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Fabio E. Marino

Teri H. P. Nguyen

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From *Alappat* to *Alice*: The Evolution of Software Patents

by FABIO E. MARINO* AND TERI H. P. NGUYEN**

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* Fabio E. Marino is a partner at McDermott Will & Emery’s Silicon Valley office in Menlo Park. He focuses his practice on intellectual property matters, including patent infringement litigation, strategy, and counseling, particularly in the area of computer related technologies. Mr. Marino has technical experience in a variety of areas, including computer networks, telecommunications, software engineering, e-commerce, entertainment and internet- related technologies, computer architecture, digital circuit design, parallel computing, 3D graphics and animation, medical imaging, and artificial intelligence.

** Teri H. P. Nguyen is an associate in McDermott Will & Emery’s Silicon Valley office in Menlo Park. She focuses her practice on intellectual property litigation matters and has experience with patent and copyright infringement, trade secrets, complex commercial litigation, and unfair business competition litigation.

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I. Introduction

Before 1993 software was generally considered to be unpatentable subject matter and the protection of software innovations was limited to copyright and trade secrets law. But in late 1993, the Federal Circuit in *In re Alappat* recognized for the first time that software-implemented inventions could constitute patent eligible subject matter. Fueled by the Internet boom in the late 1990s, the United States Patent and Trademark Office (“PTO”) started issuing software patents in earnest and the Federal Circuit ultimately upheld the patentability of software-implemented business method in its seminal decision in *State Street*. During the subsequent decade, tens of thousands of business method patents were granted. But the newfound patentability of software was also met with increasing criticism of the quality of the patents granted by the PTO. To make matters worse, a new class of patent asserters, disparagingly referred to as “patent trolls,” began enforcing business method patents in increasing numbers, often using the cost of litigation as leverage to extract royalty payments from Internet companies. By the time of the financial crisis at the end of the last decade, patent reform efforts targeting patent trolls and their favorite tool, business method patents, were in full swing. These efforts ultimately led to the enactment of the America Invents Act (“AIA”) in 2012 that introduced new tools to challenge business method patents before the PTO. In parallel, the *In Re Bilski* case made its way through the courts, ultimately reaching the Supreme Court. In that case, patentability of business methods narrowly survived by a 5-4 vote. Yet, the table was set for ending the era of business method patents. In subsequent decisions in *Mayo* and, ultimately, *Alice*, the Supreme Court clarified its precedent on the exception to patent eligibility for abstract ideas, effectively eliminating patent protection for business method patents. But the impact of *Alice* went far beyond business method; subsequent decisions by the Federal Circuit and the lower courts have applied the *Alice* test to all types of software patents, creating a much more restrictive set of rules for patent eligibility of software implemented inventions. This article traces the evolution of the rules for software patent eligibility from *Alappat* to *Alice* and then analyzes the current state of the law in light of the Federal Circuit post-*Alice* decisions and its potential impact on the intellectual property protection for software going forward.

II. Background

U.S. Patent Act, 35 U.S.C. § 101, defines the subject matter eligible for patent protection:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.¹

The statute recites four categories of patent-eligible subject matter: processes, machines, manufactures, and compositions of matter.² The Supreme Court has identified three categories of subject matter that are unpatentable, namely laws of nature, natural phenomena, and abstract ideas: “Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”³ The “monopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it.”⁴ However, “too broad an interpretation of this exclusionary principle would eviscerate patent law” as “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.”⁵

The Supreme Court has held that mathematical algorithms, for example, are not patentable subject matter to the extent that they are merely abstract ideas.⁶ Simply stated, the *Diehr* Court held that certain types of mathematical subject matter, standing alone, represent nothing more than *abstract ideas* until reduced to some type of practical application.

A. *Alappat*: Software Implemented Inventions Could Be Patent Eligible

In *In re Alappat*, the Federal Circuit ruled that the claimed subject matter was patentable rejecting the PTO’s argument that it was not because it still “read on” a general purpose computer even though it was programmed to perform according to the subject claim.⁷ The *Alappat* invention related

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1. 35 U.S.C. § 101 (1952).
 2. *In re Bilski*, 545 F.3d 943, 1011 (Fed. Cir. 2008).
 3. *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972).
 4. *Mayo Collaborative Services v. Prometheus Labs Inc.*, 132 S. Ct. 1289, 1293 (2012).
 5. *Id.*
 6. *See Diamond v. Diehr*, 450 U.S. 175 (1981).
 7. *In re Alappat*, 33 F.3d 1526, 1544–45 (Fed. Cir. 1994).

to a means for creating a smooth waveform display in a digital oscilloscope, that is, a means to illuminate pixels on a screen that will eliminate any apparent discontinuity, jaggedness, or oscillation in the waveform, thus giving the visual appearance of a smooth continuous waveform. The PTO rejected the invention because the challenged method claim was directed towards nonstatutory subject matter under the mathematical algorithm exception to Section 101.⁸ When *Alappat* was decided, courts were applying some variation of the *Freeman-Walter* two-part test developed in the Court of Customs and Patent Appeals to determine whether any part of a claim recites mathematical subject matter.⁹ Under *Freeman-Walter*, courts (1) analyze whether a mathematical algorithm is directly or indirectly recited, and (2) if a mathematical algorithm is found, whether the claim *as a whole* applies the algorithm in any manner to physical elements or process steps.¹⁰ Guided by *Freeman-Walter*, the *Alappat* majority held:

[T]he proper inquiry in dealing with the so called mathematical subject matter exception of § 101 alleged herein is to see whether the claimed subject matter *as a whole* is a disembodied mathematical concept, whether categorized as a mathematical formula, mathematical equation, mathematical algorithm, or the like, which in essence represents nothing more than a “law of nature,” “natural phenomenon,” or “abstract idea.” If so, *Diehr* precludes the patenting of that subject matter.¹¹

For *Alappat*, the Federal Circuit did not find a “disembodied mathematical concept which may be characterized as an ‘abstract idea,’ but rather a specific machine to produce a useful, concrete, and tangible result.”¹² Furthermore, the Federal Circuit disagreed with the PTO’s reasoning that the challenged claim was unpatentable because it “reads on a general purpose digital computer ‘means’ to perform the various steps under program control,” that is, a programmed general purpose computer

8. *Gottschalk*, 409 U.S. at 65 (defining “mathematical algorithm” as a “procedure for solving a given type of mathematical program”).

9. *Alappat*, 33 F.3d at 1544.

10. *Id.* at 1544 (citing *In re Pardo*, 684 F.2d 912, 915 (C.C.P.A. 1982)).

11. *Id.*

12. *Id.*

performing steps of a method.¹³ Instead, the Federal Circuit held that “such programming creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.”¹⁴ Consequently, a “computer operating pursuant to software *may* represent patentable subject matter,” for example, in *Alappat*, where the physical structure (i.e., the computer) used a mathematical algorithm (i.e., the programmed software) to transform the display screen in to a state that created smooth waveforms rather than jagged ones.¹⁵

B. *State Street*: Abstract Concepts Transformed or Performed By a Machine

The Federal Circuit attempted to define the scope of the Supreme Court’s “practical application” requirement in *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.* holding that Section 101 allowed claims on mathematical algorithms that produced a “useful, concrete, and tangible result.”¹⁶ In so holding, it affirmed the patentability of patent claims for a computerized system that allowed an administrator of a hedge fund/investment firm to manage multiple mutual funds in a single account, to monitor and record financial information among numerous stock portfolios, and to quickly calculate certain values, such as the value of the shares to the nearest penny. To the Federal Circuit, the patented invention represented:

the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces ‘a useful, concrete and tangible result’ — a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.¹⁷

13. *Id.* at 1544–45.

14. *Id.* at 1545.

15. *Id.*

16. *State St. Bank & Tr. Co. v. Signature Fin. Group.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998).

17. *Id.*

In short, the *State Street Bank* decision found mathematical algorithms, an abstract concept, patentable if “transformed” or “performed” by a machine and which provided “useful, concrete, and tangible” results.

Decided in the midst of the dot.com or Internet bubble, the *State Street Bank* decision caused a rush to the PTO ushering in a generation of business method patents, Internet patents, and software patents. The PTO classifies these patents under Class 705, which is a “generic class for apparatus and corresponding methods for performing data processing operations, in which there is a significant change in the data or for performing calculation operations wherein the apparatus or method is uniquely designed for or utilized in the practice, administration, or management of an enterprise, or in the processing of financial data.” Applications for Class 705 patents, especially business method patents involving e-commerce, increased from 1,320 in 1998 to nearly 8,000 by 2001.¹⁸ Statistics maintained by the PTO further illustrate the astounding increase in business method and Internet patent applications and their issuance:¹⁹

Year	Class 705 Serialized Filings	Class 705 CPA-RCE-R129 Filings	Class 705 Total Filings	Class 705 Issues
2002	6,774	626	7400	494
2003	6,387	1,310	7,697	486
2004	6,681	1,731	8,412	291
2005	6,976	2,056	9,032	711
2006	8,352	2,532	10,884	1,195
2007	9,843	2,925	12,778	1,333
2008	10,293	4,234	14,527	1,643
2009	8,229	7,160	15,389	1,725
2010	8,495	8,736	17,231	3,649

18. Starling Hunter, *Have Business Method Patents Gotten a Bum Rap? Some Empirical Evidence*, MIT SLOAN SCHOOL OF MANAGEMENT 1, 2 (2003), http://ebusiness.mit.edu/research/papers/182_hunter_method_patents.pdf.

19. United States Patent and Trademark Office, *Class 705 Application Filing and Patents Issued Data (2011)*, <http://www.uspto.gov/patents-getting-started/patent-basics/types-patent-applications/utility-patent/business-methods-18>.

C. *Bilski*: “Process” Under Section 101

In the Fall of 2008 the Federal Circuit *In re Bilski*, clarified the standards applicable in determining whether a claimed method constitutes a statutory “process” under Section 101.²⁰ The Federal Circuit affirmed the decision of the Board of Patent Appeals and Interferences (“BPAI”) of in eligibility and summarized the essence of the claimed method as follows:

In essence, the claim is for a method of hedging risk in the field of commodities trading. [...] The claimed method envisions an intermediary, the “commodity provider,” that sells coal to the power plants at a fixed price, thus isolating the power plants from the possibility of a spike in demand increasing the price of coal above the fixed price. The same provider buys coal from mining companies at a second fixed price, thereby isolating the mining companies from the possibility that a drop in demand would lower prices below that fixed price. And the provider has thus hedged its risk; if demand and prices skyrocket, it has sold coal at a disadvantageous price but has bought coal at an advantageous price, and vice versa if demand and prices fall. Importantly, however, the claim is not limited to transactions involving actual commodities, and the application discloses that the recited transactions may simply involve options, i.e., rights to purchase or sell the commodity at a particular price within a particular timeframe.²¹

Indeed, the Federal Circuit’s summary of the claimed method highlights why such claims should not be patented as it describes not a machine, manufacture or composition of matter or a new and useful process, but a “transformation of ‘non-physical financial risks and legal liabilities of the commodity provider, the consumer, and the market participants.’”²² Stated differently, the claimed method was simply a computerized manifestation or representation of fundamental principles concerning financial risk and legal liabilities. A monopoly on such a claim would “pre-empt[] all uses of [that] fundamental principle in all fields,” a clue indicating that the claim is not limited to a particular application of the principle.²³ That the claimed method was performed on computer was not enough to save it because “extra-solution activity” and

20. *In re Bilski*, 545 F.3d at 949.

21. *Id.* at 950.

22. *Id.*

23. *Id.* at 957; see *Diehr*, 450 U.S. at 193, (abstract ideas are not patentable until reduced to some type of practical application).

“insignificant postsolution activity will not transform an unpatentable principle into a patentable process.”²⁴

In re Bilski set forth the machine-or-transformation test previously articulated in *State Street*. Under this test, an applicant may show that a process claim satisfies §101 either by showing that his claim is tied to a particular machine, or by showing that the claim transforms an article.²⁵ The machine-part of the test requires that the “use of a specific machine or transformation of an article must impose meaningful limits on the claim’s scope” and “must not merely be insignificant extra-solution activity.”²⁶ The transformation part of the test states that a process is patent-eligible if it “transforms an article into a different state or thing” where the transformation is “central to the purpose of the claimed process.”²⁷ The Federal Circuit reiterated the traditional transformations of physical objects, substances and raw materials through chemical processes or other physical acts. It also acknowledged the fact that the “raw materials of many information-age processes, however, are electronic signals and electronically-manipulated data,” including, for example, the business methods for “manipulat[ing] [] even more abstract constructs such as legal obligations, organizational relationships, and business risks.”²⁸ But without further discussion on the transformation and/or use of raw materials of the information age, the Federal Circuit simply stated “that future developments in technology and the sciences may present difficult challenges to the machine-or-transformation test,”²⁹ leaving those challenges to the Supreme Court.

For now, in articulating this machine-to-transformation test, the Federal Circuit concluded, “[s]o long as the claimed process is limited to a practical application of a fundamental principle to transform specific data, and the claim is limited to a visual depiction that represents specific physical objects

24. *Id.* (citing *Diehr*, 450 U.S. at 191–92); *Parker v. Flook*, 437 U.S. 584, 590 (1978) (“The notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance.”); *In re Schrader*, 22 F.3d 290, 294 (Fed. Cir. 1994) (holding a simple recodation step in the middle of the claimed process incapable of imparting patent-eligibility under § 101); *In re Grams*, 888 F.2d 835, 839–40 (Fed. Cir. 1989) (holding a presolution step of gathering data incapable of imparting patent-eligibility under § 101).

25. *In re Bilski*, 545 F.3d at 962.

26. *Id.*

27. *Id.*

28. *Id.*

29. *Id.* at 956.

or substances, there is no danger that the scope of the claim would wholly pre-empt all uses of the principle.”³⁰

Judge Newman dissented, accusing the majority of “redefining the word ‘process’ in the patent statute, to exclude all processes that do not transform physical matter or that are not performed by machines” with little regard for its impact on the future or the “ thousands of patents already granted.”³¹ He argued that such exclusion precludes inventions that “apply today’s electronic and photonic technologies, as well as other processes that handle data and information in novel ways.”³² According to Judge Newman, neither statute nor Supreme Court precedent supported the majority’s opinion that transformation of physical state is a requirement of eligibility set by Section 101 unless a machine performs the process.

The Supreme Court reversed holding that Federal Circuit’s machine-or-transformation test was not the *sole* test to be used for determining the patentability of a “process” under Section 101.³³ Nothing in Section 100(b) of the Patent Act requires “process, art or method” to transform an article or be tied to a machine. The Federal Circuit’s adoption of the machine-or-transformation test as the sole test for what constitutes a “process” violated principles of statutory construction because it allowed an interpretation that was beyond the ordinary, contemporary and common meaning of the term “process.”

However, rather than wholly dismissing the machine-or-transformation test, the Supreme Court considered it a n *important clue or investigative tool* for determining patentability. But this tool was unnecessary to render the claimed patent unpatentable. In *Bilski*, the representative claims described a “fundamental economic practice” and reduced it to a mathematical formula.³⁴ Thus, as prior precedence has established, even if a process or practice was tied to a machine or transforming an article, Section 101 still does not capture “fundamental economic practice[s] long prevalent in our system of commerce.”³⁵ According to the Supreme Court, the claims were merely a recitation of an ineligible concept.

30. *Id.* at 963.

31. *Id.* at 976 (Newman J., dissenting).

32. *Id.* (Newman J., dissenting).

33. *Bilski v Kappos*, 561 U.S. 593, 601-04 (2010).

34. *Id.* at 611.

35. *Id.*

D. Congressional Response to Patents Related to Financial Products or Services

Meanwhile, Congress was trying to resolve the overwhelming number of business method patents by creating procedures for their review. The America Invents Act replaced *inter partes reexaminations* with three new proceedings: *inter partes review* (“IPR”), *covered business method patent review* (“CBM”), and *post-grant review*.

Congressional debates made clear that this new CBM review procedure was targeting the type of abstract patents that the Supreme Court had oscillated about.³⁶ Indeed, when asked by Senator Mark Pryor to clarify the purpose of the Schumer-Kyl program in the America Invents Act, Senator Patrick responded:

The Schumer-Kyl program addresses certain business method patents and does not target any specific patents. The Schumer-Kyl program is intended to provide a cost-effective alternative to litigation to examine business-method patents.³⁷

Senator Pryor followed up with a pointed question as to whether this new provision of the America Invents Act “[was] simply trying to address the problem of business method patents of dubious validity that are commonly associated with the Federal Circuit’s 1998 decision in *State Street Bank v. Signature?*”³⁸ To which, Senator Leahy responded:

That is correct. It is still unclear whether the subject matter of these patents qualifies as patentable subject matter under current law. Patents of low quality and dubious validity, as you know, are a drag on innovation because they grant a monopoly right for an invention that should not be entitled to one under the patent law.³⁹

Congress’s response to the threat of invalid business method patents and their strain on the economy was to enact a “transitional program” called the Covered Business Method Review.⁴⁰ It is transitional because this type of

36. 157 CONG. REC. S1175 (daily ed. Mar. 3, 2011)

37. *Id.*

38. *Id.*

39. *Id.*

40. AIA § 18(a)(3) (2011).

proceeding became available in 2012 but will end on September 15, 2020.⁴¹ Under this adversarial proceeding, an accused infringer can participate after the filing of the petition for review of a covered business patent,⁴² unlike the now defunct *ex parte reexamination* procedures.

The procedural differences between CBM review as compared to *inter partes review* highlight the low tolerance Congress apparently has for business method patents. For example, motions to stay litigation pending CBM reviews are more likely to be granted because courts are statutorily required to consider four factors: (1) undue prejudice or clear tactical advantage; (2) simplification of issues; (3) state of litigation; and (4) whether stay (or denial) of the CMB, will in fact reduce the burden of litigation.⁴³ Furthermore, the PTO may consider more potentially invalidating evidence. For example, *inter partes review* permits challenges to patents using only prior art patents or prior art printed publications; whereas CBM review allows third parties to challenge issued patents related to financial products or services using prior art patents, printed publications, and *prior art systems* — permitting challenges on any ground that is a condition for patentability.⁴⁴ These requirements and permissions are special to covered business method patents, reflecting Congress’s grievances against them: (1) business method patents are a strain on the economy and must be stifled; and (2) allowing parties to go first through the PTO provides the PTO an opportunity to conduct a “do-over” or “fix” the fact that they issued the otherwise dubious business method patent in the first place.

E. *Mayo*: The Interplay Between Novelty and Subject Matter Eligibility

On the heels of the AIA, the Supreme Court issued its 2012 decision in *Mayo*.⁴⁵ While it was already determined that claims setting forth laws of nature are ineligible, the *Mayo* Court asked whether the claim added more than simply “inform[ing] a relevant audience” about what they presumably

41. 37 C.F.R. § 42.300(d) (2012).

42. A “covered business method” patent is defined as “a patent that claims a method or corresponding apparatus for performing data processing operations utilized in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions.” AIA § 18(d).

43. AIA § 18(b)(1)

44. Jason E. Stach, *Exploring the Expanding Scope of Covered Business Method Reviews*, FINNEGAN INTELL. PROP. & TECH. L.J. (Jan. 2014), <http://www.finnegan.com/resources/articles/articlesdetail.aspx?news=64c9f230-94ab-4d99-b256-9bff462cb8e8>.

45. *Mayo* 132 S. Ct. at 1289.

already knew, such as steps that “consist of well understood, routine, conventional activity already engaged in by the scientific community.”⁴⁶ In *Mayo*, the Supreme Court unanimously invalidated a method patent concerning a blood diagnostic test.

The Supreme Court held that the patent claimed laws of nature — namely, the relationship between, (1) the concentrations of certain metabolites in the blood and (2) the likelihood that a dosage of a drug (thiopurine drug) will prove ineffective for a given metabolite concentration. Claim 1, for example, states that *if* the levels of 6-TG in the blood (of a patient who has taken a dose of a thiopurine drug) exceed about 400 pmol per 8×10^8 red blood cells, *then* the administered dose is likely to produce toxic side effects. Even if the intervening act of administering the thiopurine drug is required to trigger the side effect, the side effect itself is still a physical manifestation of the relationship between the drug and the particular person in a particular metabolic state. In other words, the relationship exists apart from any human action since it is simply a consequence of the ways in which thiopurine compounds are metabolized by the body. This, the Court determined is an entirely natural process. And consequently, a patent that simply describes such natural processes, including its relation to the physical world (i.e., its interaction with the human body) is ineligible subject matter. With *Mayo*, the Supreme Court “set forth a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.”⁴⁷

III. “*Alice*: “Significantly More” to Qualify as an “Inventive Concept”

The rule against patenting an abstract idea, mathematical algorithms, or a law of nature was not new when *Mayo* was decided in 2012. When such abstract concepts are wrapped about a machine or built into a process, *Mayo* asked what more did the claim add to the relevant field?⁴⁸ Does the alleged invention simply add steps that “consist of well understood, routine, conventional activity already engaged in by the scientific community?”⁴⁹

46. *Id.* at 1298.

47. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014).

48. *Mayo*, 132 S. Ct. at 1298.

49. *Id.*

In late 2014, the Supreme Court reaffirmed the guidelines set forth in *Mayo* vis-à-vis Section 101 patentability in its opinion concerning the eligibility of a computer-based patent.⁵⁰ The Supreme Court “set forth a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.”⁵¹ That two-step framework is as follows:

First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, “[w]hat else is there in the claims before us?” To answer that question, we consider the elements of each claim both individually and “as an ordered combination” to determine whether the additional elements “transform the nature of the claim” into a patent-eligible application.

We have described step two of this analysis as a search for an ‘inventive concept’ — i.e., an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’⁵²

Specifically, *Alice* reaffirmed the two step framework espoused in *Mayo* for determining patentability: (1) whether the claim is directed to an abstract idea; and (2) if an abstract idea is present in the claim, determining whether any part of the claim amounts to significantly more than the abstract idea to qualify as an “inventive concept.” If not, the claim is deemed patent ineligible.

The Supreme Court found *Alice*’s patents unpatentable because the patents did not amount to “significantly more” than the abstract concept of managing risk by using a generic computer. In so holding, however, *Alice* left open the nature of the technological improvement that must exist before an application of an abstract concept may be patentable as “inventive.”

A. Federal Circuit Cases Decided in the Immediate Aftermath of *Alice*

The Federal Circuit’s application of *Alice* provides some guidance to the conundrums discussed above. The patent in *Digitech v. Electronics for Imaging*, concerned a process for creating an “improved device profile” that described the color and spatial properties of imaging devices that would allow a more accurate translation of an image’s pixel data for use across

50. *Alice*, 134 S. Ct. at 2355.

51. *Id.*

52. *Id.*

different digital image processing devices (i.e., digital cameras, monitors, TVs, printers, etc.).⁵³ In *Digitech*, the Federal Circuit affirmed summary judgment of invalidity of the claim, “reciting a process of taking two data sets and combining them into a single data set, the device profile.”⁵⁴ Digitech’s argument that the claimed “device profile” is subject matter eligible because it is “hardware or software within a digital image processing system” and exists as a tag file appended to a digital image⁵⁵ could not defeat the fact that the claims “encompass all embodiments of the information contained in the device profile, regardless of the process through which this information is obtained or the physical medium in which it is stored.”⁵⁶ Alice reaffirmed that fundamental concepts are ineligible abstract ideas. And to determine whether a process claim recites an abstract idea requires looking at the claim as a whole “keeping in mind that an invention is not ineligible just because it relies upon a law of nature or mathematical algorithm.”⁵⁷ However, “[d]ata in its ethereal, non-physical form is simply information”⁵⁸ and the patented claim “recites an ineligible abstract process of gathering and combining data that does not require input from a physical device.”⁵⁹

Judge Hughes, who was on the *Digitech* panel, authored another decision in *Planet Bingo*, in which the Federal Circuit affirmed summary judgment of invalidity of a claim directed to “managing a bingo game while allowing a player to repeatedly play the same sets of numbers in multiple sessions.”⁶⁰ The claim generally recites:

storing a player’s preferred sets of bingo numbers; retrieving one such set upon demand, and playing that set; while simultaneously tracking the player’s sets, tracking player payments, and verifying winning numbers.⁶¹

53. *Digitech v. Electronics for Imaging*, 758 F.3d 1344, 1347–48 (Fed. Cir. 2014).

54. *Id.* at 1351.

55. *Id.* at 1349–50.

56. *Id.*

57. *Id.* at 1350.

58. *Id.*

59. *Id.* at 1351.

60. *Planet Bingo, LLC v. VKGS LLC*, 576 F. App’x. 1005, 1007 (Fed. Cir. 2014)

61. *Id.* at 1006.

The district court concluded that the method claims encompass the abstract idea of managing and playing the game of Bingo and that the “use of a computer in the method claims ‘adds nothing more than the ability to manage . . . Bingo more efficiently.’”⁶² And as the district court correctly concluded, managing a game of Bingo “consists solely of mental steps which can be carried out by a human using pen and paper.”⁶³

In affirming the invalidity of the patent, the Federal Circuit rejected two arguments by plaintiff. First, because the claimed invention at most required two sets of Bingo numbers, a player and a manager, the Federal Circuit rejected plaintiff’s argument that “‘in real world use, literally thousands, if not millions of preselected Bingo numbers are handled by the claimed computer program,’ making it impossible for the invention to be carried out manually.”⁶⁴ Second, because the claimed invention recited a program requiring generic functions of storing, retrieving, and verifying a chosen set of bingo numbers against a winning set of bingo numbers, the Federal Circuit rejected plaintiff’s argument that the accounting, ticketing, and verification programs included in the Bingo program offered, added “‘significantly more’” than an abstract idea requirement.⁶⁵

Two observations follow from these rejections: First, even though the real world product itself may contain more complex or possibly inventive features, this offers no reprieve to the patent holder who opted for broader patent claims. Second, the Federal Circuit refused to address how a “claimed invention requiring many transactions might tip the scales of patent eligibility.”⁶⁶ In other words, would a patent that requires a computer’s ability to make thousands of computations where such computations could not be mentally performed or carried out by a human using pen and paper with comparable accuracy and speed, pass *Alice* muster? The Court in *Planet Bingo* left this scenario unanswered.

A couple of weeks after the decision in *Planet Bingo* was reached, the Federal Circuit affirmed that a patent “directed to creating familiar commercial arrangements by use of computers and networks” was ineligible

62. *Id.* at 1007.

63. *Id.* at 1006 (citing *Planet Bingo v. VKGS, LLC*, 961 F. Supp. 2d 840, 851 (W.D. Mich. 2013)).

64. *Id.* at 1008.

65. *Id.* at 1009.

66. *Id.* at 1008.

under Section 101.⁶⁷ The first claim is an independent claim reciting a method in which:

(1) a computer operated by the provider of a safe transaction service receives a request for a performance guarantee for an “online commercial transaction”; (2) the computer processes the request by underwriting the requesting party in order to provide the transaction guarantee service; and (3) the computer offers, via a “computer network,” a transaction guaranty that binds to the transaction upon the closing of the transaction.⁶⁸

The district court concluded that the patent “describes a well-known, and widely understood concept — at third party guarantee of a sales transaction — and then applied that concept using conventional computer technology and the Internet.”⁶⁹ Despite the “ancient lineage” of the claimed concept, i.e., creating a contractual relationship, the method claim may have still been patent eligible had its invocation of computers added something “inventive.”⁷⁰ But it did not. The district court found, and the Federal Circuit affirmed, that the patented invention did not require “any specific programming” and was not “tied to any particular machine.”⁷¹ In fact, according to the court, the claimed invention required nothing more than the “basic function of any general purpose computer.”⁷² That the claims required the transactions to be conducted online was insufficient to save the claim because that merely applied the otherwise ancient and abstract concept to a “particular technological environment” (that is, the Internet).⁷³

In *buySAFE*, the Federal Circuit concluded that it is not enough that “the transactions being guaranteed are themselves online transactions”

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

68. *Id.* at 1351.

69. *Id.* at 1352. (citing *buySAFE, Inc. v. Google, Inc.*, 964 F.Supp.2d 331, 335–36 (D.Del. 2013)); see also, *Accenture Global Servs. GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1344–45 (Fed. Cir. 2013) (“generalized software components arranged to implement an abstract concept [of generating insurance-policy-related tasks based on rules to be completed upon the occurrence of an event] on a computer”); *Bancorp Servs. LLC v. Sun Life Assur. Co. of Canada (US)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012) (the computer “employed only for its most basic function, the performance of repetitive calculations” to implement the idea of managing a life insurance policy).

70. *Id.* at 1354–55.

71. *Id.*

72. *Id.* at 1352.

73. *Id.* at 1355.

because, at best, that was simply an “attempt[] to limit the use” of the abstract guarantee idea “to a particular technological environment.”⁷⁴

On November 14, 2014, the Federal Circuit reached a decision in *Ultramerical, Inc. v. Hulu, LLC* that expounded on the concept of providing familiar transactions over the Internet. In *Ultramerical*, the plaintiff sued Hulu, LLC (“Hulu”), YouTube, LLC (“YouTube”), and WildTangent for infringement of a patent by distributing copyrighted media products over the Internet, where the consumer receives the copyrighted media at no cost in exchange for viewing an advertisement.⁷⁵ After Hulu and YouTube were dismissed, WildTangent filed for motion to dismiss for failure to state a claim, arguing that the asserted patent was ineligible subject matter, which the district court granted. In the first round of appeal, the Federal Circuit reversed the order only to be vacated by the Supreme Court and remanded for further consideration in light of the Supreme Court’s 2012 decision in *Mayo Collaborative*. On remand, the Federal Circuit again concluded that the district court erred in granting the motion to dismiss under Section 101, and again WildTangent appealed. While the petition for certiorari was pending, the Supreme Court issued *Alice*, vacated the Federal Circuit’s decision, and remanded it in light of *Alice*.

In *Ultramerical*, the court distilled the heart of the asserted patent as an idea to “use [an] advertisement as an exchange or currency,” “having no particular concrete or tangible form” and “devoid of a concrete or tangible application.”⁷⁶ This was step one in the *Alice* analysis. The second step in the analysis considers the alleged novelty in implementing the abstract idea, that is, whether the claims do “significantly more” (i.e., “inventive concept”) than simply describe the abstract idea or method. Here, *Ultramerical* argued that the asserted claims are “directed to a specific method of advertisement and content distribution that was previously unknown and never employed on the Internet before.” But the Federal Circuit rejected this argument ultimately finding nothing inventive about how the idea was implemented. Even *Ultramerical*’s invocation of the Internet did not save the claims from invalidity:

Given the prevalence of the Internet, implementation of an abstract idea on the Internet in this case is not sufficient to provide any

74. *Id.* at 1354–55.

75. *Ultramerical, Inc. v. Hulu, LLC*, 772 F.3d 709 (Fed. Cir. 2014).

76. *Id.* at 715–16.

‘practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself.’⁷⁷

The Supreme Court articulated the policy against monopolizing the basic tools of scientific and technological work.⁷⁸ The basic tools of modern day commercial and social interaction, therefore, include the generic computer and the Internet, which have become “indispensable staples of contemporary life.”⁷⁹

Judge Mayer’s concurrence in *Ultramercial*, while not binding, not only emphasized Federal court’s wavering deference to the Patent Office, particularly with regard to business method patents, but described a rule he refers to as the “technological arts test” to distinguish between “entrepreneurial” versus “technological” innovation — an approach some have characterized as a “more thoughtful effort to identify where the line would be drawn and why.”⁸⁰

Referring to Section 101 as the “gateway to the Patent Act,” Judge Mayer argues that determining patent eligibility “bears some hallmarks of a jurisdictional inquiry,” requiring early determination or risk turning any decision on validity or infringement into an impermissible advisory opinion.⁸¹ Furthermore, addressing patent eligibility at the outset of litigation, according to Judge Mayer, “provides a bulwark against vexatious infringement suits,” calling out “[t]hose who own vague and overbroad business method patents [that] often file ‘nearly identical patent infringement complaints against a plethora of diverse defendants,’ and then ‘demand . . . a quick settlement at a price far lower than the cost to defend . . . the litigation.’”⁸² Going hand in hand with discouraging vexatious litigation, is the public interest in eliminating defective patents that would otherwise stifle innovation.⁸³

77. *Id.* at 716 (citing *Mayo*, 132 S. Ct. at 1297).

78. *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948).

79. *Ultramercial*, 772 F.3d at 723 (Mayer, J., concurring).

80. Guy W. Chambers, *Ultramercial V. Hulu: The Guillotine For Patent Trolls*, LAW360 (Dec. 8, 2014, 10:17 AM), <http://www.law360.com/articles/601967/ultramercial-v-hulu-the-guillotine-for-patent-trolls>.

81. *Ultramercial*, 772 F.3d at 718 (Mayer, J., concurring).

82. *Id.* at 719 (citing *Eon-Net LP v. Flagstar Bancorp*, 653 F.3d 1314, 1326 (Fed. Cir. 2011)); see Fabio E. Marino & Teri H.P. Nguyen, *Has Delaware Become the “New” Eastern District of Texas? The Unforeseen Consequences of the AIA*, 30 SANTA CLARA HIGH TECH L.J. 527 (2014).

83. *Id.*

For some time, these ineligible defective patents enjoyed a presumption of Section 101 eligibility because they were approved by the Patent Office in its expertise. But, according to Judge Mayer, there should be no deference because the Patent Office has, for many years, applied an “insufficiently rigorous subject matter eligibility standard,”⁸⁴ as opposed to the current standard whose rigor the Supreme Court has confirmed through *Alice*, *Myriad*, *Mayo*, and *Bilski*. In Judge Mayer’s view, claims directed to an entrepreneurial objective, i.e., business method patents, are not only impermissibly abstract, but do not live up to the constitutional requirement that patent monopoly serve; “[t]o promote the progress of Science and useful Arts.”⁸⁵ Judge Mayer articulated a test that he believed respected constitutional standards as well as Supreme Court scriptures under *Alice* and *Bilski*:

[c]laims are impermissibly abstract if they are directed to an entrepreneurial objective, such as methods for increasing revenue, minimizing economic risk, or structuring commercial transactions, rather than a technological one.⁸⁶

Under Judge Mayer’s “technological arts” test, claims must: (1) Harness natural laws and scientific principles; (2) Use them to solve seemingly intractable problems; (3) Describe a technological objective; and (4) Set out a precise set of instructions for achieving said technological objective.

The requirement that precise implementation instructions be disclosed serves to “confine the reach of a patent, ensuring that the scope of the claims is commensurate with their technological disclosure.”⁸⁷ One commentator has referred to Judge Mayer’s concurrence as a “stronger doctrinal departure from the *Alice-Mayo* framework.”⁸⁸ Indeed, applying Judge Mayer’s “technological arts” test would invariably put most if not all business method patents at risk of invalidity under Section 101.

84. *Id.* at 720.

85. U.S. CONST. art. I, §8, cl. 8.

86. *Ultramerical*, 772 F.3d at 721 (Mayer, J., concurring).

87. *Id.* at 722; *cf.* 35 U.S.C. §112 (2012) (requiring a written description, enablement, and definiteness).

88. Farabow Henderson, *Patent Eligibility in the Wake of Alice: Ultramerical III*, FINNEGAN (Dec. 4, 2014), <http://www.finnegan.com/PatentEligibilityintheWakeofAliceUltramericalIII/>.

IV. The *DDR Holdings* Decision

In *DDR Holdings, LLC v. Hotels.com*, the majority affirmed the validity of two patents for webpage-display technology.⁸⁹ The patents were directed to systems and methods of “generating a composite web page that combines certain visual elements of a ‘host’ website with content of a third-party merchant,”⁹⁰ preventing the host’s website visitor from being lured onto the website of the third-party merchant. According to the patentee, typically, when a visitor is on a host webpage and activates a hyperlink for an advertisement, the visitor is “instantly transported away from the host’s website after ‘clicking’ on an advertisement and activating a hyperlink.”⁹¹ The patented invention alters that “routine” process such that the visitor is no longer transported to the third-party merchant’s website upon clicking the hyperlinked advertisement.⁹² This, according to the majority, represented a patentable idea because the claims “specify how interactions with the Internet are manipulated to yield the desired result — a result that overrides the routine and conventional sequence of events ordinarily triggered by the click of a hyperlink.”⁹³ Unlike in *Ultramercial*, 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.”⁹⁴ Rather, *DDR*’s patents presented and addressed a “business challenge (retaining website visitors),” a challenge particular to the Internet.⁹⁵ The solution also defied the conventional ways the Internet is understood to work.

Judge Mayer wrote a dissenting opinion, stating that the patents were ineligible because they addressed an entrepreneurial problem and, thus, provided an entrepreneurial solution to be performed on the Internet. For example, Judge Mayer characterized the patents as “simply tak[ing] a well-known and widely applied business practice and applying it using a generic computer and the Internet. The idea of having a ‘store within a store’ was in widespread use well before the dawn of e-commerce.”⁹⁶ But the majority disagreed. Instead, the majority picked up on the “ephemeral nature of

89. *DDR Holdings, LLC v. Hotels.com*, 773 F.3d 1245 (Fed. Cir. 2014).

90. *Id.* at 1248.

91. *Id.* at 1257.

92. *Id.*

93. *Id.* at 1258.

94. *Id.* at 1257.

95. *Id.*

96. *Id.* at 1264 (Mayer, J., dissenting).

Internet location and the near-instantaneous transport between locations made possible by standard Internet protocols,” and analogized the inventive concept of the patents to being “suddenly and completely transported” from one place (the host store) and being “relocated to a separate physical venue associated with the third party.”⁹⁷ Even the inventor’s acknowledgement that the “innovative aspect of his claimed invention was ‘[t]aking something that worked in the real world and doing it on the Internet,’”⁹⁸ did not jeopardize its status at being patent-eligible subject matter.

A. Federal Circuit Decisions After *DDR Holdings*

Before the year’s end, the Federal Circuit heard and decided one more case applying the *Mayo/Alice*’s two-step framework. In *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*, the Federal Circuit affirmed the district court’s dismissal of a patent infringement case filed by Content Extraction and Transmission LLC (“CET”). Without discovery or claim construction, the district court found the asserted patents invalid as patent-ineligible under 35 U.S.C. §101, and dismissed the allegations at the pleading stage.⁹⁹ The patented technology is designed for ATMs, it permits the ATM to recognize information written on a scanned check, such as the check’s amount, and populate certain data fields with that information in a computer’s memory.¹⁰⁰

Viewed from a conceptual level, the court described the asserted claims as generally reciting a method of 1) extracting data from hard copy documents using an automated digitizing unit such as a scanner, and 2) recognizing specific information from the extracted data, and storing that information in a computer’s memory.¹⁰¹ In determining that the claims are drawn from abstract ideas, the court stated that the concept of “data collection, recognition, and storage is undisputedly well-known. Indeed, humans have always performed these functions.”¹⁰² CET argued that the asserted claims are not drawn to an abstract idea because the claims require a computer and a scanner and “human minds are

97. *Id.* at 1258.

98. *Id.* at 1265.

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

100. *Id.* at 1345.

101. *Id.*

102. *Id.* at 1347.

unable to process and recognize the stream of bits output by a scanner.”¹⁰³ These arguments were rejected.

The Federal Circuit also agreed that the patented claims disclosed no “inventive concept” — a conclusion supported by CET’s concession at oral argument that the “use of a scanner or other digitizing device to extract data from a document was well-known at the time of filing, as was the ability to use computers to translate the shapes of a physical page into typeface characters.”¹⁰⁴ At most, the patent disclosed the implementation of an abstract idea using a scanner and computer in a “particular technological environment” (i.e., automated teller machines).¹⁰⁵

B. Recent Federal Circuit Cases Focusing on the First Prong of *Alice*

The impact concerning the ambiguity of the patentability of business methods has cast substantial uncertainty on software patents as a whole. In part, this is due to the fact that neither the Supreme Court, nor the Federal Circuit has given explicit guidance on what qualifies as an abstract idea. Instead, the only clues to the scope of the abstract idea exception to patentability reside in the anecdotal evidence of the cases decided since *Alice*. Indeed, the sole CAFC case that sustained patentability of a software patent over a Sec. 101 challenge, *DDR Holdings*, did so, not because the claims were not drawn to an abstract idea, but because the claims added enough to the abstract idea to justify patentability. It appears that software patents directed to performing on computer activities previously performed by humans are unlikely to survive.

Additionally, none of the cases that survived the *Alice* analysis did so based on the first prong of the analysis, patent-eligibility was determined exclusively based on the second prong. Fortunately, after nearly two years of finding that the first prong of the *Alice* test was met in every case presented, the Federal Circuit issued a series of decisions that provided more guidance on what is *not* an abstract idea for purposes of an *Alice* analysis.

On May 12, 2016, the Federal Circuit held that software that improves computer technology is not abstract, recognizing that “[s]oftware can make non-abstract improvements to computer technology just as hardware improvements can.”¹⁰⁶ *Enfish* involved patents related to a “self-referential”

103. *Id.*

104. *Id.* at 1348.

105. *Id.*

106. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016).

database that the district court found, on summary judgment, invalid under, *inter alia*, Sec. 101 because the claims were directed to the abstract idea of “storing, organizing, and retrieving memory in a logical table,” in other words, “the concept of organizing information using tabular formats.”¹⁰⁷ The Federal Circuit disagreed, as Judge Hughes explained:

We do not read *Alice* to broadly hold that all improvements in computer-related technology are inherently abstract and, therefore, must be considered at step two. Indeed, some improvements in computer-related technology when appropriately claimed are undoubtedly not abstract, such as a chip architecture, an LED display, and the like. Nor do we think that claims directed to software, as opposed to hardware, are inherently abstract and therefore only properly analyzed at the second step of the *Alice* analysis. Software can make non-abstract improvements to computer technology just as hardware improvements can, and sometimes the improvements can be accomplished through either route. We thus see no reason to conclude that all claims directed to improvements in computer-related technology, including those directed to software, are abstract and necessarily analyzed at the second step of *Alice*, nor do we believe that *Alice* so directs. Therefore, we find it relevant to ask whether the claims are directed to an improvement to computer functionality versus being directed to an abstract idea, even at the first step of the *Alice* analysis.¹⁰⁸

The Court held that the *Enfish* patents were not “directed to an abstract idea within the meaning of *Alice*. Rather, they are directed to a specific improvement to the way computers operate, embodied in the self-referential table.”¹⁰⁹ For example, unlike the relational model, the patents “disclose[d] an indexing technique that allows for faster searching of data than would be possible with the relationship model . . . allow[ed] for more effective storage of data other than structured text, such as images and unstructured text . . . [and] more flexibility in configuring the database.”¹¹⁰ In other words, the Federal Circuit read the claims as not only being “directed to an improvement to computer functionality,” but also “to a specific

107. *Id.* at 1337.

108. *Id.* at 1335.

109. *Id.* at 1336.

110. *Id.* at 1333.

implementation of a solution to a problem in the software arts.”¹¹¹ The *Enfish* patents survived.

A few weeks later, on June 27, 2016, the Federal Circuit issued another Sec. 101 motion in *BASCOM Global Internet Services, Inc. v. AT&T Mobility, LLC*, writing the opinion, Judge Chen (who also wrote the Federal Circuit’s decision in *DDR Holdings*), vacated the district court’s order dismissing plaintiff’s complaint finding that the claims of the asserted patent, U.S. Patent No. 5,987,606 were invalid as a matter of law under Sec. 101.¹¹² The patent described its invention as “combining the advantages of the then-known filtering tools while avoiding their drawbacks.”¹¹³ For example, the invention avoids being “modified or thwarted by a computer literate end-user” and “avoids being installed on and dependent on ‘individual end-user hardware and operating systems’” or a single local area network or local server platform by installing the filter at the ISP server.¹¹⁴

The patent was deemed eligible by the Federal Circuit despite its claims involving elements known in the art. For the Federal Circuit, “an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces.”¹¹⁵ Here, the patent, described a “specific, discrete implementation of the abstract idea of filtering content” on the internet, even though filtering content on the internet was already a known concept, the patent described how its “particular arrangement of elements is a technical improvement over prior art ways of filtering such content.”¹¹⁶ This, according to the Federal Circuit is patentable under Sec. 101.¹¹⁷

Subsequently, on August 1, 2016, the Federal Circuit ruled on *Electric Power Group LLC v. Alstom S.A.*, here the Federal Circuit held that patents describing systems and methods for performing real-time performance monitoring of an electric power grid by collecting data from multiple data sources, analyzing the data, and displaying the results to be ineligible patent subject matter.¹¹⁸ Unlike the claims in *Enfish*, which involved improvements to computer functionality, the asserted claims in *Electric Power* were

111. *Id.* at 1338–39.

112. *BASCOM Global Internet Services v. AT&T Mobility LLC*, 827 F.3d, 1343 (Fed. Cir. 2016).

113. *Id.* at 1344.

114. *Id.*

115. *Id.* at 1350.

116. *Id.*

117. *Id.*

118. *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1351 (Fed. Cir. 2016).

focused on independently abstract ideas that merely use computers as tools.¹¹⁹ The Federal Circuit further noted that merely limiting such asserted claims to the particular technological environment of power-grid monitoring is, without more, insufficient to transform the claims into “patent-eligible applications of the abstract ideas.”¹²⁰ Indeed, there was nothing new about the asserted claims: “The claims in this case do not even require a new source or type of information, or new techniques for analyzing it.”¹²¹ Even under the second *Alice* step, the Federal Circuit observed that the claims’ “invocation of computers, networks, and displays,” in fact, required neither “nonconventional computer, network, or display components” nor “nonconventional and non-generic arrangement of known, conventional pieces.”¹²² In so holding, *Power Electric* spoke favorably about the district court’s “common-sense distinction between ends sought and particular means of achieving them, between desired results (functions) and particular ways of achieving (performing) them” as a one helpful way of double-checking patentability under *Alice*, specifically the Supreme Court’s prohibition against the preemptive nature of patents.¹²³ Judge Taranto reasoned that “claims [that are] so result-focused, so functional, as to effectively cover any solution to an identified problem” is more likely to preempt innovation.¹²⁴

The concern for preemption took center stage in *McRO Inc. v. Bandai Namco Games America Inc.*, a case involving patents on a automatically animating lip synchronization and facial expression of three-dimensional characters. The district court invalidated the patents, finding the claims “drawn to the [abstract] idea of automated rules-based use of morph targets and delta sets for lip-synchronized three-dimensional animation.”¹²⁵ First, looking facially at the claims, the district court found them directed to something tangible as “each cover[ed] an approach to automated three-dimensional computer animation, which is a specific technological process.”¹²⁶ Because the claims described a tangible process, the court

119. *Id.* at 1354.

120. *Id.*

121. *Id.* at 1355.

122. *Id.* (cf. *Enfish* and *BASCOM*).

123. *Id.* at 1356.

124. *Id.*

125. *McRO Inc. v. Bandai Namco Games America Inc.*, No. 2015-1080, 2016 WL 4896481, at 7 (Fed. Cir. 2016).

126. *Id.* at 4.

disregarded the preemption concern.¹²⁷ Second, the court compared the claims to the prior art that the patents sought to improve in an attempt to “factor out conventional activity.”¹²⁸ In the prior art, facial expressions and lip synchronizations were done manually with the help of a computer. The animator, using a computer, would manually determine the appropriate modification to be performed on a character model at certain important times or “keyframes.”¹²⁹ Here, the patents aimed to automate the 3-D animator’s tasks by “providing an integrated method embodied in computer software . . . for the rapid, efficient lip synchronization and manipulation of character facial expressions.”¹³⁰ Although the district court concluded that “the claim adds to the prior art . . . the use of rules, rather than artists” to set the proper modifications or “morph weights and transitions between phonemes,” the court nonetheless invalidated the patents because the claims were too broad and not limited to specific rules.¹³¹ The court found that the claims were unpatentable because “the novel portions of [the] invention are claimed too broadly.”¹³² The Federal Circuit disagreed.

Criticizing the district court’s Sec. 101 analysis as one that “loosely tracks” the *Alice* test, Judge Reyna, writing for the Court, reversed the order for judgment on the pleading and held that the claims are patentable.¹³³ Addressing the district court’s analysis, the *McRO* made clear that tangibility is not dispositive. Indeed, “the result may not be tangible, there is nothing that requires a method “be tied to a machine or transform an article” to be patentable.¹³⁴ “The concern underlying the exceptions to § 101 is not tangibility, but preemption.”¹³⁵ Here, the “claimed process uses a combined order of specific rules that renders information into a specific format that is then used and applied to create desired results: a sequence of synchronized, animated characters.”¹³⁶ The district court oversimplified the asserted claims by looking at them generally and then failing to account for those specific

127. *Id.*

128. *Id.*

129. *Id.* at 2–3.

130. *Id.* at 2.

131. *Id.* at 4.

132. *Id.*

133. *Id.* at 4.

134. *Id.* at 9 (citing *Bilski*, 561 U.S. at 603).

135. *Id.*

136. *Id.*

requirements of the claims.¹³⁷ When the Federal Circuit did so, it concluded that the asserted claims were, in fact, “limited to rules with specific characteristics,” that is, “limited to rules with certain common characteristics, i.e. a genus.”¹³⁸ Now, “[c]laims to the genus of an invention, rather than a particular species, have long been acknowledged as patentable.”¹³⁹ However, “[p]atent law has evolved to place additional requirements on patentees seeking to claim a genus; however, these limits have not been in relation to the abstract idea exception to §101.”¹⁴⁰ Rather, the limits have been in relation to the risk of preemption — the primary concern driving Sec. 101 jurisprudence. Because, the *McRO* patents, when “looked at as a whole,” are “directed to a patentable, technological improvement over the existing, manual 3-D animation techniques,” there was no risk of preemption.¹⁴¹

At first blush, there is no doubt that the *McRO* decision reiterated the core principles espoused in *Alice* and its progeny, namely, that claims directed to specific improvements in computer technology are patent-eligible. However, recall that the underlying theme of *Alice* jurisprudence is a presumption of ineligibility where the patent claims a process that can be carried out by a human using pen and paper by simply automating it.¹⁴² In *OIP Technologies*, the Federal Circuit affirmed the district court’s order invalidating patents that relate to a method of price optimization in an e-commerce environment. “At best,” Judge Hughes writes, “the claims describe the automation of the fundamental economic concept of offer-based price optimization through the use of generic-computer functions.”¹⁴³ Indeed, the “key distinguishing feature of the claims is the ability to automate or otherwise make more efficient traditional price-optimization methods.”¹⁴⁴ The Federal Circuit held that “relying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.”¹⁴⁵ Prior to *McRO*, it appeared the automation of human processes

137. *Id.* at 7.

138. *Id.* at 7–8.

139. *Id.* at 8 (citing *Diamond v. Chakrabarty*, 447 U.S. 303, 305 (1980)).

140. *Id.*

141. *Id.* at 10.

142. See, e.g., *OIP Technologies v. Amazon.com*, 788 F.3d 1359, 1361 (Fed. Cir. 2015).

143. *Id.* at 1363.

144. *Id.*

145. *Id.*

was not patentable. However, under *McRO*, the automation of an animator's tasks seems patent eligible so long as concerns of preemption are addressed.

V. Conclusion

Initially, the Federal Circuit's post-*Alice* jurisprudence carefully avoided drawing bright-line tests, instead deciding individual cases under the specific facts of those cases, with subsequent cases being argued by analogy to previously decided cases. At last, after over two years of post-*Alice* decisions, the broad strokes of an analytical framework are starting to emerge, particularly from the Federal Circuit's decisions over the last six months. First, the Court will determine what distinguishes the invention from the prior art. If the novel feature is the use of a computer, the patent will likely be invalid, while if the novel feature is a better computer, the patent will likely be valid.

Whether the Federal Circuit will continue to follow this path or change course and attempt to harmonize past decisions into an analytical framework (e.g., by attempting to define the boundaries of what constitutes an abstract idea) remains to be seen and will be the subject of continuing analysis and research by practitioners for years to come.