

SO WHAT'S PATENTABLE NOW?: RECENT DECISIONS ON SECTION 101

Nadia E. Haghghatian, Max Ciccarelli, and J. Michael Heinlen*

I. INTRODUCTION

Section 101 of the Patent Act defines patentable subject matter. In particular, a patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.”¹ Notably, the statute doubly emphasizes that “any” subject matter within the four categories, and “any” improvement in that subject matter, qualifies for patent protection. But the United States Supreme Court has long held that these four, broad categories of patentable subject matter contain three important and implicit exceptions, which themselves are not patentable: laws of nature, natural phenomena, and abstract ideas. This is because, the Court reasons, “[p]henomena of nature, though just discovered, mental processes, and abstract intellectual concepts are . . . the basic tools of scientific and technological work,” the monopolization of which “might tend to impede innovation more than it would tend to promote it.”²

The first two exceptions are reasonably manageable.³ But over the years, the Court’s limited explanation of the abstract idea exception has rendered this third exception, itself, abstract. The concept lacks a concrete test or definition, making it difficult for the courts to narrowly and predictably interpret and apply it. And this is troubling, because the Court has recognized that interpreting the exceptions too broadly could potentially eviscerate patent law entirely, “[f]or all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.”⁴

But how do we then distinguish between patentable subject matter and unpatentable abstract ideas? What exactly *is* an abstract idea? And what additional limitations are *enough* to overcome abstraction? Federal Circuit opinions issued since the Supreme Court decisions in *Bilski v. Kappos* and *Mayo Collaborative Services v. Prometheus Laboratories, Inc.* attempted to develop answers to these questions, but they struggled to adequately do so. Just last year, then-Chief Judge Rader remarked, “prior to granting *en banc* review in [*CLS Bank International v. Alice Corp. Pty. Ltd.*], this court commented: ‘no one understands what makes an idea abstract.’ After *CLS Bank*, nothing has changed.”⁵ On December 6, 2013, the Supreme Court granted a petition for *certiorari* in that case, which made *Alice* the fourth time in four years the Court substantively addressed patentable subject matter. In doing so, the Court had yet another opportunity to clear up some of the ambiguities left by *Bilski* and *Mayo*, and a chance to make the abstract idea exception a little less abstract. But whether the Court actually succeeded in accomplishing this is up for debate.

* Ms. Haghghatian is an Associate, and Mr. Ciccarelli and Mr. Heinlen are Partners, at Thompson & Knight LLP in Dallas, Texas.

¹ 35 U.S.C. § 101.

² *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)) (internal quotation marks omitted).

³ See *MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250, 1259 & n.11–12 (Fed. Cir. 2012).

⁴ *Mayo*, 132 S. Ct. at 1293.

⁵ *Accenture Global Servs., GMBH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1348 (Fed. Cir. 2013) (Rader, C.J., dissenting) (citation omitted).

This article examines the current state of the law of patentable subject matter, and in particular the abstract idea exception, as developed by the Federal Circuit in response to the Supreme Court’s decisions in *Bilski*, *Mayo*, and, most recently, *Alice*.

II. LIMITED SUPREME COURT GUIDANCE: BILSKI AND MAYO

In its 2010 decision in *Bilski v. Kappos*, the Supreme Court reviewed—for the first time in nearly thirty years—the patentable subject matter provision of 35 U.S.C. § 101.⁶ *Bilski* involved a business method explaining how commodities buyers and sellers in the energy market could protect, or hedge, against the risk of price changes.⁷ The Court unanimously held that the invention was not directed to patent-eligible subject matter because it merely explained an abstract idea, the basic concept of hedging and protecting against risk.⁸ While the Court did not explicitly explain why the invention was abstract, it did reason that “[h]edging is a fundamental economic practice long prevalent in our system of commerce and taught in any introductory finance class.”⁹ And allowing the patent to stand as is would preempt use of the concept in all fields.¹⁰

In *Bilski*, the Supreme Court rejected the Federal Circuit’s machine-or-transformation test as the sole test for a patentable process.¹¹ But it decided not to prohibit use of the test completely, as it remained a “useful and important clue, an investigative tool” for determining the patentability of processes under § 101.¹² Nonetheless, the Court provided little more guidance for what other test should be used. Indeed, Justice Stevens even remarked in his concurring opinion that the Court “never provides a satisfying account of what constitutes an unpatentable abstract idea. . . . This mode of analysis (or lack thereof) may have led to the correct outcome in this case, but it also means that the Court’s musings on this issue stand for very little.”¹³

Two years later, the Supreme Court had another opportunity to elaborate on the patentable subject matter exceptions when it delivered its decision in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*¹⁴ Although the *Mayo* decision rested primarily on the law of nature exception, its reasoning has been applied to abstract ideas as well. The patents at issue concerned a method of treating autoimmune diseases by administering a drug to a patient, measuring the patient’s level of metabolites of that drug, and, using a provided metabolite level threshold, determining whether to increase or decrease the dosage of the drug.¹⁵ The Court, in a

⁶ See *Bilski v. Kappos*, 561 U.S. 593 (2010).

⁷ *Id.* at 599.

⁸ *Id.* at 611.

⁹ *Id.*

¹⁰ *Id.*

¹¹ Under the Federal Circuit’s machine-or-transformation test, a claimed process is “patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus; or (2) it transforms a particular article into a different state or thing.” *In re Bilski*, 545 F.3d 943, 954 (Fed. Cir. 2008) (en banc), *aff’d sub nom.* *Bilski v. Kappos*, 561 U.S. 593 (2010). To satisfy the machine prong of the test, the use of a machine “must impose meaningful limits on the claim’s scope.” *Id.* at 961.

¹² *Bilski*, 561 U.S. at 604.

¹³ *Id.* at 621 (Stevens, J., concurring).

¹⁴ See *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012).

¹⁵ See *id.* at 1295.

unanimous opinion, first held that the patents set forth a law of nature in the form of “relationships between concentrations of certain metabolites in the blood and the likelihood that a dosage of a . . . drug will prove ineffective or cause harm.”¹⁶ Then, the Court asked whether the claims added *enough* to allow the processes they described to qualify as patent-eligible processes that *applied* natural laws rather than *claimed* natural laws.¹⁷ Finding that they did not, the Court first considered each individual step and determined that all of the steps were conventional and obvious pre-solution activity.¹⁸ In other words, the steps simply referred to “well-understood, routine, conventional activity already engaged in by the scientific community,” and were not enough to transform an unpatentable law of nature into a patentable application of such a law.¹⁹ Second, when it considered all of the steps as an ordered combination, the Court likewise found nothing new added by the combination.²⁰

Finally, the Court addressed the machine-or-transformation test, specifically the transformation prong. In finding the claims did not meet the test, the Court rejected arguments that the process transformed the human body through administration of the drug and transformed the blood by analyzing it to determine metabolite levels.²¹ Ultimately, the Court’s holding in *Mayo* reiterates that a law of nature, and similarly an abstract idea, is not in and of itself patentable; however, the application of that law of nature or abstract idea could be patentable so long as additional, meaningful limitations provide some “inventive concept” in the claimed application.

III. POST-BILSKI, PRE-MAYO FEDERAL CIRCUIT CASES

The cases that follow in Parts III and IV provide examples of how the Federal Circuit has ruled on and attempted to explain the abstract idea exception in the years following *Bilski* and *Mayo*. They demonstrate the state of the law leading up to *Alice*, and illustrate how, if at all, the Supreme Court’s guidance (or lack thereof) in *Bilski* and *Mayo* influenced the Federal Circuit’s analysis of the exception.

A. Research Corp. Technologies v. Microsoft Corp.

The first § 101 case on which the Federal Circuit ruled after *Bilski* was *Research Corp. Technologies v. Microsoft Corp.*²² The patents-in-suit related to digital image half-toning, a process allowing computer displays and printers to render an approximation of an image using a limited number of pixel colors, while giving the illusion of many more shades of gray or varying colors.²³ To do this, the invention’s half-toning technique used a blue noise mask stored in a computer’s memory to carry out a pixel-by-pixel comparison.²⁴ A mask is a two-dimensional

¹⁶ *Id.* at 1296.

¹⁷ *See id.* at 1297.

¹⁸ *See id.* at 1298.

¹⁹ *Id.*

²⁰ *See id.*

²¹ *See id.* at 1302–03.

²² *See Research Corp. Techs. v. Microsoft Corp.*, 627 F.3d 859 (Fed. Cir. 2010).

²³ *Id.* at 862–63.

²⁴ *See id.* at 863–64.

array populated with predetermined threshold numbers.²⁵ For a black and white image, for example, the technique compared the gray level of each pixel in the digital image to the corresponding threshold number in the blue noise mask to produce the halftone image.²⁶ The invention's blue noise mask produced a higher quality halftone image while using less processor power and memory space.²⁷

The Federal Circuit first recognized that, as a process, the subject matter qualified under the broad categorical language of § 101.²⁸ Then, the court examined the three exceptions, abstractness in particular.²⁹ In doing so, after commenting on the Supreme Court's lack of guidance in *Bilski* with respect to what constitutes an unpatentable abstract idea, the Federal Circuit went only so far as to define "abstract" as a "disqualifying characteristic [that] should exhibit itself so manifestly as to override the broad statutory categories of eligible subject matter."³⁰ In other words, the courts will know it when they see it.

Using this narrow definition, the court found nothing abstract in the subject matter of the claimed invention.³¹ Rather, the processes "present[ed] functional and palpable applications in the field of computer technology" and addressed a need in the art.³² Also important, according to the court, was the fact that the patents required physical components and machinery, including a high contrast film, a film printer, a memory, and printer and display devices.³³ And inventions with specific applications or improvements to technologies in the marketplace are not likely to be unpatentable abstract ideas.³⁴

Lastly, the court explained that, although the invention incorporated algorithms and formulas that controlled the masks and half-toning, these algorithms and formulas did not bring the invention even close to abstractness, because the patentees "[did] not seek to patent a mathematical formula."³⁵ As a result, the court held that the processes did not claim abstract ideas and were directed to patent-eligible subject matter.³⁶

B. *CyberSource Corp. v. Retail Decisions, Inc.*

In 2011, the Federal Circuit again considered the abstract idea exception, this time in *CyberSource Corp. v. Retail Decisions, Inc.*³⁷ The patent claimed a method and system for detecting fraud in a credit card transaction between a consumer and a merchant over the Internet.³⁸ To do this, the invention used Internet address information to determine whether an Internet address for a particular transaction was consistent with Internet addresses used in other

²⁵ *Id.* at 863.

²⁶ *Id.* at 864.

²⁷ *Id.* at 865.

²⁸ *Id.* at 868.

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ *Id.* at 869.

³⁴ *See id.*

³⁵ *Id.* (quoting *Diamond v. Diehr*, 450 U.S. 175, 187 (1981)) (internal quotation marks omitted).

³⁶ *See id.*

³⁷ *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366 (Fed. Cir. 2011).

³⁸ *Id.* at 1367.

transactions involving the same credit card.³⁹ Specifically, the method comprised the steps of (1) obtaining information about other transactions using an Internet address identified with the credit card transaction; (2) constructing a map of credit card numbers from the other transactions; and (3) using the map to determine if the credit card transaction is valid.⁴⁰ The patent also claimed a computer-readable storage medium containing program instructions for executing the fraud detection method.⁴¹

The court began by characterizing the method as an unpatentable mental process (a type of abstract idea) because all of the steps could be performed in the human mind or by a human using a pen and paper.⁴² The step of obtaining information could be performed by a human who simply reads records of existing credit card transactions from a database.⁴³ The step of constructing a map of credit card numbers could be performed by a human who writes down a list of credit card transactions.⁴⁴ And the broadly worded step of using the map to determine if the credit card transaction is valid encompassed any method for detecting fraud, even logical reasoning performed entirely in the human mind.⁴⁵ The court held that a method that can be performed entirely in the human mind is merely an abstract idea and not patent-eligible.⁴⁶ As for the computer-readable medium claim, the court rejected the argument that the claim was patent-eligible per se because it recited a tangible, man-made article of manufacture that could not fall within the three exceptions.⁴⁷ Rather, concluding that the claim was drawn to the underlying method of credit card fraud detection, the court treated the claim as a process claim for patent-eligibility purposes.⁴⁸

Moreover, the court found that the process failed to meet either prong of the machine-or-transformation test. The mere collection, manipulation, or reorganization of data did not satisfy the transformation prong, and the incidental use of a computer to perform the mental process did not impose a meaningful limitation on the claim's scope.⁴⁹ The court distinguished the present case from *Research Corp.* because the method in *Research Corp.* could not, as a practical matter, be performed entirely in a human's mind.⁵⁰ Instead, it required the manipulation and output of computer data structures.⁵¹ Therefore, as unpatentable mental processes, the court found the claims in *CyberSource* invalid under § 101.⁵²

³⁹ *Id.* at 1367–68.

⁴⁰ *Id.* at 1370.

⁴¹ *Id.* at 1373–74.

⁴² *Id.* at 1372.

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.* at 1373.

⁴⁶ *Id.*

⁴⁷ *Id.* at 1374.

⁴⁸ *See id.* at 1375.

⁴⁹ *See id.*

⁵⁰ *Id.* at 1376.

⁵¹ *Id.*

⁵² *Id.* at 1376–77.

C. DealerTrack, Inc. v. Huber

In *DealerTrack, Inc. v. Huber*, the patents were directed to a computer-aided method and system for processing credit applications over electronic networks.⁵³ Before the invention, car dealers seeking car loans on behalf of their customers would apply to banks by filling out forms for each bank, transmitting the form to each bank, waiting for bank personnel to enter the application information into the bank computer system, and receiving responses from each bank.⁵⁴ The patent proposed to automate the process using a computer.⁵⁵

The Federal Circuit concluded that the claims were invalid as they were directed to “an abstract idea preemptive of a fundamental concept or idea that would foreclose innovation in this area.”⁵⁶ The court reasoned that, in its simplest form, the claimed process explained the basic concept of processing information through a clearinghouse, and the steps did not impose meaningful limits on the claim’s scope.⁵⁷ The court concerned itself in particular with the risk of preemption of the clearinghouse concept.⁵⁸

Rejecting the argument that the “computer-aided” limitation sufficiently limited the claims to an application of the abstract idea, the court noted that the patent did not specify how the computer was specially programmed to perform the claimed steps.⁵⁹ Rather, the claims were silent as to how and to what extent a computer aided the method, and to the significance of a computer to the method’s performance.⁶⁰ The court held that “[s]imply adding a ‘computer aided’ limitation to a claim . . . without more, is insufficient to render the claim patent eligible.”⁶¹ It was also inconsequential that the claims were limited to a car loan application process. “The notion of using a clearinghouse generally and using a clearinghouse specifically to apply for car loans, like the relationship between hedging and hedging in the energy market in *Bilski* . . . is of no consequence without more.”⁶² Thus, the court held the claims were patent-ineligible abstract ideas under § 101.

D. Fort Properties, Inc. v. American Master Lease LLC

Less than one month before the Supreme Court issued its opinion, the Federal Circuit made its final pre-*Mayo* decision substantively addressing patentable subject matter.⁶³ The

⁵³ See *DealerTrack, Inc. v. Huber*, 674 F.3d 1315, 1317 (Fed. Cir. 2012).

⁵⁴ *Id.*

⁵⁵ See *id.* at 1317–18.

⁵⁶ *Id.* at 1333.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.* at 1334.

⁶³ See *Fort Props., Inc. v. Am. Master Lease LLC*, 671 F.3d 1317 (Fed. Cir. 2012). A few days after issuing its *Fort Properties* opinion, the court did discuss § 101—and some of the problems courts have encountered over the years interpreting the abstractness issue—in *MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250 (Fed. Cir. 2012). But the Federal Circuit panel majority, “declin[ing] the dissent’s invitation to put the parties and this court in the swamp that is § 101 jurisprudence,” ultimately decided the case on the question of compliance with §§ 102 and 103.

claimed invention in *Fort Properties, Inc. v. American Master Lease LLC* was an investment tool allowing property owners to buy and sell properties without incurring tax liability.⁶⁴ To accomplish this, the claims required the aggregation of properties into a real estate portfolio subject to a master agreement.⁶⁵ The property interests in the portfolio were then divided into deedshares and sold to investors.⁶⁶

The court held that the claims were not directed to patent-eligible subject matter.⁶⁷ As an initial matter, the court explained that the claims disclosed an investment tool that did not require the use of a computer.⁶⁸ Next, the court rejected the argument that the process was not an abstract idea because it required steps taking place in the real world that involved real property and physical legal documents like deeds and contracts.⁶⁹ Instead, when viewing the claimed invention as a whole, the court found these physical activities insufficient to render the abstract concept patentable.⁷⁰

The court also invalidated other claims containing an additional limitation requiring a computer to generate the deedshares.⁷¹ The computer limitation, like the “computer-aided” limitation in *DealerTrack*, did not play a significant part in permitting the claimed method to be performed; rather, the claims required only that the computer generate deedshares. The computer limitation was simply insignificant post-solution activity added to claims covering an abstract concept, and could not on its own transform the concept into patentable subject matter.⁷²

IV. POST-MAYO, PRE-ALICE FEDERAL CIRCUIT CASES

A. Bancorp Services, LLC v. Sun Life Assurance Co. of Canada (U.S.)

Post-*Mayo*, the Federal Circuit again addressed the abstract idea exception in *Bancorp Services, LLC v. Sun Life Assurance Co. of Canada (U.S.)*.⁷³ In *Bancorp*, the patents at issue involved the administration and tracking of stable value protected life insurance policies,

Id. at 1262. The case illustrates the split among the members of the court regarding whether the subject matter eligibility requirements of § 101 present an “antecedent question” that must be addressed before obviousness or anticipation. *Id.* at 1264. Although the lower court had not ruled on the § 101 question, and the parties’ briefs did not address it, Judge Mayer, writing in dissent, would have invalidated the patent under § 101 as an abstract idea. Judge Mayer found the patent’s concept of allowing users to control the content of their online communications abstract because free and unrestricted Internet communication “has become a staple of contemporary life,” and permitting monopoly over this concept would “preempt use of one of the ‘basic tools’ of modern social and commercial interaction.” *Id.* at 1265–66.

⁶⁴ *Fort Props.*, 671 F.3d at 1318.

⁶⁵ *See id.* at 1318–19.

⁶⁶ *See id.*

⁶⁷ *Id.* at 1332.

⁶⁸ *Id.*

⁶⁹ *See id.*

⁷⁰ *Id.*

⁷¹ *See id.* at 1323–24.

⁷² *See id.*

⁷³ *See Bancorp Servs., LLC v. Sun Life Assurance Co. of Can. (U.S.)*, 687 F.3d 1266 (Fed. Cir. 2012).

wherein a third-party guarantor guarantees, for a fee, a particular “book value” of the life insurance policy, regardless of its market value.⁷⁴ The patents provided a computerized means for tracking the book value and market value of the policies and calculating the amount the guarantor must pay should the policy be paid out prematurely.⁷⁵

The Federal Circuit concluded that the claimed invention covered no more than abstract ideas ineligible for patent protection.⁷⁶ The court did not elaborate on why it found the particular claims abstract beyond observing that “there is no material difference between the claims invalidated in *Bilski* and those at issue here.”⁷⁷ According to the court, the patents attempted to claim the use of the abstract idea of managing a stable value protected life insurance policy and instructed the use of well-known calculations to help establish inputs into the equation.⁷⁸

Further, the court found the claims did not meet either prong of the machine-or-transformation test. In particular, the court rejected the argument that, because the claims were limited to being performed on a computer, they could not claim only an abstract idea.⁷⁹ The court reiterated that simply adding a “computer-aided” limitation to a claim to cover an abstract concept, without more, is insufficient.⁸⁰ And the use of a computer in an otherwise patent-ineligible process for no more than the computer’s most basic function, to make calculations or computations, fails to take the claim out of abstraction.⁸¹ Rather, to save the process, the computer must be integral to the claimed invention in a way that a person could not be.⁸² In *Bancorp*, the integral part of each claim was the management of the life insurance policy, not the computer machinery used to accomplish it.⁸³ The computer simply performed more efficiently what could otherwise be accomplished manually.⁸⁴ And without the insignificant computer limitations, nothing remained in the claims but the abstract idea of managing a stable value protected life insurance policy by performing calculations and manipulating the results.⁸⁵

B. Accenture Global Services, GMBH v. Guidewire Software, Inc.

In *Accenture Global Services, GMBH v. Guidewire Software, Inc.*, the patent described a computer program for handling insurance-related tasks.⁸⁶ At the district court level, both the system and method claims were invalidated under § 101 as drawn toward abstract ideas.⁸⁷ In particular, the patent was “directed to concepts for organizing data rather than to specific devices

⁷⁴ *Id.* at 1270.

⁷⁵ *Id.*

⁷⁶ *Id.* at 1277.

⁷⁷ *Id.* at 1278.

⁷⁸ *Id.*

⁷⁹ *Id.* at 1277.

⁸⁰ *See id.* at 1278.

⁸¹ *See id.*

⁸² *Id.*

⁸³ *Id.* at 1279.

⁸⁴ *Id.*

⁸⁵ *See id.* at 1280.

⁸⁶ *See Accenture Global Servs. v. Guideware Software, Inc.*, 728 F.3d 1336, 1338 (Fed. Cir. 2013).

⁸⁷ *See id.* at 1340.

or systems,” and limiting the claims to the insurance industry was insufficient.⁸⁸ Only the judgment invalidating the system claims was appealed.⁸⁹

The majority agreed with the district court that the claims were directed to patent-ineligible subject matter for two reasons.⁹⁰ First, the system claims offered no meaningful limitations beyond the unpatentable method claims not on appeal. Rather, “[t]he system claims were simply the method claims implemented on a system for performing the method.”⁹¹ Therefore, the system claims were as patent-ineligible as the method claims.⁹² Second, the court concluded that, even on their own, the system claims failed to include meaningful limitations setting them apart from the underlying abstract idea of handling insurance-related information.⁹³ The court reached this conclusion using preemption analysis, and rejected the argument that computer-implementation and application within the insurance industry were sufficiently meaningful limitations that would allow the claims to avoid wholly preempting the abstract idea.⁹⁴

C. Cyberfone Systems, LLC v. CNN Interactive Group, Inc.

In *Cyberfone Systems, LLC v. CNN Interactive Group, Inc.*, the patent related to methods and a system for capturing and storing data.⁹⁵ A representative claim recited the steps of (1) obtaining data transaction information entered on a telephone from a single transmission; (2) forming a plurality of different exploded data transactions; and (3) sending the different exploded data transactions to different destinations.⁹⁶ The Federal Circuit agreed with the district court that the patent involved the well-known concept of categorical data storage: “Like protecting against risk, using categories to organize, store, and transmit information is well-established.”⁹⁷ Cyberfone argued that the subject matter of the patent could not be an abstract idea because a human, unaided by devices, could not perform the recited steps.⁹⁸ But the Federal Circuit held that, although methods that can be performed in the human mind alone are not patent-eligible, the category of abstract ideas is not limited to such mental processes.⁹⁹ Therefore, the court held that the well-known concept was an abstract idea, and because additional substantive limitations did not narrow, confine, or otherwise tie down the claim so that it did not essentially cover the abstract idea itself, the claim was not patent-eligible.¹⁰⁰

⁸⁸ *Id.*

⁸⁹ *See id.* at 1341.

⁹⁰ *See id.* at 1342.

⁹¹ *Id.*

⁹² *Id.*

⁹³ *Id.* at 1344.

⁹⁴ *See id.* at 1344–45.

⁹⁵ *See Cyberfone Sys., LLC v. CNN Interactive Grp., Inc.*, 558 F. App’x 988, 990 (Fed. Cir. 2014).

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.* at 992.

V. *AN OPPORTUNITY FOR SUPREME COURT CLARIFICATION: CLS BANK INTERNATIONAL V. ALICE CORP. PTY. LTD.*

The Federal Circuit has addressed patentable subject matter twice in *CLS Bank International v. Alice Corp. Pty. Ltd.*, resulting in two very different outcomes.¹⁰¹ The patents at issue in *Alice* included method, system, and computer media claims related to a computerized trading platform for performing financial transactions.¹⁰² In sum, the platform used a trusted third party to settle obligations between a first and second party, in order to eliminate “counterparty” or “settlement risk,” i.e., the risk that only one party to an exchange actually pays its obligation.¹⁰³

A. *The Panel Decision*

Judge Linn, writing for the majority, acknowledged the serious problem with the then-current state of the law on abstract ideas. While *Mayo* reaffirmed the existence of the exception, it did not directly address how to determine if a claim is an abstract idea in the first place.¹⁰⁴ And *Bilski* ultimately provided little guidance, vaguely characterizing abstract ideas in terms of “fundamental truths” with “preemptive potential.”¹⁰⁵

Nonetheless, in initially holding the claims were directed to patent-eligible subject matter, the court seemed to rely on a narrower “manifestly evident” standard, perhaps alluding to the rationale previously articulated by the court in *Fort Properties*.¹⁰⁶ It concluded that each asserted claim required computer implementation, and that the computer limitations played a significant part in the invention’s performance.¹⁰⁷ Moreover, the panel decision held that the claims “appear[ed] to cover the practical application of a business concept in a specific way” and “[did] not appear to preempt much in the way of innovation.”¹⁰⁸ Therefore, even though the computer limitations in this case may have been “less substantial or limiting than the industrial uses examined in [*Diamond v.*] *Diehr* (curing rubber) or [*In re*] *Alappat* (a rasterizer),” they limited the scope *enough* so that it was not manifestly evident that the claims were patent-ineligible under § 101.¹⁰⁹

Judge Prost’s dissent criticized the majority’s seeming reliance on the less vigorous “manifestly evident” approach.¹¹⁰ In particular, she faulted the majority for not following the

¹⁰¹ See *CLS Bank Int’l v. Alice Corp. Pty. Ltd.*, 685 F.3d 1341 (Fed. Cir.), *vacated, reh’g en banc granted*, 484 F. App’x 559 (Fed. Cir. 2012), *and on reh’g en banc*, 717 F.3d 1269 (Fed. Cir. 2013).

¹⁰² See *id.* at 1343–45.

¹⁰³ See *id.*

¹⁰⁴ *Id.* at 1348.

¹⁰⁵ *Id.* at 1349–50.

¹⁰⁶ See *id.* at 1352; see also *Research Corp. Techs. v. Microsoft Corp.*, 627 F.3d 859, 868 (Fed. Cir. 2010) (going only so far as to define “abstract” as a “disqualifying characteristic [that] should exhibit itself so manifestly as to override the broad statutory categories of eligible subject matter”).

¹⁰⁷ *Alice*, 685 F.3d at 1354–55.

¹⁰⁸ *Id.* at 1355–56.

¹⁰⁹ *Id.* at 1356.

¹¹⁰ *Id.* at 1356–57 (Prost, J., dissenting).

Supreme Court’s directive in *Mayo* by failing to inquire whether the claims included an “inventive concept” more than an abstract idea.¹¹¹ Under this approach, and foreshadowing the court’s decision on rehearing *en banc*, Judge Prost would have held all of the claims unpatentable.¹¹²

B. Decision on Rehearing *En Banc*

On rehearing *en banc*, the court divided dramatically. A two-sentence per curiam opinion was followed by five separate concurrences and dissents, as well as additional reflections by Chief Judge Rader, all spanning sixty-eight disorienting pages.¹¹³ Although the court ultimately held all of the claims patent-*ineligible*, *Alice’s en banc* rehearing illustrated the diverging understandings of patent eligibility among the circuit judges, and the need for clarity from above.

To begin with, under Judge Lourie’s approach, the court should first ask whether the claimed invention falls into one of the four statutory categories, i.e., whether the invention is a process, machine, manufacture, or composition of matter.¹¹⁴ If so, the court should ask if one of the three judicial exceptions nonetheless bars the claim because the claim is drawn to a law of nature, natural phenomenon, or abstract idea.¹¹⁵ The tricky part, however, is determining whether a claim impermissibly ties up a law of nature, natural phenomenon, or abstract idea, or merely embodies, uses, reflects, rests upon, or applies it.¹¹⁶ According to Judge Lourie, the determination “turns primarily on the practical likelihood of a claim preempting a fundamental concept.”¹¹⁷

To avoid preemption, the claim must include some meaningful limitation that adds significantly *more* to the abstract idea so that the claim covers significantly *less*.¹¹⁸ This meaningful limitation, in Judge Lourie’s view, is the “inventive concept” presented in *Mayo*.¹¹⁹ Specifically, “[a]n ‘inventive concept’ in the § 101 context refers to a genuine human contribution to the claimed subject matter. . . . 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.’”¹²⁰ To be meaningful, the human contribution cannot be merely tangential, routine, well-understood, conventional, or otherwise necessary to every practical use of the concept and therefore not truly limiting.¹²¹ Under this approach, Judge Lourie found all claims invalid under § 101 because the additional claim limitations provided no significant

¹¹¹ *Id.* at 1357 (Prost, J., dissenting).

¹¹² *See id.* (Prost, J., dissenting).

¹¹³ *See* CLS Bank Int’l v. Alice Corp. Pty. Ltd., 717 F.3d 1269 (Fed. Cir.) (*en banc*) (per curiam), *cert. granted*, 134 S. Ct. 734 (2013).

¹¹⁴ *Id.* at 1277 (Lourie, J., concurring).

¹¹⁵ *Id.* (Lourie, J., concurring).

¹¹⁶ *Id.* (Lourie, J., concurring).

¹¹⁷ *Id.* (Lourie, J., concurring). Notably, Judge Lourie stated that it is important at the outset to identify the abstract idea or fundamental concept wrapped up in the claim but did not articulate an approach for doing so. *See id.* at 1282 (Lourie, J., concurring).

¹¹⁸ *See id.* at 1281 (Lourie, J., concurring).

¹¹⁹ *See id.* at 1282 (Lourie, J., concurring).

¹²⁰ *Id.* at 1283 (Lourie, J., concurring) (citing *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980)).

¹²¹ *See id.* (Lourie, J., concurring).

inventive concept representing anything more than the abstract idea of third-party intermediation.¹²² In particular, merely adding a computer that performs basic operations capable of being performed by a human, only faster, is not enough to confer patent eligibility.¹²³

Chief Judge Rader disagreed with the above approach. Although he agreed that the court should determine whether the claim includes meaningful limitations restricting it to an application of an abstract idea rather than the idea itself, he suggested that a limitation could be meaningful so long as it exceeds what the abstract idea inherently requires.¹²⁴ This approach is seemingly broader than that proposed by Judge Lourie, though under it, Chief Judge Rader also found the method and computer media claims ineligible for patent protection.

As for the system claims, Chief Judge Rader found them patent-eligible. He disagreed in particular with Judge Lourie's proposition that a computer-implemented invention is not patentable if the computer merely performs what a human can do. Because "[e]verything done by a computer can be done by a human . . . [r]equiring a computer to do something that a human could not would mean that computer implementation could never produce patent eligibility."¹²⁵ Moreover, in Chief Judge Rader's opinion, "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."¹²⁶

Judge Moore wrote separately to explain why the system claims specifically were patent-eligible.¹²⁷ She expressed concern outright "that the current interpretation of § 101, and in particular the abstract idea exception, is causing a freefall in the patent system."¹²⁸ She forewarned that, should all of the claims, including the system claims, fail, *Alice* would be "the death of hundreds of thousands of patents, including all business method, financial system, and software patents."¹²⁹ As to the system claims' patentability, she remarked that, should someone seek to patent a general-purpose computer itself, the computer—as a machine—would satisfy § 101 (though it may nonetheless fail §§ 102 or 103).¹³⁰ With that established, she poignantly asked, "[w]hy, 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?"¹³¹ In Judge Moore's view, a system claim should necessarily satisfy § 101: "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."¹³²

Judge Newman filed an opinion pleading for judicial clarification. In particular, she asked the court to resolve the current confusion by returning to the inclusive language of § 101 in order

¹²² See *id.* at 1286–92 (Lourie, J., concurring).

¹²³ See *id.* at 1286.

¹²⁴ See *id.* at 1303 (Rader, C.J., concurring-in-part and dissenting-in-part).

¹²⁵ *Id.* at 1306 n.7 (Rader, C.J., concurring-in-part and dissenting-in-part).

¹²⁶ *Id.* (Rader, C.J., concurring-in-part and dissenting-in-part).

¹²⁷ See *id.* at 1314 (Moore, J., dissenting-in-part).

¹²⁸ *Id.* at 1313 (Moore, J., dissenting-in-part).

¹²⁹ *Id.* (Moore, J., dissenting-in-part).

¹³⁰ *Id.* at 1317 (Moore, J., dissenting-in-part).

¹³¹ *Id.* (Moore, J., dissenting-in-part) (emphasis added).

¹³² *Id.* at 1321 (Moore, J., dissenting-in-part) (emphasis added).

to identify patentable subject matter.¹³³ Then, the other substantive patentability requirements—novelty, utility, prior art, obviousness, description, enablement, and specificity—would effectively eliminate the need for definitions of “abstractness” or “preemption” at all.¹³⁴

Ultimately, the reason for the sharp division among the circuit judges in *Alice*’s *en banc* decision seemed to be the uncertainty created by the Supreme Court’s decisions in *Bilski* and *Mayo*—specifically the lack of clear guidance regarding what constitutes an “inventive concept,” as well as the meaning and scope of preemption. The precedential scope of those holdings (i.e., whether all types of claims and all subject matter exceptions should be analyzed in the same way), and how the reasoning in either case should apply to business method and software patents also likely contributed to the confusion. Needless to say, the Supreme Court granted a petition for certiorari in this case, perhaps with the intention of establishing a clear standard once and for all.

C. Supreme Court Decision

On June 19, 2014, the Supreme Court issued its ruling unanimously invalidating all of the asserted claims. Justice Thomas delivered the opinion of the Court, which held that the method, system, and computer-readable media claims at issue were drawn to the abstract idea of intermediated settlement, and mere generic computer implementation failed to transform that abstract idea into a patent-eligible invention.¹³⁵

The Court reiterated that *Mayo* set forth the proper framework for distinguishing patents that claim patent-ineligible laws of nature, natural phenomena, or abstract ideas from those that claim patent-eligible applications of those concepts.¹³⁶ The first step is to determine whether the claims at issue are directed to one of those ineligible concepts. If so, the second step is to determine whether the additional elements of each claim, both individually and as an ordered combination, transform the nature of the claim into a patent-eligible application (i.e., whether there is an “inventive concept” sufficient to ensure that the patent in practice amounts to significantly more than a patent on the ineligible concept itself).¹³⁷

Turning to the first step of the *Mayo* framework, the Court concluded that the claims were drawn to the abstract idea of intermediated settlement.¹³⁸ The Court largely relied on *Bilski* to reach this conclusion, stating that “[i]t follows from our prior cases, and *Bilski* in particular, that the claims at issue here are directed to an abstract idea. . . . Like the risk hedging in *Bilski*, the concept of intermediated settlement is a fundamental economic practice long prevalent in our system of commerce.”¹³⁹ But the Court elaborated no further on what abstract ideas are or how they should be identified, remarking that it “need not labor to delimit the precise contours of the ‘abstract ideas’ category in this case.”¹⁴⁰ In the Court’s view, it was “enough to recognize that there [was] no meaningful distinction between the concept of risk hedging in *Bilski* and the

¹³³ *Id.* at 1322 (Newman, J., dissenting-in-part).

¹³⁴ *Id.* (Newman, J., dissenting-in-part).

¹³⁵ *See Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2352 (2014).

¹³⁶ *Id.* at 2355.

¹³⁷ *See id.*

¹³⁸ *See id.* at 2355–56.

¹³⁹ *Id.* at 2356 (internal quotation marks omitted).

¹⁴⁰ *Id.* at 2357.

concept of intermediated settlement at issue here. Both [were] squarely within the realm of ‘abstract ideas.’”¹⁴¹

The Court then turned to the second step of *Mayo*’s framework.¹⁴² All of the claims at issue were implemented using a computer; the system and media claims expressly recited a computer, and the parties stipulated that the method claims required a computer as well.¹⁴³ Examining the method claims first, the Court concluded that they amounted to nothing significantly more than an instruction to apply the abstract idea using a generic computer, which failed to transform the abstract idea into a patent-eligible invention.¹⁴⁴ The functions performed by the computer at each step (e.g., using a computer to create and maintain accounts, obtain data, adjust balances, and issue automated instructions) were purely conventional.¹⁴⁵ And the method claims did not purport to improve the functioning of the computer itself, or any other technology or technical field.¹⁴⁶ Thus, the method claims were patent-ineligible.

As to the system and computer-readable media claims, the Court acknowledged that “[t]here is no dispute that a computer is a tangible system (in § 101 terms, a ‘machine’), or that many computer-implemented claims are formally addressed to patent-eligible subject matter.”¹⁴⁷ Yet, the Court advised that that is not the end of the § 101 inquiry—if it were, “an applicant could claim any principle of the physical or social sciences by reciting a computer system configured to implement the relevant concept” and “make the determination of patent eligibility ‘depend simply on the draftsman’s art.’”¹⁴⁸ Accordingly, the Court analyzed the computer system and computer-readable media claims under the same *Mayo* framework, and the claims failed for substantially the same reasons as the method claims.¹⁴⁹ The hardware recited in the system claims—e.g., a “data processing system” with a “communication controller” and “data storage unit”—was purely functional and generic, and could be found in nearly every computer capable of performing the basic calculation, storage, and transmission functions required by the claims.¹⁵⁰ Therefore, the hardware offered no meaningful limitation beyond generic computer implementation of the underlying abstract idea, and the system and computer-readable media claims were also ineligible for patent protection.¹⁵¹

Notably, the Court again described the concern driving the § 101 exclusions as one of preemption, because the monopolization of those concepts through patent protection might tend to impede innovation rather than promote it, and thereby thwart the primary objective of patent law.¹⁵² But the Court cautioned that it “tread[s] carefully in construing this exclusionary principle lest it swallow all of patent law.”¹⁵³ Arguably, however, by not carefully construing the

¹⁴¹ *Id.*

¹⁴² *See id.*

¹⁴³ *Id.* at 2353.

¹⁴⁴ *See id.* at 2359–60.

¹⁴⁵ *Id.* at 2359.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.* at 2358–59.

¹⁴⁸ *Id.* at 2359 (quoting *Parker v. Flook*, 437 U.S. 584, 593 (1978)).

¹⁴⁹ *See id.* at 2360.

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² *Id.* at 2354.

¹⁵³ *Id.*

exclusions, the Court may have inadvertently led lower courts to apply an unnecessarily stringent standard in analyzing § 101, whose statutory roll has been described as a “coarse eligibility filter,” not the final arbiter of patentability.”¹⁵⁴

VI. POST-ALICE FEDERAL CIRCUIT CASES

As of this article’s current update, over one year has passed since the Supreme Court delivered its opinion in *Alice*. In that time, the Federal Circuit has substantively addressed § 101 and the judicial exceptions in at least eleven decisions detailed below. The cases illustrate that the court is now more consistently relying on the two-step eligibility analysis as outlined in *Mayo* and reiterated in *Alice*; however, some of the cases also seem to suggest that the court is still experiencing some difficulties in actually analyzing each step, due to the continued absence of coherent standards for identifying abstract ideas and sufficiently inventive concepts.

A. Digitech Image Technologies, LLC v. Electronics for Imaging, Inc.

In *Digitech Image Technologies, LLC v. Electronics for Imaging, Inc.*, the asserted claims were directed to an “improved device profile” and a method for creating an improved device profile for addressing image distortion within a digital image processing system.¹⁵⁵ According to the patent, all imaging devices somewhat distort an image’s color and spatial properties due to variances in different devices’ display or reproduction capabilities.¹⁵⁶ Prior art methods attempted to correct these distortions with device profiles containing color information for source and output devices, but the patent expanded, and thus improved, this paradigm to include both color and spatial properties.¹⁵⁷ The Federal Circuit affirmed the district court’s holding that all of the asserted claims were subject-matter ineligible; the device profile claims were directed to a collection of data lacking any physical component or manifestation, and the method claims for generating a device profile were directed to the abstract idea of organizing data using mathematical correlations.¹⁵⁸

First, the device profile as claimed in the patent was not patent-eligible because it did not fit within any of the categories enumerated in § 101.¹⁵⁹ The claims described the device profile as a collection of spatial and color information, but they did not describe “any tangible embodiment of this information (*i.e.*, in physical memory or other medium) or claim any tangible part of the digital processing system”¹⁶⁰ “Data in its ethereal, nonphysical form is simply

¹⁵⁴ *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057, 1066 (Fed. Cir. 2011).

¹⁵⁵ *See Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1347 (Fed. Cir. 2014).

¹⁵⁶ *Id.*

¹⁵⁷ *Id.* at 1348.

¹⁵⁸ *Id.* at 1348, 1350–51.

¹⁵⁹ *Id.* at 1349.

¹⁶⁰ *Id.* For example, claim 1 read as follows:

1. A device profile for describing properties of a device in a digital image reproduction system to capture, transform or render an image, said device profile comprising:

information that does not fall under any of the categories” in § 101; therefore, the device profile as claimed was not patent-eligible.¹⁶¹

Second, the method claims for generating a device profile recited a process of taking two data sets and combining them into a single data set.¹⁶² Looking at the independent claim, the court recognized that, as a process, the claim on its face fell within one of the four statutory categories; however, the method merely described the abstract idea of “organizing information through mathematical correlations and [was] not tied to a specific structure or machine.”¹⁶³ The court rejected the argument that the process was specifically and integrally tied to a digital image processing system; although the claim’s non-limiting preamble mentioned a “digital image reproduction system,” nothing in the claim language expressly tied the method to an image processor.¹⁶⁴ Thus, the court held, absent additional limitations, a process that employed mathematical algorithms to manipulate information in order to generate further information was patent-ineligible.¹⁶⁵

B. Planet Bingo, LLC v. VKGS LLC

The claims at issue in *Planet Bingo, LLC v. VKGS, LLC* described computer-aided methods and systems for managing a game of bingo while allowing a player to play sets of

first data for describing a device dependent transformation of color information content of the image to a device independent color space; and

second data for describing a device dependent transformation of spatial information content of the image in said device independent color space.

¹⁶¹ *Id.* at 1350.

¹⁶² *Id.* at 1351. Claim 10 described the process for generating a device profile as follows:

10. A method of generating a device profile that describes properties of a device in a digital image reproduction system for capturing, transforming or rendering an image, said method comprising:

generating first data for describing a device dependent transformation of color information content of the image to a device independent color space through use of measured chromatic stimuli and device response characteristic functions;

generating second data for describing a device dependent transformation of spatial information content of the image in said device independent color space through use of spatial stimuli and device response characteristic functions; and

combining said first and second data into the device profile.

¹⁶³ *Id.* at 1350.

¹⁶⁴ *Id.* at 1350–51.

¹⁶⁵ *Id.* at 1351.

numbers repeatedly and in multiple sessions.¹⁶⁶ To begin with, the Federal Circuit found that there was no meaningful distinction between the method and system claims, which recited the same basic process.¹⁶⁷ The claims generally recited the steps of “selecting, storing, and retrieving two sets of numbers, assigning a player identifier and a control number, and then comparing a winning set of bingo numbers with a selected set of bingo numbers.”¹⁶⁸ Next, the court explained that managing a game of bingo is a mental process that can be carried out by a human using pen and paper.¹⁶⁹ Because the claims required, at most, two sets of bingo numbers, the court rejected the argument that the claimed computer program was not directed to a mental process because it could handle thousands, if not millions, of numbers, which would be impossible for manual management.¹⁷⁰ Moreover, the court held that the claims were directed to the abstract idea of solving security problems, such as tampering during bingo ticket purchases, similar to the abstract ideas of risk hedging in consumer transactions in *Bilski* and of mitigating settlement risk in financial transactions in *Alice*.¹⁷¹

In analyzing whether the claims contained an inventive concept sufficient to transform the claimed abstract idea into a patent-eligible application, the court turned to the patent’s additional computer limitations. Unlike the claims in *Digitech Image Technologies*, the claims here *were* tied to a physical device—a computer with a central processing unit, memory, a printer, input and output terminals, and, in some cases, a video screen.¹⁷² “[I]f a patent’s recitation of a computer,” however, “amounts to a mere instruction to ‘implemen[t]’ an abstract idea ‘on . . . a computer,’ . . . that addition cannot impact patent eligibility.”¹⁷³ Here, the claims recited a general computer implementation of the abstract idea, and the functions performed by the computer at each step (e.g., storing, retrieving, and verifying) were purely conventional.¹⁷⁴ Therefore, the claims did not contain an inventive concept and were invalid under § 101.¹⁷⁵

C. *buySAFE, Inc. v. Google, Inc.*

The patent in *buySAFE, Inc. v. Google, Inc.* claimed methods for guaranteeing a party’s performance of its online transaction, and computer-readable media encoded with instructions to carry out the methods.¹⁷⁶ In method claim 1, for example, a computer operated by the provider of a safe transaction service performed the steps of (1) receiving a request for a performance guarantee for an online commercial transaction, (2) processing the request by underwriting the requesting party in order to provide the transaction guaranty service, and (3) offering, via a network, a transaction guaranty that binds to the transaction upon the transaction’s closing.¹⁷⁷

¹⁶⁶ See *Planet Bingo, LLC v. VKGS LLC*, 576 F. App’x 1005, 1006 (Fed. Cir. 2014).

¹⁶⁷ *Id.* at 1007.

¹⁶⁸ *Id.* at 1007–08.

¹⁶⁹ *Id.*

¹⁷⁰ *Id.* at 1008.

¹⁷¹ *Id.*

¹⁷² See *id.*

¹⁷³ *Id.* (quoting *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2358 (2014)) (alteration in original).

¹⁷⁴ *Id.* at 1008–09.

¹⁷⁵ *Id.* at 1009.

¹⁷⁶ See *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1351 (Fed. Cir. 2014).

¹⁷⁷ *Id.*

The district court held the claims were patent-ineligible, concluding that the claims described the well-known and widely understood concept of a third-party guarantee, and then applied that concept using conventional computer technology and the Internet.¹⁷⁸

The Federal Circuit first addressed whether and to what extent the claims were directed to an abstract idea, identifying the relevant Supreme Court cases, namely *Bilski* and *Alice*, as “those which [found] an abstract idea in certain arrangements involving contractual relations, which are intangible entities.”¹⁷⁹ In both cases, the Court’s findings relied on the fact that the contractual relations—to hedge risk in commodity prices, and to mitigate settlement risk in the exchange of financial obligations between parties—constituted “fundamental economic practice[s] long prevalent in our system of commerce.”¹⁸⁰ Here, too, the claims were “squarely about creating a contractual relationship—a ‘transaction performance guaranty’—that [was] beyond question of ancient lineage.”¹⁸¹ That the dependent claims narrowed the contractual relationship to particular (yet familiar) types did not change the analysis, because the act of narrowing does not make an abstract idea non-abstract.¹⁸² Thus, the court concluded, the case did not push or even test the boundaries of *Bilski* and *Alice*, and the claims were directed to an abstract idea.¹⁸³

Next, the court held that the claims’ invocation of computers and networks did not add an inventive concept due to their generic and limited functionality of receiving requests for, and transmitting offers of, guarantees.¹⁸⁴ As the district court observed, the computer was used only for processing, a basic function of any general-purpose computer, and the claims did not require specific programming and were not tied to any particular machine.¹⁸⁵ Furthermore, “[t]hat a computer receives and sends the information over a network—with no further specification—is not even arguably inventive.”¹⁸⁶ As a result, the Federal Circuit found it “a straightforward matter to conclude that the claims in this case [were] invalid” under § 101.¹⁸⁷

D. Ultramercial, Inc. v. Hulu, LLC

Of the Federal Circuit decisions that issued since *Alice*, the court’s most recent opinion in *Ultramercial, Inc. v. Hulu, LLC*,¹⁸⁸ may have been one of the more interesting. The patent at issue in *Ultramercial* claimed a method for distributing copyrighted products, such as songs, movies, and books, over the Internet.¹⁸⁹ The consumer would receive copyrighted content for free in exchange for viewing an advertisement, and the ad sponsor would pay for the content.¹⁹⁰

¹⁷⁸ *Id.* at 1352.

¹⁷⁹ *Id.* at 1353.

¹⁸⁰ *Id.* at 1353–54 (quoting *Bilski v. Kappos*, 561 U.S. 593, 611 (2010)).

¹⁸¹ *Id.* at 1355.

¹⁸² *Id.*

¹⁸³ *See id.* at 1354–55.

¹⁸⁴ *Id.* at 1355.

¹⁸⁵ *Id.* at 1352.

¹⁸⁶ *Id.* at 1355.

¹⁸⁷ *Id.*

¹⁸⁸ *See Ultramercial, Inc. v. Hulu, LLC (Ultramercial III)*, 772 F.3d 709 (Fed. Cir. 2014).

¹⁸⁹ *Id.* at 712.

¹⁹⁰ *Id.* The method in claim 1, for example, included eleven steps: (1) receiving copyrighted media from a content provider; (2) selecting an ad after consulting an activity log to determine whether the ad has been played less than a certain number of times; (3) offering the media for

At the beginning of the saga, the district court granted a Rule 12(b)(6) motion to dismiss the complaint for failure to state a claim, holding that the patent did not claim eligible subject matter but instead claimed the abstract idea of using advertisements as an exchange or currency.¹⁹¹ The Federal Circuit then reviewed the eligibility of the claimed method three times in three successive opinions: *Ultramercial I*,¹⁹² which issued after *Bilski* but before *Mayo*; *Ultramercial II*,¹⁹³ which issued after *Mayo* but before *Alice*; and *Ultramercial III*,¹⁹⁴ which issued after *Alice*. As discussed below, the first two decisions reversed the lower court and held that the method was patent-eligible, but based on *Alice*'s apparent clarification of *Mayo*'s two-part test, the third decision reached a different result.

I. Ultramercial I

On its first review, the Federal Circuit reversed the district court's ruling. While the mere idea that advertising can be used as currency is abstract, the patent did not simply claim that "age-old" idea; instead, the patent disclosed "a practical application of this idea."¹⁹⁵ Here, the Federal Circuit found that the patent sought to solve problems with prior art banner advertisements by introducing a method that forced consumers to view and sometimes interact with an advertisement before accessing desired media content.¹⁹⁶ Moreover, the court found that many of the method's steps were "likely to require intricate and complex computer programming," and some "clearly require[d] specific application to the Internet and a cyber-market environment."¹⁹⁷ Therefore, "[b]y its terms, the claimed invention purport[ed] to improve existing technology in the marketplace," and "[b]y its terms, the claimed invention invoke[d] computers and applications of computer technology."¹⁹⁸ And "[i]nventions with specific applications or improvements to technologies in the marketplace are not likely to be so abstract that they override the statutory language and framework of the Patent Act."¹⁹⁹ Thus, the court found the claims to be patent-eligible.

sale on the Internet; (4) restricting public access to the media; (5) offering the media to the consumer in exchange for watching the selected ad; (6) receiving a request to view the ad from the consumer; (7) facilitating display of the ad; (8) allowing the consumer access to the media; (9) allowing the consumer access to the media if the ad is interactive; (10) updating the activity log; and (11) receiving payment from the sponsor of the ad.

¹⁹¹ See *id.* at 713–14.

¹⁹² *Ultramercial, LLC v. Hulu, LLC (Ultramercial I)*, 657 F.3d 1323 (Fed. Cir. 2011), *vacated sub nom. WildTangent, Inc. v. Ultramercial, LLC*, 132 S. Ct. 2431 (2012) (the original decision vacated for further consideration in light of *Mayo*).

¹⁹³ *Ultramercial, Inc. v. Hulu, LLC (Ultramercial II)*, 722 F.3d 1335 (Fed. Cir. 2013), *vacated sub nom. WildTangent, Inc. v. Ultramercial, LLC*, 134 S. Ct. 2870 (2014) (the second decision vacated for further consideration in light of *Alice*).

¹⁹⁴ *Ultramercial III*, 772 F.3d 709 (Fed. Cir. 2014).

¹⁹⁵ *Ultramercial I*, 657 F.3d at 1328.

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

¹⁹⁸ *Id.*

¹⁹⁹ *Id.* (quoting *Bilski v. Kappos*, 561 U.S. 593, 601(2010)) (internal quotation marks omitted).

2. Ultramercial II

The Supreme Court vacated and remanded the case for further consideration in light of its subsequent holding in *Mayo*. On remand, the Federal Circuit began its second analysis of the abstract idea exception by recognizing that defining “abstractness” has presented problems historically.²⁰⁰ With help from the dictionary, the court opined that “[a]n abstract idea is one that has no reference to material objects or specific examples—*i.e.*, it is not concrete.”²⁰¹ The court reemphasized that, while no longer the exclusive tool for determining subject matter eligibility of processes, the machine-or-transformation test can be a useful and important clue.²⁰² But the test has far less application to the inventions of the “Information Age,” because technology lacking ties to physical structures or steps “simply def[ies] easy classification under the machine-or-transformation categories.”²⁰³

The court presented the relevant inquiry as follows: Does the claim, as a whole, merely cover an abstract idea, or does it include meaningful limitations restricting it to an application of an abstract idea?²⁰⁴ Recognizing that the analysis is not easy, the court summarized some Supreme Court guidance. A claim is not meaningfully limited if (1) it only describes an abstract idea or simply adds “apply it”; (2) it preemptively covers all practical applications of an abstract idea; (3) it does not wholly preempt an abstract idea, but contains only insignificant or token pre- or post-solution activity, such as identifying a relevant audience, category of use, field of use, or technological environment; or (4) its purported limitations provide no real direction, cover all possible ways to achieve the provided result, or are overly generalized.²⁰⁵ On the other hand, a claim is meaningfully limited if (1) it requires a particular machine implementing a process, or a particular transformation of matter; or (2) it recites added limitations, beyond routine or conventional ones, that are essential to the invention so that the abstract idea is not wholly preempted.²⁰⁶ With respect to computer-implemented inventions, the court characterized the inquiry as one focusing on whether the claims tie the abstract idea to a specific computer, or a specific way of doing something with a computer.²⁰⁷ A meaningful limitation in this context could include a computer being part of, or integral to, the solution, or containing an improvement in computer technology.²⁰⁸

While the parties in *Ultramercial II* proceeded on the assumption that the mere idea that advertising could be used as currency was an abstract concept, the court again held that the patent claimed a practical application of this concept.²⁰⁹ There was no risk that the claims would preempt all forms of advertising, much less advertising on the Internet, and the additional limitations were not token pre- or post-solution steps.²¹⁰ In particular, the court—for the second time—stressed that many of the claimed steps required “intricate and complex computer

²⁰⁰ *Ultramercial II*, 722 F.3d 1335, 1342 (Fed. Cir. 2013).

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ *See id.* at 1343.

²⁰⁴ *See id.* at 1344.

²⁰⁵ *See id.* at 1345–47.

²⁰⁶ *See id.* at 1347.

²⁰⁷ *Id.* at 1348.

²⁰⁸ *Id.*

²⁰⁹ *See id.* at 1349.

²¹⁰ *Id.* at 1352.

programming,” and required that the method be performed through computers, on the Internet, and in a cyber-market environment.²¹¹ As a result, the court again held the claims satisfied the requirements of § 101.

3. Ultramercial III

Following its decision in *Alice*, the Supreme Court once again vacated and remanded *Ultramercial* for further consideration in light of that opinion.²¹² This time, “with the added benefit of the Supreme Court’s reasoning in *Alice*,” which for the most part reiterated the *Mayo* standard already relied on in *Ultramercial II*, the Federal Circuit concluded that the patent did *not* claim eligible subject matter and, accordingly, affirmed the district court’s original decision to grant the motion to dismiss.²¹³ Tracking *Alice*’s two-part test, the court first examined whether the claims in dispute were directed to one of the three patent-ineligible concepts. It concluded the claimed method, which included eleven steps for displaying an advertisement in exchange for access to copyrighted media, recited an abstraction having no particular concrete or tangible form.²¹⁴ “Although certain additional limitations, such as consulting an activity log, add[ed] a degree of particularity, the concept embodied by the majority of the limitations describe[d] only the abstract idea of showing an advertisement before delivering free content.”²¹⁵

Ultramercial argued, however, that the claims here were not directed to the same type of “routine,” “long prevalent,” and “conventional” abstract idea at issue in *Alice*; rather, they were “directed to a specific method of advertising and content distribution that was previously unknown and never employed on the Internet before.”²¹⁶ The claims employed a new “active” advertising method that required users to affirmatively select advertisements.²¹⁷ In effect, Ultramercial proposed “a type of 103 analysis” for assessing patent eligibility of abstract ideas under § 101,²¹⁸ arguably supported by the Supreme Court’s and Federal Circuit’s frequent descriptions of ineligible abstract ideas as “well known,” “fundamental,” “routine,” “long prevalent,” and “conventional.” Under this interpretation, abstract ideas would remain patent-eligible “as long as they are *new* ideas, not previously well known, and not routine activity.”²¹⁹ But the Federal Circuit did not agree that “the addition of merely novel or non-routine components to the claimed idea necessarily turns an abstraction into something concrete,” and “[i]n any event, any novelty in implementation of the idea is a factor to be considered only in the second step of the *Alice* analysis.”²²⁰

The court’s rejection of Ultramercial’s proposal arguably makes sense—an abstract idea, untethered to the physical realm, is no less abstract by virtue of being “new.” Similarly, one could easily argue that the state of the art should not affect the § 101 abstraction analysis, which could create the situation in which something is patent-eligible at one point in time but is no

²¹¹ *Id.* at 1350.

²¹² *Ultramercial III*, 772 F.3d 709, 713 (Fed. Cir. 2014).

²¹³ *Id.* at 713, 717.

²¹⁴ *Id.* at 714.

²¹⁵ *Id.*

²¹⁶ *Id.*

²¹⁷ *Id.*

²¹⁸ *Id.*

²¹⁹ *Id.*

²²⁰ *Id.* at 715.

longer eligible after becoming “well known” in the art. This view, however, seems at odds with the court’s habit of characterizing a concept as abstract because it is fundamental, well known, and long prevalent, rather than because it lacks any tangible embodiment or is otherwise disconnected from the physical world.

Concluding that the claims were directed to an abstract idea, the court turned to the second step in the analysis—determining whether the claims do significantly more than describe that idea.²²¹ While the claims incorporated additional limitations, such as updating an activity log, requiring a request from the consumer to view the ad, restrictions on public access, and use of the Internet, these additional “conventional steps, specified at a high level of generality,” were insufficient to supply an inventive concept.²²² Furthermore, the claims’ invocation of the Internet was merely an attempt to limit the use of the abstract idea to a particular technological environment, which was also insufficient to save the claims.²²³ Thus, on its third review, the court held the patent did not claim patent-eligible subject matter.²²⁴

Notably, Judge Mayer wrote separately to emphasize a few points, one of which was that, in *Alice*, the Supreme Court, “for all intents and purposes, set out a technological arts test for patent eligibility.”²²⁵ The *Alice* claims were patent-ineligible “because they did not ‘improve the functioning of the computer itself’ or ‘effect an improvement in any other technology or technical field.’”²²⁶ Rather, the claimed intermediated settlement technique, although purportedly new and useful, advanced a business goal.²²⁷ But “[i]n assessing patent eligibility, advances in non-technological disciplines—such as business, law, or the social sciences—simply do not count.”²²⁸ Accordingly, Judge Mayer proposed a “rule holding that claims are impermissibly abstract if they are directed to an entrepreneurial objective, such as methods for increasing revenue [as in *Ultramercial*], minimizing economic risk [as in *Bilski*], or structuring commercial transactions [as in *Alice*].”²²⁹ Under this proposed rule, because the innovative aspect of *Ultramercial*’s invention was “an *entrepreneurial* rather than a *technological* one,” the claims fell outside § 101.²³⁰

E. DDR Holdings, LLC v. Hotels.com, L.P.

Of the handful of Federal Circuit opinions that have issued since *Alice*, the court’s decision in *DDR Holdings, LLC v. Hotels.com, L.P.* is the only one (as of January 31, 2015) that

²²¹ *Id.* at 716.

²²² *Id.* (quoting *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2357 (2014)).

²²³ *Id.*

²²⁴ *Id.*

²²⁵ *Id.* at 717 (Mayer, J., concurring); *see also* *I/P Engine, Inc. v. AOL Inc.*, 576 F. App’x 982, 992 (Fed. Cir. 2014) (Mayer, J., concurring) (“The Supreme Court in [*Alice*] for all intents and purposes, recited a ‘technological arts’ test for patent eligibility. Because the claims asserted by [the patentee] disclose no new technology, but instead simply recite the use of a generic computer to implement a well-known and widely-practiced technique for organizing information, they fall outside the ambit of 35 U.S.C. § 101.”).

²²⁶ *Ultramercial III*, 772 F.3d at 721 (Mayer, J., concurring) (quoting *Alice*, 134 S. Ct. at 2359).

²²⁷ *Id.* (Mayer, J., concurring).

²²⁸ *Id.* (Mayer, J., concurring).

²²⁹ *Id.* (Mayer, J., concurring).

²³⁰ *Id.* (Mayer, J., concurring) (emphasis added).

has resolved a § 101 challenge in favor of the patentee.²³¹ The two patents-in-suit were directed to systems and methods of generating a composite web page that combined certain visual elements (such as the logo, background color, and fonts) of a “host” website with the product information of a third-party merchant.²³² The invention was designed to address prior art systems that allowed third-party merchants to lure the host’s visitor traffic away after the visitor clicked on a merchant’s advertisement link embedded on the host’s web page.²³³ In the invention, instead of directing the visitor to the merchant’s site, the link took the visitor to a composite web page that displayed the merchant’s product information but retained the host site’s “look and feel.”²³⁴ This way, the visitor would be under the impression that he or she was still viewing pages served by the host.²³⁵

Judge Chen, writing for the panel majority, held that the claims did not implicate either step of the *Alice* analysis, suggesting that they were not even directed to an abstract idea, similar to the invention at issue in *Research Corp.*²³⁶ And even if the claims were directed to an abstract idea, they still satisfied step two.²³⁷ He began by observing that the asserted claims did not recite a mathematical algorithm, or a fundamental economic or long-standing commercial practice.²³⁸ While the court conceded the claims *did* address a business challenge (i.e., retaining website visitors), the claims did not “merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet.”²³⁹

Rather, the court seemed to conclude that the claimed invention offered a solution to a specific problem existing in Internet technology. The challenge of retaining visitors, the court rationalized, was particular to the Internet and caused by “the routine and conventional sequence of events ordinarily triggered by the click of a hyperlink.”²⁴⁰ And the claimed solution—which apparently overrode that normal sequence by instead directing a visitor to an unexpected composite web page—was “necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.”²⁴¹ Therefore, according to the court, the claim limitations, considered as a whole, did not recite an invention that was merely the routine or conventional use of Internet technology—rather, they recited an invention that

²³¹ See *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1255 (Fed. Cir. 2014).

²³² *Id.* at 1248. For example, a representative claim recited a system generally comprising the following elements: (1) a data store containing data about the visual elements of a host website; (2) an active link on the host website associated with a buying opportunity for a third-party merchant’s commerce object; (3) and an outsource provider’s computer server coupled to the data store and programmed to receive a signal indicating the link was clicked, retrieve the stored data, and generate the composite web page. See *id.* at 1249.

²³³ *Id.* at 1248.

²³⁴ *Id.*

²³⁵ See *id.*

²³⁶ *Id.* at 1257.

²³⁷ *Id.*

²³⁸ *Id.*

²³⁹ *Id.*

²⁴⁰ *Id.* at 1258.

²⁴¹ *Id.*

improved Internet technology itself.²⁴² The solution amounted to “an inventive concept for resolving this particular Internet-centric problem, rendering the claims patent-eligible.”²⁴³

Judge Mayer authored a dissenting opinion, insisting, once again, that *Alice* articulated a technological arts test for patent eligibility.²⁴⁴ He disagreed that the asserted claims added anything to existing Internet or computer technology.²⁴⁵ Rather, they “simply describe[d] an abstract concept—that an online merchant’s sales can be increased if two web pages have the same ‘look and feel’—and appl[ied] that concept using a generic computer” without disclosing any new technology or inventive concept.²⁴⁶ The computer limitations recited in the claims—a “data store,” a “web page having a link,” and a “computer processor”—were all “conventional elements long-used in e-commerce.”²⁴⁷ And “at the time of the claimed invention, the use of hyperlinks to divert consumers to particular web pages was a well-understood and widely-used technique.”²⁴⁸ Indeed, contrary to the majority’s view, the solution arguably did not change the normal operation of the Internet at all—it simply proposed programming that took advantage of routine website technology (e.g., displaying hyperlinks, dynamically generating web pages, and directing browsers to a particular web page) to solve a perceived business problem.

Furthermore, according to Judge Mayer, the claims did, in fact, “simply take a well-known and widely-applied business practice and apply it using a generic computer and the Internet.” Judge Mayer analogized the present invention to the idea of having a “store within a store,” which (like the invention) permitted visitors to, in a sense, be in two places at the same time, and which “was in widespread use well before the dawn of e-commerce.”²⁴⁹ Thus, the only innovative aspect of the invention was “taking something that worked in the real world and doing it on the Internet.”²⁵⁰ Because this purported inventive concept was entrepreneurial rather than technological, the claimed invention was not patent-eligible.²⁵¹

F. In re BRCA1- and BRCA2-Based Hereditary Cancer Test Patent Litigation

The Myriad plaintiffs²⁵² owned patents covering compositions of matter and methods relating to the BRCA1 and BRCA2 genes.²⁵³ Because mutations of the BRCA1 and BRCA2 genes are linked to hereditary breast and ovarian cancers, doctors can determine whether a patient is prone to developing cancer by testing for the presence of these mutations.²⁵⁴ Myriad’s

²⁴² *See id.*

²⁴³ *Id.*

²⁴⁴ *Id.* at 1265 (Mayer, J., dissenting).

²⁴⁵ *See id.* at 1264 (Mayer, J., dissenting).

²⁴⁶ *See id.* (Mayer, J., dissenting).

²⁴⁷ *Id.* (Mayer, J., dissenting).

²⁴⁸ *Id.* at 1265 (Mayer, J., dissenting).

²⁴⁹ *Id.* (Mayer, J., dissenting).

²⁵⁰ *Id.* (Mayer, J., dissenting).

²⁵¹ *Id.* at 1266 (Mayer, J., dissenting).

²⁵² The University of Utah Research Foundation, The Trustees of the University of Pennsylvania, HSC Research and Development Limited Partnership, Endorecherche, Inc., and Myriad Genetics, Inc. (collectively, Myriad).

²⁵³ *In re BRCA1- & BRCA2-Based Hereditary Cancer Test Patent Litig.*, 774 F.3d 755, 757 (Fed. Cir. 2014).

²⁵⁴ *Id.*

isolation of these genes allowed for testing for such mutations. Previously, the Federal Circuit and Supreme Court addressed some of Myriad’s patents, with the Supreme Court ultimately holding that certain claims directed to isolated DNA were drawn to patent-ineligible subject matter—namely, natural phenomena—because isolated DNA strands, though separated from the rest of the human genome, are naturally occurring.²⁵⁵ Following that decision, competitors, including the defendant Ambry Genetics Corporation, entered the “cancer gene”-test-kit market.²⁵⁶ Myriad then sued Ambry and moved for a preliminary injunction based on patent claims not already directly considered by the higher courts.²⁵⁷

The preliminary-injunction motion asserted six claims: four composition-of-matter claims directed to primers (i.e., short, synthetic DNA strands that bind specifically to intended target nucleotide sequences), and two method claims directed to comparing the typical BRCA sequences found in humans with those sequences found in a particular patient.²⁵⁸ Because the district court concluded that the six claims were likely drawn to ineligible subject matter and Myriad was unlikely to succeed on the merits, the court denied Myriad’s motion for preliminary injunction.²⁵⁹ Myriad appealed that denial to the Federal Circuit.²⁶⁰

On appeal, the Federal Circuit first addressed the composition-of-matter claims, holding that the primers presently before the court were not distinguishable from the isolated DNA found patent-ineligible in the Supreme Court’s earlier *Myriad* decision.²⁶¹ Primers, which are single-stranded DNA molecules designed to bind to target sequences, necessarily contain the identical sequence directly opposite to the target strand, and they are therefore structurally identical to DNA strands found in nature.²⁶² It makes no difference that the primers are synthetically replicated.²⁶³ Nor does it matter that single-stranded DNA cannot be found in the human body.²⁶⁴ “A DNA structure with a function similar to that found in nature can only be patent eligible as a composition of matter if it has a unique structure, different from anything found in nature.”²⁶⁵ Because the primers did not have such a unique structure, the court found the composition-of-matter claims patent-ineligible.²⁶⁶

As for the two method claims, Ambry argued that the claims were “ineligible under a ‘straightforward application’ of the Supreme Court decision in *Mayo*,” because the claims simply identified a law of nature (i.e., the precise sequences of BRCA genes, and comparisons of typical sequences with a patient’s mutated sequences) and applied conventional techniques.²⁶⁷

²⁵⁵ *Id.*; see *Ass’n for Molecular Pathology v. Myriad*, 133 S. Ct. 2107, 2116–17 (2013).

²⁵⁶ *See Cancer Test Patent Litig.*, 774 F.3d at 757.

²⁵⁷ *Id.* at 758.

²⁵⁸ *Id.*

²⁵⁹ *Id.*

²⁶⁰ *See id.*

²⁶¹ *Id.* at 759.

²⁶² *Id.*

²⁶³ *Id.*

²⁶⁴ *Id.* at 760.

²⁶⁵ *Id.*

²⁶⁶ *Id.*

²⁶⁷ *Id.* at 761–62 (citation omitted).

The Federal Circuit, however, held that the method claims “suffer[ed] from a separate infirmity,” namely, that they recited abstract ideas, so the court instead analyzed the claims under *Alice*.²⁶⁸

The court began by noting that the two method claims presently at issue—claims 7 and 8 of U.S. Patent No. 5,753,441—were dependent on, and therefore incorporated, independent claim 1.²⁶⁹ In a previous decision, the court had determined that claim 1 was directed to the patent-ineligible, abstract mental process of “comparing” and “analyzing” two gene sequences and determining the existence of alterations (therefore satisfying step of one the *Alice* test).²⁷⁰ The question then became whether claims 7 and 8 overcame *Alice* step two by adding significantly more to that abstract idea sufficient to transform the nature of the claims into patent-eligible applications of it.²⁷¹ Claims 7 and 8 recited particular ways in which the sequences were compared; however, the court found—and Myriad apparently did not dispute—that the recited techniques were “well-understood, routine, and conventional techniques that a scientist would have thought of when instructed to compare two gene sequences.”²⁷² Thus, the court concluded that the claims, adding nothing “new,” were directed to patent-ineligible subject matter and affirmed the district court’s denial of Myriad’s motion for preliminary injunction.²⁷³

G. Content Extraction and Transmission LLC v. Wells Fargo Bank, National Association

Content Extraction and Transmission LLC and its principals (collectively, CET) asserted a number of patents with claims generally reciting a method of (1) extracting data from hard copy documents using an automated digitizing unit like a scanner, (2) recognizing specific information from the extracted data, and (3) storing that recognized information in memory.²⁷⁴ CET filed infringement actions against financial institutions Wells Fargo Bank, N.A. (Wells Fargo) and The PNC Financial Services Group, Inc. and PNC Bank, N.A. (collectively, PNC), alleging that their ATMs with check-deposit software infringed CET’s patented method.²⁷⁵ PNC moved to dismiss CET’s complaint under Rule 12(b)(6) on the ground that each claim of the asserted patents was invalid as patent-ineligible under § 101.²⁷⁶ The district court agreed and granted PNC’s motion.²⁷⁷

On appeal of the dismissal, the Federal Circuit found that the claims were directed to the abstract idea of data collection and storage—specifically, (1) collecting data, (2) recognizing certain data within the collection, and (3) storing the recognized data in memory.²⁷⁸ In reaching this conclusion, the court, once again, characterized the abstract idea as something “well known.”²⁷⁹ According to the court, the “concept of data collection, recognition, and storage is

²⁶⁸ *Id.* at 762.

²⁶⁹ *See id.* at 761–62.

²⁷⁰ *Id.* at 762–63.

²⁷¹ *See id.* at 763.

²⁷² *Id.* at 764.

²⁷³ *Id.*

²⁷⁴ *See* Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n, 776 F.3d 1343, 1345 (Fed. Cir. 2014).

²⁷⁵ *Id.*

²⁷⁶ *Id.* at 1346.

²⁷⁷ *Id.*

²⁷⁸ *Id.* at 1347.

²⁷⁹ *See also* discussion *supra* Part VI.D.3.

undisputedly well-known. Indeed, humans have always performed these functions. And banks have, for some time, reviewed checks, recognized relevant data such as the amount, account number, and identity of account holder, and stored that information in their records.”²⁸⁰

The court rejected CET’s attempts to distinguish its claims from those in *Alice* and other § 101 cases.²⁸¹ First, CET tried to show that its claims required not only a computer but also a scanner; however, “the use of a scanner or other digitizing device to extract data from a document was well-known at the time of filing, . . . [and] [t]here [was] no ‘inventive concept’ in CET’s use of a generic scanner and computer to perform well-understood, routine, and conventional activities commonly used in industry.”²⁸² Second, CET maintained that human minds are incapable of processing and recognizing the stream of bits output by scanner.²⁸³ But as pointed out by the court, the claims in *Alice* also required a computer that processed streams of bits, and those claims were nonetheless abstract.²⁸⁴

Incidentally, CET also argued that the failure of the district court to individually address every asserted claim of an asserted patent before invalidating it was inconsistent with 35 U.S.C. § 282’s presumption of validity, which requires proving invalidity of each claim by clear and convincing evidence.²⁸⁵ The Federal Circuit disagreed, holding that the district court correctly determined that addressing each claim was unnecessary because all of the claims were “substantially similar and linked to the same abstract idea.”²⁸⁶ Lastly, CET argued that the district court improperly declared the claims patent-ineligible at the pleadings stage before first construing the claims or allowing discovery and expert reports.²⁸⁷ But “claim construction is not an inviolable prerequisite to a validity determination under § 101,” and in any event, the district court construed the terms identified by CET in the light most favorable to CET.²⁸⁸ Even in this favorable light, none of CET’s claims amounted to significantly more than the abstract idea of data collection and storage using generic scanning and processing technology.²⁸⁹ Therefore, the district court’s dismissal was proper.

H. OIP Technologies, Inc. v. Amazon.com, Inc.

OIP Technologies accused Amazon.com of infringing U.S. Patent No. 7,970,713, which claimed a computer-implemented “method of pricing a product for sale.”²⁹⁰ Traditionally, the patent explained, merchandisers manually determined prices by estimating the demand for a particular product based on qualitative knowledge of the product, pricing experience, and other

²⁸⁰ *Content Extraction & Transmission*, 776 F.3d at 1347.

²⁸¹ *Id.* at 1347–48.

²⁸² *Id.*

²⁸³ *Id.* at 1347.

²⁸⁴ *Id.*

²⁸⁵ *See id.* at 1348.

²⁸⁶ *Id.* at 1348 (quoting *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, Nos. 12–2501 (MAS)(TJB), 12–6960(MAS)(TJB), 2013 WL 3964909, at *5 (D.N.J. July 31, 2013)).

²⁸⁷ *Id.* at 1349.

²⁸⁸ *Id.*

²⁸⁹ *Id.*

²⁹⁰ *See OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1360 (Fed. Cir. 2015).

business policies.²⁹¹ But this approach was imperfect because the merchandiser was slow to react to changing market conditions and therefore often was not charging an optimal price that maximizes profit.²⁹² Accordingly, the patent claimed a method of price optimization in an e-commerce environment that helped vendors “automatically reach better pricing decisions through automatic estimation and measurement of actual demand to select prices.”²⁹³

The method in claim 1 recited the following steps: (1) testing a plurality of prices (by sending electronic offers for products over a network to programmed devices); (2) gathering, within a machine-readable medium, statistics generated about how customers reacted to the test offers; (3) using a computer to automatically estimate outcomes (i.e. mapping the demand curve over time for a given product) based on those statistics; and (4) automatically selecting and offering a new price based on the estimated outcome.²⁹⁴

The district court granted Amazon’s motion to dismiss, “finding that the asserted claims merely use a general-purpose computer to implement the abstract idea of ‘price optimization.’”²⁹⁵ According to the district court, “without the ‘insignificant computer-based limitations,’ the claims merely ‘describe what any business owner or economist does in calculating a demand curve for a given product.’”²⁹⁶ And the Federal Circuit agreed—the patent claimed “no more than an abstract idea coupled with routine data-gathering steps and conventional computer activity”

Specifically, under step one of the *Mayo* test, the Federal Circuit held that the claims were directed to the concept of “offer-based price optimization,” and that “‘offer based pricing’ is similar to other ‘fundamental economic concepts’ found to be abstract ideas by the Supreme Court and this court.”²⁹⁷ According to the court, even if the claims did not preempt all price optimization or may have been limited to price optimization in the e-commerce setting, the claims were no less abstract.²⁹⁸

Turning to step two of the *Mayo* analysis, the court held that the additional claim elements failed to transform the abstract idea into a patent-eligible application because, “[b]eyond the abstract idea of offer-based price optimization, the claims merely recite ‘well-understood, routine conventional activit[ies],’ either by requiring conventional computer activities or routine data-gathering steps.”²⁹⁹ For example, the court identified the following computer elements and functions as being “‘well-understood, routine, conventional activit[ies]’

²⁹¹ *See id.* at 1360–61.

²⁹² *See id.* at 1361.

²⁹³ *Id.*

²⁹⁴ *See id.*

²⁹⁵ *Id.* at 1362.

²⁹⁶ *Id.*

²⁹⁷ *Id.* (citing *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2357 (2014) (intermediated settlement); *Bilski v. Kappos*, 561 U.S. 93, 611 (2010) (risk hedging); *Ultramercial III*, 772 F.3d 709, 715 (Fed. Cir. 2014) (using advertising as an exchange or currency); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (data collection); *Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1346 (Fed. Cir. 2013) (generating tasks in an insurance organization)).

²⁹⁸ *See id.* at 1362–63.

²⁹⁹ *Id.* at 1363 (alteration in original) (quoting *Alice*, 134 S. Ct. at 2359).

previously known to the industry”: (1) sending electronic messages over a network to devices; (2) programming devices to communicate; (3) storing test results in a machine-readable medium; and (4) using a computer to automatically determine and set a price.³⁰⁰ Further, the additional elements of (1) presenting offers to potential customers and (2) gathering statistics about how customers responded to those offers were also “well-understood, routine, conventional data-gathering activities that [did] not make the claims patent eligible.”³⁰¹ Neither of those elements added any meaningful limitations to the abstract idea.³⁰²

“At best,” said the court, “the claims describe[d] the automation of the fundamental economic concept of offer-based price optimization through the use of generic-computer functions.” The prosecution history and specification emphasized that the key distinguishing feature of the claims was the ability to automate prior-art price-optimization methods and make them more efficient in terms of cost, time, and accuracy.³⁰³ “But relying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.”³⁰⁴ Accordingly, without more, the claims lacked an inventive concept sufficient to transform the abstract idea of offer-based price optimization into a patent-eligible application of that concept.³⁰⁵

Judge Mayer concurred with the opinion but wrote separately to address the district court’s resolution of “threshold” patent eligibility issues on the pleadings: “where, as here, asserted claims are plainly directed to a patent ineligible abstract idea, [the Federal Circuit has] repeatedly sanctioned a district court’s decision to dispose of them on the pleadings.”³⁰⁶ This is because a patent’s “[f]ailure to recite statutory subject matter is the sort of ‘basic deficiency,’ that can, and should, ‘be exposed at the point of minimum expenditure of time and money by the parties and the court.’”³⁰⁷ As Judge Mayer highlighted, “[a]ddressing 35 U.S.C. § 101 at the outset not only conserves scarce judicial resources and spares litigants the staggering costs associated with discovery and protracted claim construction litigation, it also works to stem the tide of vexatious suits brought by the owners of vague and overbroad business method patents.”³⁰⁸

I. *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*

Ariosa Diagnostics, Inc. v. Sequenom, Inc. involved the discovery of cell-free fetal DNA (“cffDNA”) in the portion of maternal blood samples that researchers had previously discarded

³⁰⁰ *See id.*

³⁰¹ *Id.* at 1363–64.

³⁰² *See id.*

³⁰³ *See id.* at 1363.

³⁰⁴ *Id.* (citing *Alice*, 134 S. Ct. at 2359; *Bancorp Servs., LLC v. Sun Life Assurance Co. of Can.* (U.S.), 687 F.3d 1266, 1278 (Fed. Cir. 2012).; *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1258–59 (Fed. Cir. 2014)).

³⁰⁵ *See id.* at 1364.

³⁰⁶ *Id.* at 1364–65 (Mayer, J., concurring) (citing *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1349 (Fed. Cir. 2014); *Ultramercial III*, 772 F.3d 709, 717 (Fed. Cir. 2014); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1352 (Fed. Cir. 2014)).

³⁰⁷ *Id.* at 1364 (Mayer, J., concurring) (quoting *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 558 (2007)).

³⁰⁸ *Id.* (Mayer, J., concurring).

as medical waste.³⁰⁹ The *Ariosa* patent claimed certain methods of using this cffDNA, including the steps of amplifying the cffDNA contained in a pregnant female’s blood sample and detecting the fraction of paternally inherited cffDNA from it.³¹⁰ After the parties filed cross motions for summary judgment regarding § 101, the district court held that the claims were directed to the natural phenomenon of paternally inherited cffDNA, and because the amplifying and detecting steps were “well-understood, routine, or conventional activity” when the patent application was filed, the claims did not add enough to this phenomenon to support patent eligibility.³¹¹ On appeal, the Federal Circuit essentially agreed with the district court, holding that the claimed method began and ended with naturally occurring phenomena—cffDNA from a maternal blood sample, and paternally inherited cffDNA.³¹² And the method amounted to a general instruction to doctors to apply routine, conventional techniques when seeking to detect paternally inherited cffDNA, which was not “new and useful.”³¹³

Of particular interest is the *Ariosa* court’s discussion of the principle of preemption. The patentee had argued that because there were numerous other uses of cffDNA aside from those claimed in the patent, the patent did not preempt *all* uses of the natural phenomenon and was therefore patent eligible.³¹⁴ The Federal Circuit disagreed. First, the court emphasized that the judicial exceptions to ineligibility do not require complete preemption: “While preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.”³¹⁵ Second, while the Supreme Court “has made clear” that preemption concerns form the basis for the judicial exceptions, courts need not separately address preemption in analyzing eligibility.³¹⁶ Rather, “questions on preemption are inherent in and resolved by the § 101 analysis.” And, in fact, when a court determines that a patent’s claims disclose only patent-ineligible subject matter under the *Mayo* framework, “preemption concerns are fully addressed and made moot.”³¹⁷

J. *Internet Patents Corp. v. Active Network, Inc.*

The patent in *Internet Patents Corp. v. Active Network, Inc.* claimed a method, system, and computer-readable storage medium for providing a user interface to a dynamically generated online application. That online application allowed for use of a conventional web browser’s “Back” and “Forward” navigational functionalities without loss of data during the navigation.³¹⁸

³⁰⁹ See *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1373 (Fed. Cir. 2015).

³¹⁰ See *id.* at 1373–74.

³¹¹ See *id.* at 1375.

³¹² See *id.* at 1376.

³¹³ See *id.* at 1377.

³¹⁴ *Id.* at 1378.

³¹⁵ *Id.*

³¹⁶ See *id.* at 1379.

³¹⁷ *Id.*

³¹⁸ See *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1344, 1348–49 (Fed. Cir. 2015). The court identified claim 1 as the broadest claim:

1. A method of providing an intelligent user interface to an online application comprising the steps of:

The district court held that the claims were directed to the ineligible abstract idea of “retaining information lost in the navigation of online forms,” and the Federal Circuit agreed (although without detailed analysis).³¹⁹ As for whether the claims provided an inventive concept, both courts concluded that there was none. Beyond the generic computer and computer-readable storage medium, neither of which could constitute an inventive concept, the claims added only conventional or generic activity.³²⁰ For example, the patent specification conceded that the “browser Back and Forward button functionality” was “conventional,” and the dependent claims merely added generic data-collection steps such as combining information from files and databases.³²¹ Moreover, the claims did not recite any restriction or describe any mechanism for retaining the information.³²² Rather, according to the court, the claims were directed to the ineligible concept (the abstract idea of avoiding loss of data) itself.³²³ Accordingly, the claims were not directed to patent-eligible subject matter.³²⁴

K. *Intellectual Ventures I LLC v. Capital One Bank (USA), National Association*

In *Intellectual Ventures I LLC v. Capital One Bank (USA), National Association*, the Federal Circuit reviewed the district court’s determination on summary judgment that the asserted claims of U.S. Patent Nos. 8,083,137 and 7,603,382 were invalid for claiming patent-ineligible subject matter.³²⁵

With respect to the ’137 patent, that patent described “utiliz[ing] user-selected preset limits on spending that are stored in a database that, when reached, communicates a notification to the user via a device.”³²⁶ The court held that the claims of the ’137 patent were directed to the

furnishing a plurality of icons on a web page displayed to a user of a web browser, wherein each of said icons is a hyperlink to a dynamically generated online application form set, and wherein said web browser comprises Back and Forward navigation functionalities;

displaying said dynamically generated online application form set in response to the activation of said hyperlink, wherein said dynamically generated online application form set comprises a state determined by at least one user input; and

maintaining said state upon the activation of another of said icons, wherein said maintaining allows use of said Back and Forward navigation functionalities without loss of said state.

³¹⁹ *See id.* at 1347–48.

³²⁰ *See id.* at 1348–49.

³²¹ *Id.*

³²² *Id.* at 1348.

³²³ *Id.*

³²⁴ *See id.* at 1348–49.

³²⁵ *See Intellectual Ventures I LLC v. Capital One Bank (USA), Nat’l Ass’n*, 792 F.3d 1363, 1366 (Fed. Cir. 2015).

³²⁶ *Id.* at 1367 (alteration in original). Representative claim 5 recited a method comprising:

abstract idea of “tracking financial transactions to determine whether they exceed a pre-set spending limit (i.e., budgeting).”³²⁷ Intellectual Ventures had admitted that budgeting “undoubtedly . . . is an abstract idea.”³²⁸ Also, the court found that this concept was not meaningfully different from ideas found to be abstract in other cases involving “methods of organizing human activity.”³²⁹

Turning to step two, the court remarked that it was clear that the claims contained no inventive concept.³³⁰ The additional elements of a database, a user profile, and a communication medium were “all generic computer elements,” and “reciting no more than generic computer elements performing generic computer tasks does not make an abstract idea patent-eligible.”³³¹ Plus, the budgeting calculations at issue “could still be made using a pencil and paper’ with a simple notification device,” which weighed against eligibility.³³²

As for the ’382 patent, its claims related to customizing web page content based on (1) information known about the user (such as location or address) and (2) navigation data (such as time of day).³³³ The court noted that tailoring content based on customer information is “a fundamental . . . practice long prevalent in our system.”³³⁴ For example, there was no dispute

storing, in a database, a profile keyed to a user identity and containing one or more user-selected categories to track transactions associated with said user identity, wherein individual user-selected categories include a user pre-set limit; and

causing communication, over a communication medium and to a receiving device, of transaction summary data in the database for at least one of the one or more user-selected categories, said transaction summary data containing said at least one user-selected category’s user pre-set limit.

³²⁷ *Id.*

³²⁸ *Id.*

³²⁹ *Id.* at 1367–68 (referring, for example, to the abstract idea of “hedging risk” at issue in *Bilski* and the abstract of idea of “mitigating settlement risk using a third-party intermediary” at issue in *Alice*).

³³⁰ *Id.* at 1368.

³³¹ *Id.*

³³² *Id.* at 1368–69.

³³³ *See id.* at 1369. Representative claim 1 recited the following system:

A system for providing web pages accessed from a web site in a manner which presents the web pages tailored to an individual user, comprising:

an interactive interface configured to provide dynamic web site navigation data to the user, the interactive interface comprising:

a display depicting portions of the web site visited by the user as a function of the web site navigation data; and

a display depicting portions of the web site visited by the user as a function of the user’s personal characteristics.

³³⁴ *Id.* (alteration in original).

that “newspaper inserts had often been tailored based on information known about the customer,” e.g., the customer’s location.³³⁵ “Providing this minimal tailoring,” held the court, “is an abstract idea.”³³⁶ Likewise, “tailoring information based on the time of day of viewing is also an abstract, overly broad concept long-practiced in our society.”³³⁷ For decades, television channels tailored commercial advertisements based on the time of day—for example, by choosing to “present a commercial for children’s toys during early morning cartoon programs but beer during an evening sporting event.”³³⁸

The court found that the additional elements of the ’382 patent did not supply an inventive concept either. Although Intellectual Ventures argued that the claimed invention provided content customization in “real time,” the court held that the claims did not support that limitation so it could not supply an inventive concept.³³⁹ Besides, “merely adding computer functionality to increase the speed or efficiency of [a] process does not confer patent eligibility on an otherwise abstract idea,” and the fact that the web site in the claimed invention could return an ad “more quickly than a newspaper could send the user a location-specific advertisement insert does not confer patent eligibility.”³⁴⁰ Other additional elements simply described a generic web server and software for providing web pages and communicating with the customer’s computer.³⁴¹ These elements were also insufficient to supply an inventive concept.³⁴² Ultimately, the court concluded that the claims “provide[d] no additional limitation beyond applying an abstract idea, restricted to the Internet, on a generic computer.” Accordingly, without more, the claims of the ’382 patent were also ineligible for patent protection.³⁴³

VII. CONCLUSION

The Federal Circuit cases discussed above illustrate a few common points. First, until recently the court continued to rely on the machine-or-transformation test in its eligibility analysis despite the test’s non-exclusive treatment in *Bilski*. Since *Alice*, however, the court’s reliance on the test seems to have lessened, implying the test may no longer be seen as the “useful and important clue” for determining patent eligibility that it once was.³⁴⁴ Second, the

³³⁵ *Id.*

³³⁶ *Id.*

³³⁷ *Id.* at 1370.

³³⁸ *Id.*

³³⁹ *Id.*

³⁴⁰ *Id.* (citing *Bancorp Servs., LLC v. Sun Life Assurance Co. of Can. (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012) *CLS Bank, Int’l v. Alice Corp. Pty. Ltd.*, 717 F.3d 1269, 1286 (Fed. Cir. 2013) (en banc) (per curiam), *aff’d*, 134 S. Ct. 2347 (2014)).

³⁴¹ *Id.*

³⁴² *See id.* at 1370–71.

³⁴³ *See id.* at 1371.

³⁴⁴ *See DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1255–56 (Fed. Cir. 2014) (“While the Supreme Court in *Bilski v. Kappos* noted that the machine-or-transformation test is a ‘useful and important clue’ for determining patent eligibility, it is clear today that not all machine implementations are created equal. For example, in *Mayo*, the Supreme Court emphasized that satisfying the machine-or-transformation test, by itself, is not sufficient to render a claim patent-eligible, as not all transformations or machine implementations infuse an otherwise ineligible claim with an ‘inventive concept.’” (citation omitted)).

potential for preemption is still a driving force behind the judicial exceptions to patent eligibility. But as the Federal Circuit explained in *Ariosa*, § 101 does not require an absence of *complete* preemption. Further, *Ariosa* hints that courts need not separately address the issue of preemption in analyzing eligibility at all. Rather, such concerns are inherently addressed in step two of the *Mayo* framework, which asks whether there is an inventive concept sufficient to ensure that the patent in practice amounts to *significantly more* than a patent on the ineligible concept itself. Thus, *Ariosa* seems to suggest that so long as the claims provide the necessary inventive concept, any undue preemption of the law of nature, natural phenomenon, or abstract idea is sufficiently avoided. And third, the court sometimes has a tendency to categorize claims as abstract ideas without much explanation at all, perhaps alluding to the *Bilski* suggestion that an abstract idea should be clearly evident. But if an abstract idea should exhibit itself so manifestly as to override § 101's statutory subject matter, why does the court continue to find the concept so puzzling?

One post-*Alice* decision in particular prompts some interesting observations with respect to the court's ongoing struggle. While some may argue that the court's latest decision in *Ultramercial* finally reached the "right" conclusion on eligibility, the series of opinions presents a curious conundrum. Between *Ultramercial II* and *Ultramercial III*, the Supreme Court did not change the proper test for patent eligibility. Rather, *Alice* largely reiterated the same two-step standard previously set forth in *Mayo*, and did little to meaningfully clarify or expound on the concepts contained in either step. *Ultramercial II* relied on the *Mayo* standard when it held the asserted claims patent-eligible, yet interestingly enough *Ultramercial III*, which relied on essentially the same standard, held the reverse. For *Alice*, which changed so little, to cause *Ultramercial* to change so much, it seems to suggest the Federal Circuit may have lost some confidence in its previous understanding of § 101, or at least is struggling with where to draw the eligibility line.

Right now, it may be too early to tell what impact *Alice* has had on eligibility analyses in the lower courts. But considering how much courts have struggled in the recent past, and how little *Alice* did to address existing questions, it is likely that the confusion will persist, and that the Federal Circuit will keep finding itself helplessly falling down the patent-eligibility rabbit hole as *Alice*'s adventures in § 101-derland continue to unfold.