applicant admitted that its claim “would read on a general purpose computer programmed to carry out the claimed invention.” *Id.* at 1545. We nonetheless held that the claim was patent-eligible under § 101, explaining that “such programming *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.” *Id.* (emphasis added). Judge Lourie’s opinion completely repudiates Judge Rich’s approach in *Alappat*. The two are not reconcilable.

The Supreme Court has never cast doubt on the patentability of claims such as those at issue in *In re Alappat* or the system claims at issue in this case. Indeed, *Alappat*’s reasoning is completely consistent with *Bilski*, *Prometheus*, and the Supreme Court’s other § 101 cases. Unlike a claim reciting a method and simply saying “apply it” on a general purpose computer, a system claim’s structural limitations restrict the claimed machine by requiring certain physical components. These concrete elements are precisely the sort of “inventive concept” that meaningfully limits the claim, preventing it from “tying up” the underlying abstract idea itself. Although the individual components themselves may not be new or innovative, the particular *combination* of components recited in the claim results in a brand new machine—a special purpose computer. *Id.*

Some simple examples illustrate these principles. Even though the concept of addition is an abstract idea, the first calculator that could perform addition was a patent-eligible machine under § 101. If someone subse-

quently discovered that, by rewiring the calculator, it could perform addition *and* subtraction (both abstract mathematical concepts), the improved calculator would similarly be patent-eligible. The act of modifying the circuitry of a known device such that it is configured to apply an abstract idea does not transform it *into* an abstract idea. If the subsequent inventor were able to reprogram the calculator to perform subtraction (rather than rewire it), it would still be directed to patent-eligible subject matter. That is what software does—it effectively rewires a computer, making it a special purpose device capable of performing operations it was not previously able to perform. Both the software and the computer running the software are patentable subject matter and should pass through the § 101 gate.

The parties in this case agree that if someone sought to patent a general purpose computer, it would satisfy § 101 (although it may fail § 102 or § 103). Why, then, would claiming the same computer with specific programming (thus creating a special purpose computer), transform a patent-eligible machine into a patent-ineligible abstract idea? A claim to a computer running particular software is no less a claim to a computer.

None of this is to suggest that system claims may never be abstract, or that merely adding a computer to a method step can transform a patent-ineligible claim into one that satisfies § 101. But a claim to a structurally defined machine is more than a method claim rewritten in system form. It is a practical application of the underlying idea, limited to the specific hardware recited and the algorithms disclosed to perform the recited functions.

III.

The only way to determine if Alice’s asserted system claims are merely directed to an abstract idea is to analyze each claim as a whole, looking at the language of the claims. Claim 1 of the ’375 patent, for example, recites:

A data processing system to enable the exchange of an obligation between parties, the system comprising:

a first party device,

a data storage unit having stored therein

(a) information about a first account for a first party, independent from a second account maintained by a first exchange institution, and

(b) information about a third account for a second party, independent from a fourth account maintained by a second exchange institution;

and *a computer*, coupled to said data storage unit, that is configured to

(a) *receive a transaction from said first party device;*

(b) *electronically adjust* said first account and said third account in order to effect an exchange obligation arising from said transaction between said first party and said second party after ensuring that said first party and/or said second party have adequate value in said first account and/or said third account, respectively; and

(c) *generate an instruction* to said first exchange institution and/or said second exchange institution to adjust said second account and/or said fourth account in accordance with the adjustment of said first account and/or said third account, wherein said instruction being an irrevocable, time invariant obligation placed on said first exchange insti-

tution and/or said second exchange institution.

'375 patent claim 1 (emphases added).

The claimed data processing system recites three structural components: a computer, a first party device, and a data storage device. The specification describes the invention: the “core of the system hardware is a collection of data processing units.” '375 patent col.7 ll.22-23. Each processing unit is operably connected to one or more mass data storage units. *Id.* col.7 ll.39-43.

The claimed data processing system is further limited to one that is configured to perform certain functions in a particular fashion: “receive a transaction from said first party device,” “electronically adjust” the parties’ accounts, and “generate an instruction.” The specification discloses numerous flow diagrams in Figures 8-16 and 18-40 that provide algorithm support for the software that performs these functions. '375 patent col.7 ll.29-33. The “flow charts in FIGS. 8 to 16 depict the processing flow of the matching system for primary product orders submitted by ordering party stakeholders” *Id.* col.16 ll.42-44. More specifically, Figures 11-15 provide an explanation of the process through which counterparties are matched (“order matching”). *Id.* col.17 ll.55-56. Figure 15 depicts the process of identifying a potential counterparty from a short list, and is a useful example of the level of detail that the specification provides regarding the claimed functions:

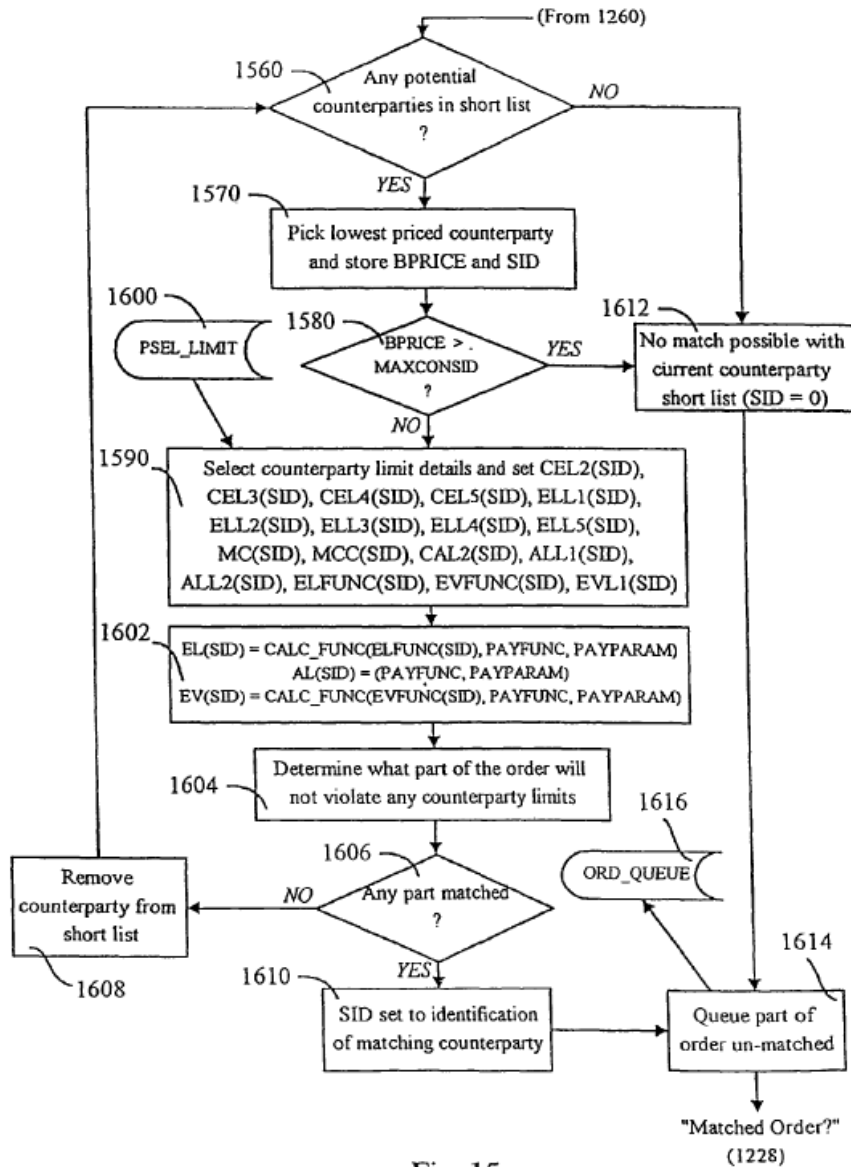


Fig. 15

The specification explains that this algorithm includes the steps of checking to make sure the counterparty short list is not empty and, if it is not, identifying the lowest priced counterparty on the short list. '375 patent col.19 ll.55-63. This corresponds to blocks 1560 and 1570 in

Figure 15. The system does this based on the counterparty's bid price (PRICE (SID)). *Id.* col.19 l.63-col.20 l.2. The system rejects matches in which the counterparty's bid price is greater than the ordering party's maximum price (block 1612). *Id.* col.20 ll.8-11. The system then checks the order against all of the applicable limits and calculates the portion of the order which will not violate the counterparty limits (blocks 1590, 1602, 1604, and 1606). *Id.* col.20 ll.18-37. If some portion of the order is matched, the system notes the identification of the matching counterparty and confirms the matched order using the process detailed in Figure 16 (the "matched order confirmation" process). *Id.* col.20 ll.41-49. The process depicted in Figure 15 and described in the specification is just one of the processes included in the claim element "receive a transaction from said first party device."

Looking at these hardware and software elements, it is impossible to conclude that this claim is merely an abstract idea. It is a pure system claim, directed to a specific machine configured to perform certain functions. Indeed, the computer covered by this claim is a tangible item that you could pick up and put on your desk. It is *not* a method claim simply disguised as a machine claim, nor does it incorporate the computer elements in an insignificant way. The asserted data processing systems claimed in the '720 and '375 patents recite additional structural limitations (including a second party device and a communications controller). And the dependent claims (which are also asserted and must be analyzed individually) limit the computer system even further. Some recite a "means for allowing said first party to acquire an item from said second party, wherein the exchange obligation relates to said item." *See, e.g.,* '375 patent claims 11, 24, and 36; *see also* '720 patent claims 27, 59, 67, 79, and 84. These claims expressly cover only the algorithm disclosed as a means for performing the acquisition, or equivalents thereof. *See, e.g., Aristocrat*

Techs. Austl. Pty Ltd. v. Int'l Game Tech., 521 F.3d 1328, 1333 (Fed. Cir. 2008). Judge Lourie's opinion does not individually analyze any of these claims. If these claims do not clear the § 101 hurdle, then the abstract idea exception will be an insurmountable bar for innovators of software, financial systems and business methods, as well as for those in the telecommunications field. Every software patent makes a computer perform different functions—that is the purpose of software. Each software program creates a special purpose machine, a machine which did not previously exist (assuming the software is novel). The machine ceases to be a general purpose computer when it is running the software. It does not, however, by virtue of the software it is running, become an abstract idea.

It bears repeating that the computer limitations in these claims are not insignificant pre- or post-solution activity. Nor does this conclusion “exalt form over substance” or allow the “draftsman's art” to dictate patent-eligibility. *Prometheus*, 132 S. Ct. at 1294. These are not just method claims masquerading as system claims—they are detailed, specific claims to a system of particular hardware programmed to perform particular functions. The computer in the system claims is the entire detailed “solution,” without which it would be impossible to achieve the invention's purpose. The *Bilski* court explained that substantial machine limitations would be a “useful and important clue” that method claims are patent-eligible. *See Bilski*, 130 S. Ct. at 3227. These claims are far more limited. They cover the machine *itself*; the machine *is* the invention.

It is important to remember that, regardless of whether we hold these claims to be *patent-eligible*, they may well fail to meet the other requirements for patent protection. Taking a known or abstract idea and simply putting it on a computer is likely not entitled to patent protection. Section 102's novelty or § 103's nonobvious-

ness requirements are the means to challenge a system claim that does no more than take a familiar, well known concept and put it on a computer. Or, if the claim is to a machine whose precise structure or method of operation is not sufficiently detailed (think perpetual motion machine), then § 112 would prevent patentability. When you walk up to the § 101 gate holding a computer in your arms (or software for that matter), you should not be rejected because your computer is an abstract idea.

For the reasons given above, I believe that Alice's asserted system claims are patent-eligible under § 101. I would thus reverse the district court's judgment with respect to those claims.

**United States Court of Appeals
for the Federal Circuit**

CLS BANK INTERNATIONAL,
Plaintiff-Appellee,

AND

CLS SERVICES LTD.,
Counterclaim Defendant-Appellee,

v.

ALICE CORPORATION PTY. LTD.,
Defendant-Appellant.

2011-1301

Appeal from the United States District Court for the District of Columbia in No. 07-CV-974, Judge Rosemary M. Collyer.

NEWMAN, *Circuit Judge*, concurring in part, dissenting in part.

The ascendance of section 101 as an independent source of litigation, separate from the merits of patentability, is a new uncertainty for inventors. The court, now rehearing this case en banc, hoped to ameliorate this uncertainty by providing objective standards for section 101 patent-eligibility. Instead we have propounded at least three incompatible standards, devoid of consensus,

serving simply to add to the unreliability and cost of the system of patents as an incentive for innovation. With today's judicial deadlock, the only assurance is that any successful innovation is likely to be challenged in opportunistic litigation, whose result will depend on the random selection of the panel.

Reliable application of legal principles underlies the economic incentive purpose of patent law, in turn implementing the benefits to the public of technology-based advances, and the benefits to the nation of industrial activity, employment, and economic growth. Today's irresolution concerning section 101 affects not only this court and the trial courts, but also the PTO examiners and agency tribunals, and all who invent and invest in new technology. The uncertainty of administrative and judicial outcome and the high cost of resolution are a disincentive to both innovators and competitors.

I

TODAY'S IMPASSE

In deciding to rehear the patent dispute between CLS Bank and Alice Corporation, the en banc court undertook to remedy distortions flowing from inconsistent precedent on section 101. This remedial effort has failed. This failure undoubtedly reflects the difficulty of the question; I suggest that it also demonstrates that an all-purpose bright-line rule for the threshold portal of section 101 is as unavailable as it is unnecessary. Experience over two centuries of United States patent law supports this conclusion.

Section 101 is not the appropriate vehicle for determining whether a particular technical advance is patentable; that determination is made in accordance with the rigorous legal criteria of patentability. Contrary to the diverse protocols offered by my colleagues, it is not necessary, or appropriate, to decide whether subject matter is

patentable in order to decide whether it is eligible to be considered for patentability.

This section 101 issue appears to have its foundation in a misunderstanding of patent policy, for the debate about patent eligibility under section 101 swirls about concern for the public's right to study the scientific and technologic knowledge contained in patents. The premise of the debate is incorrect, for patented information is not barred from further study and experimentation in order to understand and build upon the knowledge disclosed in the patent.

Judicial clarification is urgently needed to restore the understanding that patented knowledge is not barred from investigation and research. The debate involving section 101 would fade away, on clarification of the right to study and experiment with the knowledge disclosed in patents.

These issues have arisen in connection with today's newest fields of science and technology; that is, computer-based and related advances, and advances in the biological sciences. These fields have spawned today's dominant industries, and produced spectacular benefits. I have seen no competent analysis of how these technologies and industries would be affected by a fundamental reduction in patent-eligibility. Dramatic innovations, and public and economic benefits, have been achieved under the patent law as it has existed.

Thus I write separately to propose that the court resolve the present impasse by returning to the time-tested principles of patent law. I propose that the court reaffirm three basic principles relating to section 101, as follows:

1. *The court should hold that section 101 is an inclusive statement of patent-eligible subject matter*— I propose that the court reaffirm that patent-eligible subject matter is as stated in the patent statute. The

court should acknowledge the statutory purpose of section 101, to provide an inclusive listing of the “useful arts.” Then, upon crossing this threshold into the patent system, examination of the particular subject matter on the substantive criteria of patentability will eliminate claims that are “abstract” or “preemptive,” on application of the laws of novelty, utility, prior art, obviousness, description, enablement, and specificity. There is no need for an all-purpose definition of “abstractness” or “preemption,” as heroically attempted today.

2. *The court should hold that the form of the claim does not determine section 101 eligibility*– I propose that the court make clear that patent eligibility does not depend on the form of the claim, whether computer-implemented innovations are claimed as a method or a system or a storage medium, whether implemented in hardware or software. Patent eligibility does not turn on the ingenuity of the draftsman. The differences among my colleagues’ views of this aspect simply add to the instability and uncertainty of patenting and enforcement.

3. *The court should confirm that experimental use of patented information is not barred*– Misunderstanding of this principle appears to be the impetus for the current debate, for the popular press, and others who know better, have stated that patented subject matter cannot be further studied. This theory is presented to support section 101 ineligibility, on the reasoning that important discoveries should be ineligible for patenting so that they can be further studied. I propose that the court reaffirm the long-standing rule that study and experimentation are not infringement, whether the experimentation is for basic or applied purposes.

On adoption of these principles the law of section 101 will be stabilized, and patentability can continue to be determined in accordance with statute and precedent.

II

EXPERIMENTAL USE OF PATENTED INFORMATION

I start with this issue, for the misperception that study of patented subject matter is precluded, has placed a misdirected spin on section 101.

The idea that experimentation with patented information is restricted is the basis of the view that patenting inhibits scientific advance. For example, the Court stated in *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1301 (2012) that “there is a danger that the grant of patents that tie up their use will inhibit future innovation premised upon them, a danger that becomes acute when a patented process amounts to no more than an instruction to ‘apply the natural law,’ or otherwise forecloses more future invention than the underlying discovery could reasonably justify.”

However, the Court has recognized that “[t]he federal patent system thus embodies a carefully crafted bargain for encouraging the creation and disclosure of new, useful, and unobvious advances in technology and design in return for the exclusive right to practice the invention for a period of years.” *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150–51 (1989). See *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int’l, Inc.*, 534 U.S. 124, 142 (2001) (“The disclosure required by the Patent Act is ‘the *quid pro quo* of the right to exclude.”); *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 484 (1974) (same).

This disclosure is available to produce further advance, on further study and experimentation. The Court long ago recognized that the scientific and technological information in patents may be studied, evaluated, tested, improved upon, compared, etc., as explained by Justice Story in *Whittemore v. Cutter*:

It could never have been the intention of the legislature to punish a man, who constructed such a

machine merely for philosophical¹ experiments, or for the purpose of ascertaining the sufficiency of the machine to produce its described effects.

29 F. Cas. 1120, 1121 (C.C.D. Mass. 1813). The Court reiterated this principle in *Graham v. John Deere Co.*, referring to the “inherent requisites in a patent system”:

Innovation, advancement, and things which add to the sum of useful knowledge are inherent requisites in a patent system which by constitutional command must “Promote the Progress of . . . useful Arts.” This is the standard expressed in the Constitution and it may not be ignored.

383 U.S. 1, 6 (1966) (ellipses in original). The reference to “useful knowledge” cannot mean that the knowledge disclosed in patents is untouchable for seventeen years.

The Federal Circuit has reaffirmed that “patenting does not deprive the public of the right to experiment with and improve upon the patented subject matter.” *In re Rosuvastatin Patent Litig.*, 703 F.3d 511, 527 (Fed. Cir. 2012). However, in *Embrex, Inc. v. Service Engineering Corp.*, 216 F.3d 1343, 1349 (Fed. Cir. 2000), the court stated that the experimental use defense was “very narrow” and unavailable when “the inquiry has definite, cognizable, and not insubstantial commercial purpose,” the concurrence adding that “neither the statute nor any past Supreme Court precedent gives any reason to excuse infringement because it was committed with a particular purpose or intent, such as for scientific experimentation,” *id.* at 1353. Precedent does not support this theory.

¹ “Philosophical” means “scientific” in the language of that era. *Integra Lifescience I, Ltd. v. Merck KGaA*, 331 F.3d 860, 874–75 n.8 (Fed. Cir. 2003) (Newman, J., dissenting).

The right to study and experiment, to evaluate and improve upon the information in patents was discussed by our predecessor Court of Claims in *Ordnance Engineering Corp. v. United States*, 84 Ct. Cl. 1 (1936) and in *Chesterfeld v. United States*, 159 F. Supp. 371 (Ct. Cl. 1958), the court explaining that experimentation does not infringe the patent. Factual distinctions may arise, as in *Pitcairn v. United States*, 212 Ct. Cl. 168 (1976), where the Court of Claims held that of 2200 infringing helicopters, the use of 93 helicopters for testing or demonstration was not an “experimental use,” as compared with the truly “experimental helicopters” that the patentee did not accuse of infringement.

Scholars have explained this essential policy of patent systems, whereby patented information adds to the body of knowledge, and the right to exclude does not prohibit further study of patented technology. See Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. Chi. L. Rev. 1017, 1022 (1989):

If the public had absolutely no right to use the disclosure without the patent holder’s consent until after the patent expired, it would make little sense to require that the disclosure be made freely available to the public at the outset of the patent term. The fact that the patent statute so plainly facilitates unauthorized uses of the invention while the patent is in effect suggests that some such uses are to be permitted.

See Janice M. Mueller, *The Evanescent Experimental Use Exemption from United States Patent Infringement Liability: Implications for University and Nonprofit Research and Development*, 56 Baylor L. Rev. 917, 921 (2004):

The publication of information about a new invention in the form of an issued patent is of little use to society if that information is effectively kept ‘on

ice' for seventeen-eighteen years by means of a patent owner's unchecked right to exclude others from use for any purpose.

See also Katherine J. Strandburg, *What Does the Public Get? Experimental Use and the Patent Bargain*, 2004 Wis. L. Rev. 81 (2004) (distinguishing between infringing and non-infringing uses of information disclosed in patents, by differentiating between permissible “experimenting on” patented inventions, and impermissible “experimenting with” things that are patented); Andrew S. Baluch, *Relating the Two Experimental Uses in Patent Law: Inventor’s Negation and Infringer’s Defense*, 87 B.U. L. Rev. 213 (2007) (proposing that the right of experimental use by others balances the experimental use exception to §102(b)).

Patents do not prevent experimentation with patented subject matter, whether the purpose is scientific knowledge or commercial potential. To hold otherwise would be to deny a foundation of the system of patents. However, the popular press has accepted the theory that experimentation is barred for patented subject matter,² as have my colleagues, who cite that position as grounds for restricting eligibility under section 101.³

² *See, e.g.*, Adam Liptak, *Supreme Court to Look at a Gene Issue*, N.Y. Times, Nov. 30, 2012 (“Myriad and other gene patent holders have gained the right to exclude the rest of the scientific community from examining the naturally occurring genes of every person in the United States”); Michael Specter, *Can We Patent Life?*, The New Yorker, April 2, 2013 (“Any scientist who wants to conduct research on such a gene—even on a small sequence of its DNA—has to pay license fees.”).

³ *See* Lourie Op. at 15–16 (“Guarding against the wholesale preemption of fundamental principles should be our primary aim in applying the common law exceptions

The patent statute requires that the patented information is made known (“patent” is derived from the latin “patere,” which means “to lie open”), and that the patentee provide details of how to make and use the patented subject matter. In return, the patentee receives a term of exclusivity that has traditionally been applied only against commercial practice. On this simple bargain the industrial age blossomed, built on improvements and advances in patented subject matter.

Judicial precedent is sparse on the issue of experimental use, for until recently the principle was not in question. Technical publications often describe research in patent-heavy fields, apparently without fear of lawsuits. At a recent conference reported in the Trademark, & Copyright Journal, a spokesman stated that “research has been spurred rather than inhibited as a result of the [Myriad] patents, citing 18,000 researchers who have published over 10,000 articles” 85 PTCJ 759 (2013).

In summary, experimental use of patented information can take various forms, including:

a. *experiments to improve or build upon patented subject matter*— Such studies are encouraged by the patent system; it has never been the law that such experimentation is infringement.

b. *experiments to compare patented subject matter with alternatives to determine relative performance and properties*— Improvements would be inhibited if new developments could not be compared with the old. Such a position has never been the law.

c. *experimental study of patented subject matter to understand its mechanism*— Such scientific study is an

to § 101.”); Rader Op. at 18 n.3 (permissible experimentation is limited to “academic research” “without commercial ends”).

important attribute of patent systems. Scientific understanding may or may not lead to new commercial embodiments, which are not excused from infringement if covered by valid claims; but study of patented subject matter is not infringement.

d. *experimental study of patented subject matter to find new applications or modifications*— Such new directions are a benefit of the patent system; the experimentation is not infringement.

The courts, the press, and the public, have been led down a path that is contrary to patent principles. Let us remove the doubts we have sown. With clarification of the right to experiment with the information disclosed in patents, it will no longer be necessary to resort to the gambit of treating such information as an “abstraction” in order to liberate the subject matter for experimentation, whether for scientific or commercial purposes. I respectfully dissent from the contrary majority position.

III

“ABSTRACTION” IN COMPUTER-BASED PATENTS

I turn briefly to the concept of “abstraction” in connection with section 101 eligibility of computer-implemented subject matter. In the case before us, the diverse theories of the role of section 101, presented by the parties and the many *amici curiae*, show not only the complexity but also the importance of the issue. However, it is not necessary to rewrite the law of patent eligibility.

All scientific and technologic advance starts with fundamental principles, described by my colleagues as “abstract ideas,” although the Court has recognized that “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Mayo*, 132 S. Ct. at 1293. Scientific principles are “a creation of the human mind, with its freely invented

ideas and concepts,”⁴ while the adaptation of such principles to public benefit is the milieu of patents. The Court explained in *Mackay Radio & Telephone Co. v. Radio Corp. of America*, 306 U.S. 86, 94 (1939) that “While a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.”

My colleagues today attempt to devise universal criteria of eligibility under section 101. Some colleagues rely on “abstraction;” while others invoke “preemption;” others look for “meaningful” limitations. I quite agree that it is not easy to define “abstraction” or “preemption” or “meaningful limitation,” yet my colleagues propose that these terms bar the gateway to the patent system. Such definition is as elusive for Alice Corporation’s escrow banking system as for the most complex of phenomena:

The intrinsic uncertainty of the meaning of words was of course recognized very early and has brought about the need for definitions, or—as the word “definition” says—for the setting of boundaries that determine where the word is to be used and where not to. But definitions can be given only with the help of other concepts, and so one will finally have to rely on some concepts that are taken as they are, unanalyzed and undefined.

Werner Heisenberg, *Physics and Philosophy* 168 (1958).

I propose that the court return to the statute, and hold that when the subject matter is within the statutory classes in section 101, eligibility is established. This conforms with legislative intent. See *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980) (“In choosing such

⁴ Albert Einstein & Leopold Infeld, *The Evolution of Physics* 310 (1938).

expansive terms as ‘manufacture’ and ‘composition of matter,’ modified by the comprehensive ‘any,’ Congress plainly contemplated that the patent laws would be given wide scope.”). The Court in *Diamond v. Diehr*, 450 U.S. 175, 182 (1981), reiterated that the system of patents embraces “anything under the sun that is made by man”; it cannot be that computer-implemented developments may or may not be eligible under section 101 depending on how broadly they are sought to be claimed. Breadth of claiming, and undue breadth, are determined under sections 102, 103, and 112, not section 101.

The Court in *J.E.M. v. Pioneer* recognized that section 101 is a general and “dynamic provision designed to encompass new and unforeseen inventions.” 534 U.S. at 135. In its study of “A Patent System for the 21st Century” (2004) the National Research Council focused on the emerging technologies in a “Knowledge-Based Economy,” and observed that the patent system is “a unitary system with few *a priori* exclusions.” *Id.* at 57. It is beyond cavil that the patent system is intended to be receptive to the advances of science and technology.

This court referred to section 101 as a “coarse filter,” see *Research Corporation Technologies, Inc. v. Microsoft Corp.*, 627 F.3d 859, 869 (Fed. Cir. 2010). On traversing the coarse filter, the subject matter is subjected to the statutory rigors of novelty, unobviousness, enablement, specificity, etc. This approach places inventions in the statutory framework of patentability, not merely eligibility to be considered for participation in the patent incentive system.

No substitute has been devised for the incentive of profit opportunity through market exclusivity.⁵ The court

⁵ Illustration is seen in the Orphan Drug Act, 21 U.S.C. §360aa–360ee (1997), which provides patent-like exclusivity and is reported to have provided treatment for

should return to these basic principles, and abandon its failed section 101 ventures into abstraction, preemption, and meaningfulness.

I repeat my concern for the court’s preservation of legal uncertainty through our inconclusive treatment of the law of section 101. The escrow banking mechanism of the patents in suit is claimed in the Alice Corporation patents as a method or a system or a media device. The form of the claim does not determine section 101 patent eligibility. Nor does the scope of the claim. In claim drafting, it is customary to start with broad claims and then draft claims of progressively narrower scope; this does not determine “abstraction” under section 101. As in *O’Reilly v. Morse*, 56 U.S. 62 (1853), Samuel Morse’s broadest claim was rejected for undue breadth because it was directed to “the use of the motive power of the electric or galvanic current . . . for making or printing intelligible characters, letters or signs, at any distances,” *id.* at 86; the Court did not discuss “eligibility,” but simply held that this claim was not limited to the “specific machinery” described in the specification, and was unduly broad.

many previously untreated diseases. Food & Drug Admin., *Developing Products for Rare Diseases & Conditions*, <http://www.fda.gov/ForIndustry/DevelopingProductsforRareDiseasesConditions/default.htm> (“The [Orphan Drug] program has successfully enabled the development and marketing of more than 400 drugs and biologic products for rare diseases since 1983. In contrast, fewer than 10 such products supported by industry came to market between 1973 and 1983.”). And the experience of the Bayh-Dole Act is that patent exclusivity has moved much university research into public benefit. See Wendy H. Schacht, Cong. Research Serv., RL 32076, *The Bayh-Dole Act: Selected Issues in Patent Policy and the Commercialization of Technology* 7 (2005).

I share the majority view that all of the claims stand or fall together. I would hold that the system, the method, and the media claims are eligible under section 101, and would remand to the district court for determination of patentability under the substantive provisions of the statute.

**United States Court of Appeals
for the Federal Circuit**

CLS BANK INTERNATIONAL,
Plaintiff-Appellee,

AND

CLS SERVICES LTD.,
Counterclaim Defendant-Appellee,

v.

ALICE CORPORATION PTY. LTD.,
Defendant-Appellant.

2011-1301

Appeal from the United States District Court for the District of Columbia in No. 07-CV-974, Judge Rosemary M. Collyer.

LINN and O'MALLEY, *Circuit Judges*, dissenting from the Court's judgment.

The method, media, and system claims we review today must rise and fall together; either they are all patent eligible or they are not. This is so, not because, as Judge Lourie's opinion concludes, they are all tainted by reference to the same abstract concept, but because the record we are presented makes clear that they are grounded by

the same meaningful limitations that render them patent eligible. Thus, we believe the analysis of the method claims conducted by Chief Judge Rader and Judge Moore in Part VI of our collective opinion¹ and Parts III.A and III.B of Judge Lourie’s opinion suffer from the same flaw: they are divorced from the record to which we are bound. We write to address that flaw.

I

We begin with a careful assessment of the record and procedural posture presented in this case. This appeal arises from a grant of summary judgment in favor of Plaintiff-Appellee CLS Bank International (“CLS”), dismissing the action with prejudice on grounds that none of the asserted claims of U.S. Patent Nos. 5,970,479 (“the ’479 patent”), 6,912,510 (“the ’510 patent”), 7,149,720 (“the ’720 patent”), and 7,725,375 (“the ’375 patent”) recite patentable subject matter. The summary judgment process occurred prior to construction of the asserted claims and their attendant limitations. Indeed, the court considered and granted CLS’s summary judgment motion before ever conducting a hearing pursuant to *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996), and even before briefing on claim construction. As such, no determination has ever been made regarding how one of skill in the art would understand the claims as of the date of issuance. And, no careful assessment of the intrinsic record or prosecution history has ever occurred; much of this was never even made a part of the trial record.

¹ We cite to Parts I–V and VII of our collective opinion as the “Rader/Linn/Moore/O’Malley Op.,” we refer to Part VI of that opinion, which is authored by Chief Judge Rader and Judge Moore only, as the “Rader/Moore Op.”

As the trial court recognized, the only way to avoid these predicate steps before granting summary judgment was for the court to construe the claims as defendant-appellant Alice Corporation (“Alice”) would have it do. The trial court was, thus, required to read into the claims whatever limitations Alice asserted a skilled artisan would assume they possessed. Similarly recognizing the procedural posture in which it asked the trial court to rule, “CLS agreed to assume a construction of claims favorable to Alice.” *CLS Bank Int’l v. Alice Corp.*, 768 F. Supp. 2d 221, 236 n.6 (D.D.C. 2011). The trial court did so; it concluded that, “because the relevant terms of claims 33 and 34 of the ’479 Patent have yet to be construed, because CLS has agreed to a broad construction² of terms favorable to Alice, and because the specification reveals a computer-based invention, the Court can reasonably assume for present purposes that the terms ‘shadow’ credit and/or debit record and ‘transaction’ in the ’479 Patent recite electronic implementation and a computer or an analogous electronic device.” *Id.* at 236 (footnote added).

We must look then to the construction posited by Alice at the summary judgment stage to understand the claims before us. It is undisputed that Alice claimed that “the entirety of Alice’s method [as recited in the ’479 and ’510 patents]—including the ‘adjusting’ step that effectuates

² The trial court misspoke here; CLS conceded to a *narrower* construction—not a broader one. That is, although, on their face, the claims arguably cover all applications of the claimed method, not just electronic applications, i.e., they are broad, CLS agreed to limit those claims to electronic implementations of all aspects of the claimed methods.

the claimed exchange of obligations—must be performed electronically using a computer and memory.” Memorandum in Support of Alice Corp. Pty. Ltd.’s Renewed Cross-Motion for Summary Judgment as to Patent Eligibility & in Opposition to CLS’s Motion for Summary Judgment at 41, *CLS Bank Int’l v. Alice Corp.*, 768 F. Supp. 2d 221 (D.D.C. 2011) (No. 1:07-cv-974), ECF No. 95 [hereinafter “Alice’s Summ. J. Br.”]. Specifically, Alice argued that a skilled artisan would appreciate that the method claims necessarily require electronic implementation of each of their steps and that this electronic implementation would occur through a computer. In support of this position, Alice offered an expert declaration by Mr. Paul Ginsberg. See Alice Corp. Pty. Ltd.’s Renewed Cross-Motion for Partial Summary Judgment as to Subject Matter Eligibility, Declaration of Stanley E. Fisher, Exhibit 1, Declaration of Paul Ginsberg, *CLS Bank Int’l v. Alice Corp.*, 768 F. Supp. 2d 221 (D.D.C. 2011) (No. 1:07-cv-974), ECF No. 95-3 [hereinafter “Ginsberg Decl.”]. In that declaration, Mr. Ginsberg explained how a person of skill in the art would interpret the method claims upon “reviewing the claims in view of the patent specification (including the description of the subject matter in ¶¶ 25-26 above) and the prosecution history.” *Id.* ¶ 29. Based on this record, both CLS and the trial court accepted the fact that the method claims of the ’510 and ’479 patents recite “an electronic method for performing the settlement, and the ‘maintaining,’ ‘receiving,’ ‘adjusting,’ and ‘generating’ steps are central to that process.” Alice’s Summ. J. Br. at 42.

CLS has stood by these stipulations and assumptions on appeal. Indeed, it emphatically has done so. In all of its briefing and in its arguments on appeal, CLS has acknowledged that the shadow credit and debit records and the transactions and adjustments between them must be implemented electronically. Appellee’s Principal En

Banc Br. 3, 34; Appellee’s Reply En Banc Br. 20; Oral Arg. at 11:29, *CLS Bank Int’l v. Alice Corp.*, No. 2011-1301, available at <http://www.cafc.uscourts.gov/oral-argument-recordings/2011-1301/2013-02-08/all> [hereinafter “Oral Arg.”]. At oral argument in this en banc proceeding, counsel for CLS confirmed its view that every limitation and electronic process that appears in the system claims must be read into the method claims. Oral Arg. at 11:29-11:55.³ Thus, counsel for CLS agreed that, given the state of the record we face on appeal, the claims cannot be parsed—they either all are drawn to patentable subject matter, as Alice claims, or none are drawn to patentable subject matter, as CLS claims. Appellee’s Principal En

³ The following exchange took place during oral argument:

Judge O’Malley: [Y]ou conceded that . . . the term shadow credit and debit record and transaction all recite electronic implementation . . . on a computer or some other electronic device.

And then she [the district judge] later pointed out that even at the *Markman* stage you said that “let’s assume that . . . we have to have all of these activities—

Mr Perry: Correct Your Honor

Judge O’Malley: —implemented through a system on a computer.”

Mr. Perry: That’s correct Your Honor.

Oral Arg. 11:29-11:55.

Banc Br. 11, 51 (“Here, the Section 101 analysis is equivalent for all of Alice’s claims.”).

II

Our colleagues ignore the record of the lower court proceedings and the stipulations by which CLS agrees it must be bound. Chief Judge Rader and Judge Moore construe the method claims as far broader than the system claims and assume they are sufficiently different from those system claims to merit different treatment under the Supreme Court’s case law governing exceptions to 35 U.S.C. § 101. *See* Rader/Moore Op. at 41 (construing “each step” of the method claims as “individually recit[ing] merely a general step inherent within the concept of an escrow, using a third party intermediary in this fashion”). Judge Lourie also construes the method claims broadly, but, unlike the Chief Judge and Judge Moore, imports the breadth he reads into the method claims into the system and media claims as well. *See* Lourie Op. at 26-28, 30-38. None of those judges explains how the record supports the claim constructions in which they engage, however.

Notably, when analyzing the method claims, the Chief Judge and Judge Moore cite to no portion of the written descriptions of the ’510 or ’479 patents, or to CLS’s stipulations regarding claim construction, all the while claiming to rely on “the record.” *See* Rader/Moore Op. at 39-40 (“The record in this case shows”); *id.* at 40 (“Further, the record again shows”). And, they summarily reject the trial court’s assumption that the method claims require the same computer implementation as the system claims. *Id.* at 41 (“[T]he district court assumed the single fact that the method claims are implemented by computer. Putting to the side whether this construction was correct, even assuming the method claims require use of a

computer in some unspecified way, this implicit reference to computer implementation is not, by itself, enough.” (citations omitted) (internal quotation marks and ellipsis omitted)). As explained above, however, the actual record establishes that the method claims require more than the use of a computer in some *unspecified* way. CLS has conceded as much and the trial court found as much.

Alice’s expert testified that “[s]pecific terms in the claims 33 and 34 [of the ’479 patent],” “includ[ing], for example, ‘shadow credit record,’ ‘shadow debit record,’ and ‘transaction,’” “would be understood by the person of ordinary skill in the art to require that the methods recited in those claims are electronically implemented by a computer coupled to a data storage unit.” Ginsberg Decl. ¶ 32. That is, “the particular methods claimed in these patents only work, as intended, when carried out using a computer.” *Id.* ¶ 41. Once the trial court chose to proceed on the assumption that computer implementation is required for the method claims, it is the written description—the same written description that informs the system claims—which tells us just what the nature of that computer implementation is.

For this reason, we believe that Chief Judge Rader and Judge Moore’s analysis in Part VI of the collective opinion is internally inconsistent with the analysis the four of us employ in Part V of that opinion. Specifically, when analyzing the system claims, we note that “[t]he specification also includes numerous flowcharts that provide algorithm support for the functions recited in the claims.” Rader/Linn/Moore/O’Malley Op. at 32. We also note that “the ’375 Patent discloses at least thirty-two figures which provide detailed algorithms for the software with which this hardware is to be programmed.” *Id.* at 31. Relying on the details disclosed in Fig. 16 of the ’375 patent, we assert that “[l]abeling this system claim an

‘abstract concept’ wrenches all meaning from those words, and turns a narrow exception into one which may swallow the expansive rule (and with it much of the investment and innovation in software).” *Id.* at 34. We do not see how Chief Judge Rader and Judge Moore, when analyzing the method claims, can ignore the fact that the specific functionality described in the figures applies just as much to them as to the system claims. Chief Judge Rader and Judge Moore, in Part V of the collective opinion, acknowledge that the flow charts in the ’375 patent depict the algorithms which the software runs—i.e., the subject matter of the method claims. And the same Figure 16 is present in the ’479 and ’510 patents. In this regard, barring an actual construction of the claims, we must assume the method claims are just as specific as the system claims, and merit the same treatment we afford those latter claims.

Judge Lourie not only divorces his analysis from the record, he turns it on its head. Although Judge Lourie mentions the agreement between the parties and trial court regarding claim construction, *see* Lourie Op. at 25, he ignores the substance of the stipulations and assumptions upon which the proceedings below were predicated—i.e., that the method claims are narrowed by incorporation of all electronic aspects of the system claims, *see id.* at 26 (“First, the requirement for computer implementation could scarcely be introduced with less specificity; the claim lacks *any* express language to define the computer’s participation.”). He then takes it upon himself to construe the claims, giving the method claims their broadest possible interpretation in the process. *See id.* at 26 (construing the method claims such that “[t]here is no specific or limiting recitation of essential or improved computer technology, and no reason to view the computer limitation as anything but insignificant postsolution activity relative to the abstract idea” (citations omitted) (internal quota-

tion marks omitted)); *id.* at 27 (construing “shadow record” as “reciting no more than the necessary tracking activities of a supervisory institution”). Indeed, Judge Lourie begins, not with the record, or even a proper exercise in claim construction, but with identification of what he finds to be the fundamental concept “wrapped up in the claim.” *Id.* at 18. From there, he searches the words in the claims for “substantive limitations that narrow, confine, or otherwise tie down the claim.” *Id.* at 18-19. By starting with a paraphrased abstraction of the claims and excluding the record evidence regarding the meaning of the claims, Judge Lourie preordains the method claims ineligible. Judge Lourie then reads into the system claims the same abstraction he felt damned the method claims.

Thus, Judge Lourie explicitly finds that “[t]he computer-based limitations recited in the system claims here cannot support any meaningful distinction from the computer-based limitations that failed to supply an ‘inventive concept’ to the related method claims.” *Id.* at 34. The “abstraction” he ferrets from his own reading of the method claims, thus, works much like a computer virus to infect his analysis of all of the claims, regardless of their limitations. Indeed, he actually strips the claims of their detail and limitations—in direct contravention of the Supreme Court’s admonitions in *Diamond v. Diehr*, 450 U.S. 175, 188 (1981)—calling it mere “extravagant language.” Lourie Op. at 27.

We do not believe a patent eligibility inquiry can be disembodied from the actual claims at issue, with their attendant limitations. The analytical process in which Judge Lourie engages is at odds with the most basic concepts that govern our patent system. See Giles S. Rich, *Extent of Protection and Interpretation of Claims—American Perspectives*, 21 Int’l Rev. of Indus. Prop. &

Copyright L. 497, 499 (1990) (“[T]he name of the game is the claim.”); *see also Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (“It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” (internal quotation marks omitted)). His methodology just cannot be right.

While it may be possible to construe the method claims in such a way that they would read like those in *Bilski v. Kappos*, 130 S. Ct. 3218 (2010), and, thus, be patent ineligible, we see no intellectually sound way to distinguish the method claims *as construed by the district court* from the system claims.

III

We assume our colleagues feel free to ignore the record—or, more appropriately, the lack thereof—in this case because claim construction is a question of law which this court reviews *de novo*. *See Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc). Whether review is *de novo* or not, however, it still must be a “review”—it must be premised on a record below in which all relevant claim construction issues were vetted and in which the parties had an opportunity to proffer intrinsic and extrinsic evidence which would inform the claim construction process. None of that occurred in this case. Instead, Alice’s evidence and arguments were proffered and accepted by all as established fact. We are not persons of skill in the art and cannot open the record for proceedings that did not occur below. We are a reviewing court whose review must be predicated upon the record presented.

For these reasons, we agree with CLS, and with virtually every amicus to consider these claims, that all

asserted claims must rise or fall together, because they all contain the same computer-based limitations.

IV

We turn to our view of the claims at issue here. This section of our opinion need not detain long. Along with Chief Judge Rader and Judge Moore, we have already explained why the system claims in this case are patent eligible and are not swallowed up by the exception from patent eligibility for claims that do no more than recite abstract ideas. *See* Rader/Linn/Moore/O'Malley Op. Part V. As we note, the claimed data processing system “includes at least four separate structural components” that perform very specific functions, *id.* at 31, *see also* Moore Op. at 13 (“[Claim 1 of the '375 patent] is a pure system claim, directed to a specific machine configured to perform certain functions.”), and to describe the system as an abstraction ignores what is claimed, *see* Rader/Linn/Moore/O'Malley Op. at 34 (“Labeling this system claim an ‘abstract concept’ wrenches all meaning from those words, and turns a narrow exception into one which may swallow the expansive rule (and with it much of the investment and innovation in software).”), *see also* Moore Op. at 13 (“[I]t is impossible to conclude that this claim is merely an abstract idea.”).⁴

For the reasons we describe herein, moreover, we would employ the same rationale we employed for the system claims to find the method and media claims patent eligible as well. The trial court construed these claims to

⁴ We agree with Judge Moore’s similar analysis of the system claims in her separate opinion, which we join in full.

require *all* the computer-implemented limitations of the system claims. Indeed, in doing so, the trial court conceded that there was meaningful support in the written description of the '479 and '510 patents for that construction. We have no record upon which to disagree with that construction of these claims, one which both parties continue to urge upon us. And, it is a careful assessment of the claims—with all their limitations—which must guide our inquiry.

As we said in the panel opinion in this case, moreover, assuming the presence of all the computer-based limitations in the written description, none of these claims are unduly pre-emptive. While the abstract idea at their heart may be the use of an intermediary to facilitate financial transactions, the claims here are directed to very specific ways of doing that—using “shadow credit record[s]” and “shadow debit record[s]” that are adjusted only if the “transactions . . . do not result in the value of the shadow debit record being less than the value of the shadow credit record at any time,” making the permitted transactions “in chronological order,” and exchanging “credits” and “debits” “in accordance with the adjustments of the said permitted transactions.” '479 patent col. 65 ll. 23-50. While it is possible these claims may have been obvious over the prior art—which, of course, would include the abstract idea itself—they do not preempt all commercial uses or applications of that idea.

V

We finally note that certain Amici express concern regarding the proliferation and aggressive enforcement of low quality software patents. See Br. of Amici Curiae Google Inc., Dell Inc., Facebook, Inc., Homeaway, Inc., Intuit Inc., Rackspace Hosting, Inc., Red Hat, Inc., and Zynga Inc. in Supp. of Pet'rs at 23-25 [hereinafter “Google

Br.”]; Amici Curiae Internet Retailers’ Corrected Br. in Supp. of Neither Party at 14-22 [hereinafter “Internet Retailers Br.”]. They seem to believe that patents on early generation technology inhibit technological advances. See Google Br. 23-25; Internet Retailers Br. 14-22. Based on these concerns, these Amici ask us to find all the claims at issue in the patents before us ineligible under the abstract ideas exception to § 101.

We do not discount Amici’s concerns, we just disagree with what they ask us to do to quell them. Congress can, and perhaps should, develop special rules for software patents. It could, for instance, limit their life by limiting the term of such patents. See Peter S. Menell, *A Method for Reforming the Patent System*, 13 Mich. Telecomm. & Tech. L. Rev. 487, 501 (2007) (arguing patent reform should include “identifying and evaluating categorical reform options (such as excluding business method patents or altering the duration of software patents).”). Or, Congress could limit the scope of software patents by requiring functional claiming. Cf. Mark A. Lemley, *Software Patents and the Return of Functional Claiming*, 2013, at 42, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2117302, Stanford Pub. L. Working Paper No. 2117302, (arguing that the problems with software patents can be remedied through strict enforcement of the 35 U.S.C. § 112(f) limitations on functional claiming, not by “retroactively invalidat[ing] tens of thousands of software patents”). Or, it could do both, or devise some other rule. But broadening what is a narrow exception to the statutory definition of patent eligibility should not be the vehicle to address these concerns. While Congress may, this court may not change the law to address one technological field or the concerns of a single industry. See *United States v. Rutherford*, 442 U.S. 544, 555 (1979) (“Under our constitutional framework, federal courts do not sit as councils of revision, empowered to

rewrite legislation in accord with their own conceptions of prudent public policy.”); *see also Anderson v. Wilson*, 289 U.S. 20, 27 (1933) (“We do not pause to consider whether a statute differently conceived and framed would yield results more consonant with fairness and reason. We take the statute as we find it.”).

Thus, whatever the merits of such concerns, the answer is not to rewrite the law by broadening the abstract ideas exception to § 101, especially if the only way to do so is to ignore the limitations in the claims actually before us.

VI

Appropriately treating the abstract ideas exception to patent eligibility under 35 U.S.C. § 101 as a narrow judge-made exception to a broad statutory grant, and being true to the record and claim constructions we are presented, we would find all claims at issue in this case patent eligible and would vacate the judgment of the lower court and remand for further proceedings. We dissent from this court’s judgment which has the effect of doing otherwise.

**United States Court of Appeals
for the Federal Circuit**

CLS BANK INTERNATIONAL,
Plaintiff-Appellee,

AND

CLS SERVICES LTD.,
Counterclaim Defendant-Appellee,

v.

ALICE CORPORATION PTY. LTD.,
Defendant-Appellant.

2011-1301

Appeal from the United States District Court for the District of Columbia in No. 07-CV-974, Judge Rosemary M. Collyer.

Additional Reflections of Chief Judge Rader

RADER, *Chief Judge.*

In the twenty-fifth year of my judicial service, I am wont to reflect on my early judicial experience in search of the confidence in the correctness of my judicial views that I then enjoyed. In this instance, my reflection carries me back to one of the first cases I helped decide as a new Circuit Judge on this court.

The case, *Arrythmia Research Tech. v. Corazonix Corp.*, 958 F.2d 1053 (Fed. Cir. 1992), involved a patent on a software invention that allowed for swift computer analysis of electrocardiogram images to detect heart attack risks. Of course, I encountered the case flushed with confidence and a commitment to the law as written by our legislative branch, the branch to which I had dedicated my entire early career. In the face of this marvelous way to protect human life more efficiently and reliably, I found myself certain that this invention would “promote the Progress of the useful Arts.” Moreover, the investment in research to develop that new method cried out for protection. Without protection, I reasoned, investors would quickly opt to put their resources into new cosmetics or weight control improvements—safer propositions. In sum, I thought this case was easy.

Therefore, I could only describe my emotion as surprise that my senior colleagues on the panel, Judges Newman and Lourie, struggled mightily. The author for the court performed impressive feats of intellectual acrobatics trying to gain some handhold to show that the mathematic equations in the method had some physical connection and no preemptive effect, whatever those concepts mean (and I still do not know if they have any meaning, let alone what that meaning might be). The court succeeded in converting “applying,” “determining,” and “comparing” into “physical process steps that transform one physical, electrical signal into another.” *Id.* at 1059.

With some trepidation, I ventured to express my view that the statute settled the question without the need for laborious analysis. At the close of my opinion, I expressed a little frustration: “When all else fails . . . consult the statute.” For me, *Parker v. Flook*, 437 U.S. 584 (1978), *Gottschalk v. Benson*, 409 U.S. 63 (1972), *In re Abele*, 684 F.2d 902 (CCPA 1982), *In re Walter*, 618 F.2d 758 (CCPA

1980), and *In re Freeman*, 573 F.2d 1237 (CCPA 1978), vindicated the proposition that “all else had failed.” And for me, the magisterial statute with its sweeping inclusion of “any” process and even “improvements thereon” without any of the written exceptions for “software per se” or other legislative exceptions featured in failed European and Asian statutes settled the question. Indeed, as the law expressed and the Supreme Court recognized, an invention could extend to “anything under the sun that is made by man.” *Diamond v. Diehr*, 450 U.S. 175, 182 (1981) (quoting 182 S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952) and H.R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952)).

As I noted at the outset, a quarter century has passed. After *In re Alappat*, 33 F.3d 1526 (Fed Cir. 1994) (en banc), and a few other opinions, the law of patent eligibility enjoyed a halcyon decade of reliance on the statute. Inventions rose and fell, but based on the merits of their contributions to the progress of the useful arts, not on the basis of undefined and unproven judicial abstractions like “abstractness” or “preemption.” Prior art governed the patentability of claims. The separate concept of patent eligibility of subject matter (not a claim-driven concept at all) was not subject to judicial preference for a broad or narrow view of formless substance.

Although *Diehr* and *Diamond v. Chakrabarty*, 447 U.S. 303 (1980), betokened decades of enforcing the patent law as written, these giants too have bowed to new judicial influences. Twenty years ago, Judges Newman, Lourie, and I still unanimously agreed on the outcome of *Arrythmia*. The intervening commotion leaves us with little, if any, agreement amongst us even though the statute has not changed a syllable.

Thus, I find myself writing again as I did in 1992. And I find myself resorting to exactly the same phrase:

When all else fails, consult the statute!

And for evidence that all else has failed, I need only recite *Bilski v. Kappos*, 130 S. Ct. 3218 (2010), *Mayo Collaborative Servs. Inc. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012), *Ass'n for Molecular Pathology v. U.S. Patent & Trademark Off.*, 689 F.3d 1303 (Fed. Cir. 2012), cert granted in part, 133 S. Ct. 694 (2012), *MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250 (Fed. Cir. 2012), *Dealertrack, Inc. v. Huber*, 674 F.3d 1315 (Fed. Cir. 2012), and *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057 (Fed. Cir. 2011), and this list can and will go on and grow.

And the remedy is the same: consult the statute! The statute offers a patent to both inventions and discoveries, including simply an improvement on a known process or product. The statute further directs that even the mere new use of an old machine is eligible for patenting, with, of course, a high obstacle of meeting the conditions of patentability set forth in Sections 102 and 103 of the Patent Act ahead. *See* S. Rep. No. 82-1979 at 17 (explaining that the new use of a known machine or composition of matter is eligible for patenting “provided the conditions of patentability are satisfied.”) In that regard, the Supreme Court long ago held that Section 101 is not a “condition of patentability.” *Diehr*, 450 U.S. at 189-90 (citing *In re Bergy*, 596 F.2d 952, 963 (CCPA 1979) (Section 101 “was never intended to be a ‘standard of patentability,’ the standards, or conditions as the statute calls them, are in 102 and 103”). Finally, the statute does not list Section 101 among invalidity defenses to infringement. *See* 35 U.S.C. § 282 (while invalidity for failing to meet a “condition of patentability” is among the author-

ized defenses, Section 101 is not a “condition of patentability”).

And what about “exceptions” like natural laws and natural phenomena? Of course, these are universal constants created, if at all, only by God, Vishnu, or Allah. But, for perspective, even gravity is not a natural law in Einsteinian theory, but a symptom of a curved universe. Einstein posited the speed of light as the only true natural constant. Thus, in context, equating the personalized medicinal effect of a human-created pharmaceutical in patients of different metabolic rates and genetic makeups with the speed of light (or even gravity) is only possible in a netherworld of undefined judicial insights. Moreover, to inject the patentability test of “inventiveness” into the separate statutory concept of subject matter eligibility makes this doctrine again “the plaything of the judges who, as they became initiated into its mysteries, delighted to devise and expound their own ideas of what it meant; some very lovely prose resulting.” Giles S. Rich, *Principles of Patentability*, 28 Geo. Wash. L. Rev. 393, 404 (1960).

I enjoy good writing and a good mystery, but I doubt that innovation is promoted when subjective and empty words like “contribution” or “inventiveness” are offered up by the courts to determine investment, resource allocation, and business decisions. Again, it is almost . . . well, “obvious” . . . to note that when all else fails, it makes sense to consult the simplicity, clarity, and directness of the statute.

As I start my next quarter century of judicial experience, I am sure that one day I will reflect on this moment as well. I can only hope it is a brighter reflection than I encounter today.