

# THE EYE OF THE STORM: SOFTWARE PATENTS AND THE ABSTRACT IDEA DOCTRINE IN *CLS BANK V. ALICE*

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In October 2012, the Federal Circuit voted to face a long-brewing storm surrounding the patentability of computer programs by granting a petition for a rehearing en banc in *CLS Bank International v. Alice Corp.*<sup>1</sup> The Court posed two questions on rehearing:

- a. What test should the court adopt to determine whether a computer-implemented invention is a patent ineligible “abstract idea”; and when, if ever, does the presence of a computer in a claim lend patent eligibility to an otherwise patent-ineligible idea?
- b. In assessing patent eligibility under 35 U.S.C. § 101 of a computer-implemented invention, should it matter whether the invention is claimed as a method, system, or storage medium; and should such claims at times be considered equivalent for § 101 purposes?<sup>2</sup>

The answers to these questions have eluded the patent system since the first computer program patent applications began appearing at the U.S. Patent and Trademark Office (“USPTO”), leaving stakeholders in the vast number of software-related patents that have issued to date on shaky ground.<sup>3</sup> For some time, the meteoric rise in the number of issued software patents appeared to relegate the issue of software patent eligibility to the

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1. *CLS Bank Int’l v. Alice Corp. Pty. Ltd.*, 484 F. App’x 559, 560 (Fed. Cir. 2012).

2. *Id.* at 559–60. Section 101 states: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101 (2006).

3. USPTO records indicate a total of 551,789 patents were granted between 1977 and December 2011 in the 700–726 class range that includes data processing and computer systems, with 30,429 patents in Class 705: “Data Processing: Financial, Business Practice, Management, or Cost/Price Determination” typically associated with business methods software. *Patent Counts By Class By Year*, U.S. PATENT & TRADEMARK OFFICE, <http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cbcby.htm> (last visited Jan. 31, 2013).

annals of history,<sup>4</sup> yet recent cases demonstrate a fundamental divide in the courts about which computer-implemented inventions should be eligible for patent protection. The Federal Circuit's decision to vacate its original panel opinion in *CLS Bank* follows a controversy stirred by an apparently inconsistent outcome in *Bancorp Services v. Sun Life*, decided only a few weeks later.<sup>5</sup> In May 2012, the Supreme Court vacated the Federal Circuit's decision on the same issue in *Ultramercial v. Hulu*, and remanded for further consideration in light of its recent ruling in *Mayo Collaborative Services v. Prometheus Laboratories*.<sup>6</sup> Petitions for rehearing en banc have been filed in both *Bancorp* and *Ultramercial*; thus, the Federal Circuit must now reconcile its patent eligibility jurisprudence, which it has likened to the subtle art of wine-tasting.<sup>7</sup> The present en banc rehearing is an opportunity for the Circuit to lend clarity to a long-unsettled area of the law, resolving several key inconsistencies in past approaches that are examined in this Note.

The tempest surrounding software patents gathered intensity when the Supreme Court rejected the Federal Circuit's most recent attempt at articulating a definitive patentable subject matter test in *Bilski v. Kappos*, finding that "the machine-or-transformation test is a useful and important clue, an investigative tool. . . . [but] not the sole test for deciding whether an invention is a patent-eligible 'process.'"<sup>8</sup> The Supreme Court declined to provide further guidance, noting that "nothing in [*Bilski*] should be read as

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4. Julie E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CAIF. L. REV. 1, 4 (2001) (describing software patents as "a matter for the history books").

5. *CLS Bank Int'l v. Alice Corp. Pty. Ltd.*, 685 F.3d 1341 (Fed. Cir. 2012), *reh'g en banc granted, opinion vacated*, 484 Fed. App'x. 559 (decided July 9, 2012); *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Canada (U.S.)*, 687 F.3d 1266 (Fed. Cir. 2012) (decided July 26, 2012).

6. *Ultramercial, L.L.C. v. Hulu, L.L.C.*, 657 F.3d 1323 (Fed. Cir. 2011) *cert. granted, judgment vacated sub nom. WildTangent, Inc. v. Ultramercial, L.L.C.*, 132 S. Ct. 2431 (2012) (remanding for further consideration in light of *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012)).

7. *MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250, 1259 (Fed. Cir. 2012). The Federal Circuit noted:

This effort to descriptively cabin § 101 jurisprudence is reminiscent of the oenologists trying to describe a new wine. They have an abundance of adjectives—earthy, fruity, grassy, nutty, tart, woody, to name just a few—but picking and choosing in a given circumstance which ones apply and in what combination depends less on the assumed content of the words than on the taste of the tongue pronouncing them.

*Id.*

8. *Bilski v. Kappos*, 130 S. Ct. 3218, 3227 (2010). Under the "machine-or-transformation" test, a "process is patent eligible if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing." *Id.* at 3221.

endorsing interpretations of § 101 that the Court of Appeals for the Federal Circuit has used in the past,” without “foreclos[ing] the Federal Circuit’s development of other limiting criteria that further the purposes of the Patent Act and are not inconsistent with its text.”<sup>9</sup> In the two years after *Bilski*, the Federal Circuit issued nearly a dozen opinions on software patent eligibility, grappling with other formulations of limiting criteria and revealing a growing rift among the court members.<sup>10</sup> The Supreme Court’s *Prometheus* decision further exacerbated this rift, as the Court once again declined to articulate a bright-line rule for patentable subject matter, and yet confirmed the importance of § 101 as an initial determination of patentability.<sup>11</sup> The origins of the current crisis with software patents lie much deeper, however, beginning with the tenuous acceptance of method patents, and the divergence of software patents from other technical fields as the USPTO experienced a boom in information technology without adequate administrative or judicial guidance.

This Note examines the current split regarding software patentability in the Federal Circuit in the context of the turbulent history of software and method patents. Part I presents the recent divide over the patent-eligibility of software by examining the claims at issue in *CLS Bank* and *Bancorp*, and the Federal Circuit’s motivation for granting the rehearing en banc. Part II describes the diverging philosophies of the current Federal Circuit judges behind the inconsistent case outcomes of the past several decades. Part III traces the doctrinal developments that led to the uncertain validity of software patents, the analytical problems that must be addressed in reconciling Federal Circuit and Supreme Court jurisprudence, and the administrative responses to the growth of information technology that will provide alternate avenues for challenging questionable patents. History

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9. *Id.* at 3231. See also Peter S. Menell, *Forty Years of Wondering in the Wilderness and No Closer to the Promised Land: Bilski’s Superficial Textualism and the Missed Opportunity to Return Patent Law to Its Technology Mooring*, 63 STAN. L. REV. 1289, 1291 (2011) (“[T]he failure of the *Bilski* majority to elucidate the basis—constitutional, statutory, and/or jurisprudential—for deciphering the boundaries of patentable subject matter leaves other important industries and decisionmakers in the wilderness.”).

10. See Part II, *infra*, describing the rift among court members and the recent Federal Circuit patentability cases: *Research Corp. Technologies, Inc. v. Microsoft Corp.*, 627 F.3d 859 (Fed. Cir. 2010); *SiRF Technology, Inc. v. International Trade Commission*, 601 F.3d 1319 (Fed. Cir. 2010); *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057 (Fed. Cir. 2011); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366 (Fed. Cir. 2011); *Fort Properties, Inc. v. American Master Lease L.L.C.*, 671 F.3d 1317 (Fed. Cir. 2012); *Dealertrack, Inc. v. Huber*, 674 F.3d 1315 (Fed. Cir. 2012); *CLS Bank*, 685 F.3d at 1341; *Bancorp Services*, 687 F.3d at 1266; *Ultramercial*, 657 F.3d at 1323; *MySpace*, 672 F.3d at 1259.

11. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1304–05 (2012). The implications of the *Prometheus* ruling are discussed in detail in Section III.B, *infra*.

suggests that the Federal Circuit is unlikely to have the final say on patent protection for software in this case, as the questions before the court go to the very heart of institutional tensions within the patent system.

## I. THE CURRENT CONTROVERSY OVER SOFTWARE PATENTS: *CLS BANK* AND *BANCORP*

The contradictory outcomes of *CLS Bank* and *Bancorp* are symptomatic of the underlying philosophical division within the Federal Circuit, as the two cases extended diverging lines of precedent to conclude with radically different tests of patent eligibility for software. This Section describes the statutory categories of patentable subject matter and the patented inventions at issue in both cases in order to illustrate the analytical challenges that computer-implemented inventions pose for the U.S. patent system.

Section 101 of the 1952 Patent Act sets forth the four categories of patentable subject matter and defines eligibility broadly: “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”<sup>12</sup> Sections 102, 103, and 112 enumerate the conditions and requirements for obtaining a patent: § 102 addresses novelty, § 103 describes the requirement of nonobviousness, and § 112 sets forth the written description, best mode, and “enablement” requirements, calling for disclosure in “such full, clear, concise, and exact terms as to enable any person skilled in the art . . . to make and use the same.”<sup>13</sup> Patent eligibility is further limited by the judicially-created exceptions for “laws of nature, physical phenomena, and abstract ideas” that fall outside the scope of § 101 and must remain in the public domain.<sup>14</sup>

The invention in *CLS Bank* concerned a system that manages “settlement risk” inherent in transactions, where one party may fail to meet its obligation, leaving the other party without its principal.<sup>15</sup> The system acts as an escrow

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12. 35 U.S.C. § 101 (2006).

13. 35 U.S.C. §§ 102, 103, 112.

14. *Bilski v. Kappos*, 130 S. Ct. 3218, 3225 (2010) (describing the exceptions as “statutory *stare decisis* going back 150 years” (citing *Le Roy v. Tatham*, 55 U.S. 156, 173 (1852))). See also *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (such discoveries are “manifestations of . . . nature, free to all men and reserved exclusively to none.” (quoting *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948))). A history of the abstract idea doctrine is provided in Section III.A, *infra*.

15. *CLS Bank Int'l v. Alice Corp. Pty. Ltd.*, 685 F.3d 1341, 1343–44 (Fed. Cir. 2012) *reh'g en banc granted, opinion vacated*, 484 F. App'x 559 (Fed. Cir. 2012). Claim 33 of U.S. Patent No. 5,970,479 recited:

agent by ensuring that both parties' obligations will be met, or else the entire transaction will not take place.<sup>16</sup> The system maintains "shadow" credit and debit records with an independent third party, updating the shadow records with daily balances from each institution, and approving only those transactions where both institutions can meet their obligations.<sup>17</sup> The patentee attempted to claim the invention under three separate patent-eligible subject matter categories: (1) process—claiming the invention as a method composed of steps; (2) machine—as a data processing system comprising data storage devices configured to carry out specified functions; and (3) manufacture—as a computer readable storage medium containing program code.<sup>18</sup>

The *CLS Bank* majority view was rooted in the position that the judicial exceptions to patentable subject matter should be exercised infrequently.<sup>19</sup> Judges Linn and O'Malley disapproved of the "abstract idea" exception as a "serious problem, leading to great uncertainty and to the devaluing of

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

(a) creating a shadow credit record and a shadow debit record for each stakeholder party to be held independently by a supervisory institution from the exchange institutions;

(b) obtaining from each exchange institution a start-of-day balance for each shadow credit record and shadow debit record;

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

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

*Id.*

16. *Id.* at 1343.

17. *Id.*

18. *Id.*

19. *Id.* at 1347 ("[I]n practice, these three exceptions should arise infrequently and should not be understood to subvert the patent's constitutional mandate '[t]o promote the Progress of Science and useful Arts.'" (citing U.S. Const. art. I, § 8, cl. 8)).

inventions of practical utility and economic potential.”<sup>20</sup> The majority adopted the approach of another post-*Bilski* Federal Circuit opinion, *Research Corporation Technologies v. Microsoft*, holding that the “disqualifying characteristic of abstractness must exhibit itself manifestly to override the broad statutory categories of patent-eligible subject matter.”<sup>21</sup> Accordingly, the majority evaluated the claims at issue for a manifest showing of abstractness and held that the claims, when considered as a whole, contained sufficient limitations to avoid the preemption of a fundamental idea.<sup>22</sup> The majority also swept away the distinction between method, system, and storage media claims, focusing on the implementation of the invention in real-time updating of shadow records described in a specific chronological sequence.<sup>23</sup> The court phrased its conclusion in the negative: the claims were not ineligible subject matter because it was “difficult to conclude that the computer limitations . . . d[id] not play a significant part in the performance of the invention or that the claims [we]re not limited to a very specific application of the concept.”<sup>24</sup> The majority then significantly expanded the “manifest” abstraction approach, adopting its own test for patent eligibility:

Unless the single most reasonable understanding is that a claim is directed to nothing more than a fundamental truth or disembodied concept, with no limitations in the claim attaching that idea to a

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20. *Id.* at 1348–49 (citing Donald S. Chisum, *Weeds and Seeds in the Supreme Court’s Business Method Patents Decision: New Directions for Regulating Patent Scope*, 15 LEWIS & CLARK L. REV. 11, 14 (2011) (“Because of the vagueness of the concepts of an ‘idea’ and ‘abstract,’ . . . the Section 101 abstract idea preemption inquiry can lead to subjectively-derived, arbitrary and unpredictable results. This uncertainty does substantial harm to the effective operation of the patent system.”)).

21. *Id.* at 1347 (citing *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 868 (Fed. Cir. 2010)).

22. *Id.* at 1352, 1355–56 (citing *Bilski v. Kappos*, 130 S. Ct. 3218, 3225 (2010) (“It would undermine the intent of Congress to extend a judicially-crafted exception to the unqualified statutory eligibility criteria of § 101 beyond that which is “implicitly” excluded as a “fundamental truth” that is “free to all men and reserved exclusively to none.”)).

23. *Id.* at 1352–53 (citing *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1374 (Fed. Cir. 2011) (“Regardless of what statutory category . . . a claim’s language is crafted to literally invoke, we look to the underlying invention for patent eligibility purposes.”)).

24. *Id.* at 1354–55. The majority looked to the specification language for evidence of computer implementation that was lacking in the claims themselves:

shadow debit/credit records are electronically stored in a system called ‘INVENTICO’ . . . [E]ach [participating] entity electronically notifies the applicable CONTRACT APP of the ‘opening balances’ of all the debit and credit INVENTICO accounts it maintains. . . . Upon receipt of [these] notifications, the applicable CONTRACT APP updates/confirms its stakeholder shadow balances.

*Id.* (internal citations and quotations omitted).

specific application, it is inappropriate to hold that the claim is directed to a patent ineligible ‘abstract idea’ under 35 U.S.C. § 101.<sup>25</sup>

Thus, the *CLS Bank* majority adopted an effective presumption of patent-eligibility for computer software that can be rebutted with a showing that the invention is nothing more than a bare concept, noting that it is preferable to “leave the question of validity to the other provisions of Title 35.”<sup>26</sup>

Judge Prost’s dissent in *CLS Bank* rejected the manifest abstraction approach as contrary to the holding of *Prometheus*, which Judge Prost read to require an analysis of the “inventive concept” of the claims.<sup>27</sup> Judge Prost also pointed to the Supreme Court’s explicit refusal to dispose of the *Prometheus* claims on § 102 and § 103 grounds, holding that § 101 must be approached as a “threshold” test.<sup>28</sup> Even under the standard adopted by the majority, however, Judge Prost found that the patent did not disclose sufficient computer-requiring limitations because it did not describe how to implement the invention on a computer.<sup>29</sup>

In *Bancorp*, a unanimous panel of Judges Prost, Lourie, and Wallach held that a method for administering and tracking the value of life insurance policies was not patent-eligible subject matter, employing a contrary principle to the majority in *CLS Bank*.<sup>30</sup> Using the doctrine of claim differentiation, the

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25. *Id.* at 1352.

26. *Id.* at 1355.

27. *Id.* at 1356–57 (Prost, J., dissenting); a detailed discussion of *Prometheus* is provided in Section III.B, *infra*.

28. *Id.* at 1356–57; an analysis of *Prometheus* and statutory requirements is provided in Section III.B.1, *infra*.

29. *See id.* at 1360 (stating that the specification is “devoid of any teaching for how one must implement computer systems. For example, there is no instruction for connecting various components of the system and no discussion of how existing systems need be modified or improved in order to implement the one that is claimed”).

30. *Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Canada* (U.S.), 687 F.3d 1266, 1269, 1281 (Fed. Cir. 2012). A representative claim of U.S. Patent 5,926,792 recited:

A method for managing a life insurance policy on behalf of a policy holder, the method comprising the steps of:

generating a life insurance policy including a stable value protected investment with an initial value based on a value of underlying securities;

calculating fee units for members of a management group which manage the life insurance policy;

calculating surrender value protected investment credits for the life insurance policy;

determining an investment value and a value of the underlying securities for the current day;

calculating a policy value and a policy unit value for the current day;

court found that the independent claims at issue did not require a computer, because the dependent claims explicitly included a computer limitation by adding the words “performed by a computer.”<sup>31</sup> The panel then arrived at its own formulation of the patent-eligibility test for software applications: “[t]o salvage an otherwise patent-ineligible process, a computer must be integral to the claimed invention, facilitating the process in a way that a person making calculations or computations could not.”<sup>32</sup>

The court relied on another recent opinion, *SiRF Technology v. International Trade Commission*, for the proposition that in order to provide a meaningful limit on claim’s scope, a computer must play “a significant part in permitting the claimed method to be performed, rather than function solely as an obvious mechanism for permitting a solution to be achieved more quickly.”<sup>33</sup> The *Bancorp* court did not apply the manifest abstraction analysis of *Research Corp.*, but instead distinguished the claims at issue from the invention in that case, where a computer was used to render a halftone image through the use of a two-dimensional array.<sup>34</sup> The court identified two differences that it deemed critical: (1) the method in *Research Corp.* represented improvements to computer technologies in the market; and (2) “required the manipulation of computer data structures (the pixels of a digital image and the mask) and the output of a modified computer data structure (the halftoned image).”<sup>35</sup> In *Bancorp*, however, the court found that the computer was “employed only for its most basic function, the performance of repetitive calculations,” and the panel stressed that it was the non-technical management of the life insurance policy that was central to each of Bancorp’s claims at issue, not the computer machinery used to accomplish it.<sup>36</sup> The court also acknowledged its recent opinion in *CLS Bank*, finding its outcome “not inconsistent” because the claims in the present case were not directed to a “very specific application”

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storing the policy unit value for the current day; and  
one of the steps of:  
removing the fee units for members of the management group which  
manage the life insurance policy, and  
accumulating fee units on behalf of the management group.

*Id.* at 1270–71.

31. *Id.* at 1275.

32. *Id.* at 1278.

33. *Id.* at 1278 (citing *SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319, 1333 (Fed. Cir. 2010)).

34. *See id.* at 1279 (citing *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 863–69 (Fed. Cir. 2010)).

35. *Id.*

36. *Id.* at 1278–79 (Fed. Cir. 2012) (internal quotations omitted).



of the inventive concept; but the broad concept of managing a stable value protected life insurance policy.<sup>37</sup>

While both the *CLS Bank* and *Bancorp* courts agreed that mere implementation of an algorithm on a computer does not resolve the question of patent eligibility, the distinction drawn by the court between the methods is elusive because both inventions obtain numerical financial data in real time, perform a set of calculations, and apply the results to particular financial transactions. The specificity-of-application distinction glosses over the fundamental difference in approach advocated by the two panels. In *CLS Bank*, the majority extended *Research Corp.* and adopted a virtual presumption of patent eligibility for software applications, leaving little room for the “abstract idea” exception in cases where there is some evidence of computer implementation. In contrast, the *Bancorp* court extended *SiRF Technology* and adopted a new test of the computer’s necessity that could significantly limit patent eligibility of computer applications. Taken to one logical conclusion, the *Bancorp / SiRF Technology* test requiring a computer “facilitating the process in a way that a person making calculations or computations could not” would bar all computer-implemented inventions, since all computer operations can be reduced to logical operations on binary digits that could, theoretically, albeit slowly, be performed by a human mind.<sup>38</sup> In practice, however, a human mind cannot store matrices of insurance policy balances updated in real time with any more ease than it can track shadow credit records of numerous transaction partners.

## II. THE SPLIT IN THE FEDERAL CIRCUIT

The underlying philosophical divide in the Federal Circuit is evident in the increasingly divergent approaches to § 101 that different panels have applied over the last two decades. Because of these internal divisions, it is

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37. *Id.* at 1280.

38. *See id.* at 1278 (citing *SiRF Tech.*, 601 F.3d at 1333); *see also* Marc Macenko, Bentley J. Olive, *That’s Easy! I Can Do That With Pen And Paper!: Why The Mental Steps Doctrine Could Bring An End To Patent Protection For Software*, 13 N.C. J.L. & TECH. ON. 61, 62 (“By inquiring whether or not a claim could be completed using only pen and paper and purely mental steps, any software can be found to be so abstract that it is no longer eligible for patent protection.”); *see also Patent Law—Patentable Subject Matter—Federal Circuit Holds That Mental Processes That Do Not, As A Practical Matter, Require A Computer To Be Performed Are Unpatentable.—CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366 (*Fed. Cir.* 2011), 125 HARV. L. REV. 851, 851, 858 (2012) (“Substantively, the test’s fundamental inquiry—determining complexity as a function of computing power—likely fails to further the goals of the patent system. . . . [Because] a computing-power requirement creates an artificial distinction between programs of possibly equal inventiveness.”).

instructive to examine the evolution of the underlying philosophies within the Federal Circuit, rather than the recent holdings in chronological order, which reveal significant inconsistencies. On one side, some members of the Federal Circuit adhere to a “coarse filter” approach, characterizing § 101 as an initial filter meant to disqualify only the most bare abstract ideas that are not tied to any useful application. Section II.A describes the evolution of the strongest statement of this approach: the “manifest” abstraction standard adopted in *CLS Bank*. On the other side of the divide are judges who favor a “limiting test” approach, seeking to replace the machine-or-transformation test with a new formulation that would invalidate a significant number of overbroad patents under § 101 and the abstract idea exception. Section II.B analyzes the holdings that adhere to the latter approach, and demonstrates that a workable formulation of such a test remains elusive. Section II.C traces the changes in judges’ views over time, and notes the judges who have not yet adopted a position, remaining as significant arbiters in the balance of the court. Section III.B further describes doctrinal challenges facing both sides of this debate in reconciling the existing lines of Federal Circuit jurisprudence with the *Prometheus* ruling.

#### A. THE COARSE FILTER APPROACH

Judges Plager, Rader, and Newman are the chief proponents of the view that § 101 should rarely act as a bar to patent eligibility. Under the “coarse filter” approach, only a facial showing that the invention is a process, machine, manufacture, or composition of matter is sufficient for patent eligibility, with further limits provided by the novelty, non-obviousness, and written description requirements of § 102, § 103, and § 112.<sup>39</sup> Judges Plager, Rader, and Newman were the joint architects of the manifest abstraction test in *Research Corp.*, which provides the strongest statement of their position.<sup>40</sup> Judge O’Malley, who joined the Federal Circuit in 2010, adopted the coarse filter approach in two patent eligibility decisions.<sup>41</sup>

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39. See *Research Corp.*, 627 F.3d at 869 (“[A] patent that presents a process sufficient to pass the coarse eligibility filter may nonetheless be invalid as indefinite because the invention would not provide sufficient particularity and clarity to inform skilled artisans of the bounds of the claim.” (internal quotations omitted)).

40. *Id.* (“[T]his court also will not presume to define ‘abstract’ beyond the recognition that this disqualifying characteristic should exhibit itself so manifestly as to override the broad statutory categories of eligible subject matter and the statutory context that directs primary attention on the patentability criteria of the rest of the Patent Act.”).

41. See *CLS Bank Int’l v. Alice Corp. Pty. Ltd.*, 685 F.3d 1341, 1356 (Fed. Cir. 2012) *reh’g en banc granted, opinion vacated*, 484 F. App’x 559 (Fed. Cir. 2012); *Ultramercial, L.L.C. v. Hulu, L.L.C.*, 657 F.3d 1323, 1325 (Fed. Cir. 2011) *cert. granted, judgment vacated sub nom. WildTangent, Inc. v. Ultramercial, L.L.C.*, 132 S. Ct. 2431 (2012) (remanded for further

Judge Plager advanced the most pragmatic argument for the coarse filter approach recently in *MySpace v. GraphOn*, holding that “[n]o universal truths need be found that are necessarily applicable to the scope of patents generally, and in deciding the case the corpus of jurisprudence need not be expanded, contracted, redefined, or worse, become the source of yet more abstractions.”<sup>42</sup> Judge Plager’s majority opinion, joined by Judge Newman, reasoned that resolving questions on more specific statutory provisions rather than broad provisions is a prudent and long-established principle.<sup>43</sup> The “coarse filter” approach raises the question of what would constitute a sufficiently manifest showing of abstraction to overcome the broad eligibility provided by the statute. Judge Plager envisions a very high bar: “if it is clear and convincing beyond peradventure—that is, under virtually any meaning of ‘abstract’—that the claim at issue is well over the line, then a case could be made for initially addressing the § 101 issue in the infringement context.”<sup>44</sup>

In *Research Corp.*, Judge Rader articulated the basis for treating software patents as presumptively patent-eligible: a computer application is inherently an application of an idea designed to achieve some commercially valuable end.<sup>45</sup> One can trace Judge Rader’s views back as far as his 1992 concurrence

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consideration in light of *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012)).

42. *See MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250, 1260 (Fed. Cir. 2012).

43. *Id.* at 1259. The court in *MySpace* stated:

[The validity criteria in] each of sections 102, 103, and 112 . . . [is] well developed and generally well understood. In most cases when properly applied they will address the specifics of the case and decide that particular case, nothing more. . . . The Supreme Court has wisely adopted a policy of not deciding cases on broad constitutional grounds when they can be decided on narrower, typically statutorily limited, grounds. Following the Supreme Court’s lead, courts should avoid reaching for interpretations of broad provisions, such as § 101, when more specific statutes, such as §§ 102, 103, and 112, can decide the case.

*Id.* at 1259 (footnotes omitted). Similarly, in another case, Judge Plager, dissenting-in-part, urged the majority to “not foray into the jurisprudential morass of § 101 unless absolutely necessary,” and reiterated the *Research Corp.* holding. *See Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1334 (Fed. Cir. 2012) (Plager, J., concurring-in-part and dissenting-in-part); *Research Corp.*, 627 F.3d at 869.

44. *MySpace*, 672 F.3d at 1261.

45. *See Research Corp.*, 627 F.3d at 869 (“[I]nventions with specific applications or improvements to technologies in the marketplace are not likely to be [deemed abstract and unpatentable.]”); *see also* Robert R. Sachs, *Punishing Prometheus: Part II – What Is A Claim?*, PATENTLY-O, (Mar. 27, 2012), <http://www.patentlyo.com/patent/2012/03/punishing-prometheus-part-ii-what-is-a-claim.html>. (arguing that infringement claims are directed to commercially viable products in the marketplace: “[w]e draft claims that read on actual infringers in the real world. . . . No one makes, sells, or uses an abstract idea.”).

in *Arrhythmia Research Technology*, where he declined to “perpetuate a non-statutory standard” advanced by the Supreme Court, describing exceptions to patentable subject matter as “vague and malleable terms infected with too much ambiguity and equivocation.”<sup>46</sup> In Judge Rader’s view, claims drawn to a “‘process’ within the broad meaning of section 101,” are sufficient, rendering the invention eligible for patent protection if it satisfies the other statutory requirements.<sup>47</sup> Judge Newman, joined by Judge Rader, emphasized the role of § 112 and the additional requirement of definiteness in limiting overbroad patent language: “if reasonable efforts at claim construction result in a definition that does not provide sufficient particularity and clarity to inform skilled artisans of the bounds of the claim, the claim is insolubly ambiguous and invalid for indefiniteness.”<sup>48</sup> Thus, under the coarse filter approach, even if the invention falls under one of the statutory categories of § 101, excessively abstract claim language would be addressed as a § 112 issue.<sup>49</sup>

Judge Newman and Judge Rader vigorously dissented from the adoption of the machine-or-transformation test in *In re Bilski*. Judge Newman found it “a new and far-reaching restriction on the kinds of inventions that are eligible to participate in the patent system.”<sup>50</sup> Judge Newman’s reasoning clearly

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46. *Arrhythmia Research Tech., Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1061, 1063 (Fed. Cir. 1992).

47. *Id.* at 1066. The history of patentability of processes is discussed in detail in Section III.A.1, *infra*.

48. *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057, 1066 (Fed. Cir. 2011) (quoting *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1371 (Fed. Cir. 2008)).

49. *Id.* (inventions that are “so conceptual that the written description does not enable a person of ordinary skill in the art to replicate the process . . . is a matter of patentability under § 112, not eligibility under § 101.” (quoting *Research Corp.*, 627 F.3d at 869)).

50. *In re Bilski*, 545 F.3d 943, 976–77 (Fed. Cir. 2008) *aff’d but criticized sub nom.* *Bilski v. Kappos*, 130 S. Ct. 3218 (U.S. 2010) (Newman, J., dissenting). A representative claim, rejected as an abstract idea by both the Federal Circuit and the Supreme Court, recited:

A method for managing the consumption risk costs of a commodity sold by a commodity provider at a fixed price comprising the steps of:

(a) initiating a series of transactions between said commodity provider and consumers of said commodity wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumer;

(b) identifying market participants for said commodity having a counter-risk position to said consumers; and

(c) initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk position of said series of consumer transactions.

rested on policy reasons: because today’s innovation is increasingly occurring in the digital realm, the law must consistently protect the interests of inventors.<sup>51</sup> Judge Rader couched his views in policy arguments about national economic competitiveness.<sup>52</sup> Rejecting the “legal sophistry” of the machine-or-transformation test, Judge Rader proposed a standard for abstractness that would translate directly into examination procedure: “[s]uch an abstract claim would appear in a form that is not even susceptible to examination against prior art under the traditional tests for patentability.”<sup>53</sup> This statement presaged the importance of comparison to prior art as a tool in policing overreaching software and business patents, which has re-emerged as a strategy under the recent patent reform, described in Section III.C.3, *infra*. Thus, the adherents of the coarse filter view envision a world of innovation no longer tied to physical machines, but protected on the merits of novelty, nonobviousness, and adequate description.

#### B. THE LIMITING TEST APPROACH

The other camp in the Federal Circuit continues to attempt to formulate a rule that would eliminate some algorithms and software patents under the abstract idea exception as part of a § 101 inquiry.<sup>54</sup> This camp includes the judges who had voted with the majority to adopt the machine-or-transformation test in *In re Bilski* and have consistently upheld attempts to

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*Id.* at 949.

51. *See id.* at 976–77 (Newman, J., dissenting). Judge Newman reasoned:

The innovations of the ‘knowledge economy’—of ‘digital prosperity’—have been dominant contributors to today’s economic growth and societal change. Revision of the commercial structure affecting major aspects of today’s industry should be approached with care, for there has been significant reliance on the law as it has existed. . . . Uncertainty is the enemy of innovation. These new uncertainties not only diminish the incentives available to new enterprise, but disrupt the settled expectations of those who relied on the law as it existed.

*Id.*

52. *Id.* at 1076 (Rader, J., dissenting). Judge Rader focused on the effectiveness of U.S. policy:

Unlike the laws of other nations that include broad exclusions to eligible subject matter, such as European restrictions on software and other method patents . . . U.S. law and policy have embraced advances without regard to their subject matter. That promise of protection, in turn, fuels the research that, at least for now, makes this nation the world’s innovation leader.

*Id.* (citations omitted).

53. *Id.* at 1012–13 (Rader, J., dissenting).

54. The evolution of the Supreme Court’s abstract idea doctrine is discussed in Section III.A.1, *infra*.

find new formulations for a suitable replacement test: particularly Judges Dyk, Prost, Moore, Schall, and Bryson.

Judge Mayer wrote a separate dissent in *In re Bilski*, arguing in favor of a broad business method exception from patent protection, and distinguishing business method patents from the constitutionally protected “useful arts” because they are entrepreneurial rather than technological.<sup>55</sup> In his dissent, Judge Mayer argued that business methods do not require intensive research and development and need not be incentivized by grants of limited monopoly because they are already directed at profit-making activities.<sup>56</sup> Business method patents would only remove “building blocks of commercial innovation from the public domain,” leaving American companies at a disadvantage in comparison to their European and Asian counterparts who need not incur licensing fees.<sup>57</sup> Judge Mayer further noted the possible shortage of prior art in evaluating business method patent applications and the deluge of new applications, many of them reciting routine methods of daily life.<sup>58</sup> Judge Mayer also wrote a dissenting opinion in *MySpace*, disagreeing with the coarse filter approach to § 101, and arguing that § 101 is an “antecedent question” that must be fully resolved before proceeding to the other requirements of the title.<sup>59</sup>

Judge Prost authored the dissent in *CLS Bank* and voted with the majority in *Bancorp*, as discussed in Part I, *supra*, adopting a new test that “a computer must be integral to the claimed invention, facilitating the process in a way that a person making calculations or computations could not.”<sup>60</sup> Judge

55. *In re Bilski*, 545 F.3d 943, 1002 (Fed. Cir. 2008) (Mayer, J., dissenting).

56. *See id.* at 1003–04.

57. *Id.* at 1006–07.

58. *Id.* at 1002. Judge Mayer wrote:

Patents granted in the wake of *State Street* have ranged from the somewhat ridiculous to the truly absurd. *See, e.g.*, U.S. Patent No. 5,851,117 (method of training janitors to dust and vacuum using video displays); U.S. Patent No. 5,862,223 (method for selling expert advice); U.S. Patent No. 6,014,643 (method for trading securities); U.S. Patent No. 6,119,099 (method of enticing customers to order additional food at a fast food restaurant); U.S. Patent No. 6,329,919 (system for toilet reservations); U.S. Patent No. 7,255,277 (method of using color-coded bracelets to designate dating status in order to limit “the embarrassment of rejection”).

*Id.*

59. *MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250, 1264, 1268 (Fed. Cir. 2012) (Mayer, J., dissenting).

60. Part I, *supra*; *CLS Bank Int’l v. Alice Corp. Pty. Ltd.*, 685 F.3d 1341, 1356–61 (Fed. Cir. 2012) *reh’g en banc granted, opinion vacated*, 484 F. App’x 559 (Fed. Cir. 2012) (Prost, J., dissenting); *Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Canada (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012).

Prost was also the author of the majority opinion in *Fort Properties v. American Master Lease*, joined by Judges Schall and Moore.<sup>61</sup> In *Fort Properties*, the invention was a device of “deedshares” in a real estate portfolio that are sold in manner similar to stocks and allow the investor to take advantage of a favorable tax provision.<sup>62</sup> The court found Claims 1–31 to be ineligible for patenting because they did not recite the use of a computer, and the use of “deeds, contracts, and real property” was held to be an insufficient tie to the physical world to confer patentability to the claims.<sup>63</sup> In contrast, Claims 32–41 did recite the use of the computer, and the court proceeded in accordance with the line of cases that analyze whether the computer limitations “play a significant part in permitting the claimed method to be performed,” concluding that the limitations were not significant because the claims “only require the computer to generate a plurality of deedshares.”<sup>64</sup>

In *CyberSource v. Retail Decisions*, Judge Dyk, joined by Judges Prost and Bryson, authored the first opinion in a line of cases evaluating whether computer limitations “play a significant part” in the invention.<sup>65</sup> The invention in this case recited a method for detecting fraud in credit card transactions by creating a map of Internet Protocol (IP) addresses and associated credit card numbers.<sup>66</sup> The court held the claims to be patent

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61. *Fort Props., Inc. v. Am. Master Lease L.L.C.*, 671 F.3d 1317, 1318 (Fed. Cir. 2012).

62. *Fort Props., Inc.*, 671 F.3d at 1318–19. A representative claim disclosed:

A method of creating a real estate investment instrument adapted for performing tax-deferred exchanges comprising:

- aggregating real property to form a real estate portfolio;
- encumbering the property in the real estate portfolio with a master agreement; and
- creating a plurality of deedshares by dividing title in the real estate portfolio into a plurality of tenant-in-common deeds of at least one predetermined denomination, each of the plurality of deedshares subject to a provision in the master agreement for reaggregating the plurality of tenant-in-common deeds after a specified interval.

*Id.* at 1319.

63. *Id.* at 1322–23.

64. *Id.* (internal quotations omitted).

65. *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375 (Fed. Cir. 2011).

66. A representative claim, as amended during reexamination, recited:

A method for verifying the validity of a credit card transaction over the Internet comprising the steps of:

- a) obtaining information about other transactions that have utilized an Internet address that is identified with the [ ] credit card transaction;
- b) constructing a map of credit card numbers based upon the other transactions and;

ineligible because they can be performed as a “mental process.”<sup>67</sup> The court cited precedent in support of the “mental process” doctrine, concluding that that the claimed method “can be performed in the human mind, or by a human using a pen and paper,” noting that while the patent’s specification discussed “a database of Internet addresses,” CyberSource conceded that the claim did not cover the initial creation of the database.<sup>68</sup> Thus, the court concluded there were no limitations that require a computer to “play a significant part” in the invention.<sup>69</sup>

Conversely, in *SiRF Technology*, Judge Dyk, joined by Judge Clevenger and former Chief Judge Michel, applied the same test to a method of estimating and processing GPS data, coming to the opposite conclusion.<sup>70</sup> The court found that a GPS receiver is a machine that is integral to each of the claims at issue and places a meaningful limit on the scope of the claims.<sup>71</sup> Yet, if GPS data can be presumed to be tied to a physical device that generates the data, a map of IP addresses and associated credit card number implicitly requires a physical device that performs online transactions. Similarly, the line drawn by *CyberSource* and *SiRF Technology*, which re-emerged in *CLS Bank* and *Bancorp*—distinguishing calculations that require a computer from those that can be performed in the human mind—traverses a gray area and is not

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c) utilizing the map of credit card numbers to determine if the credit card transaction is valid.

*Id.* at 1368, n.1.

67. *Id.* at 1372–75.

68. *Id.* at 1372 (“[W]e have consistently ‘refused to find processes patentable when they merely claimed a mental process standing alone and untied to another category of statutory subject matter[,] even when a practical application was claimed.’” (alteration in original) (citing *In re Comiskey*, 554 F.3d 967, 980 (Fed. Cir. 2009))).

69. *Id.* at 1375.

70. *SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319, 1322, 1333 (Fed. Cir. 2010). The relevant claim recited:

A method for calculating an absolute position of a GPS receiver and an absolute time of reception of satellite signals comprising:

providing pseudoranges that estimate the range of the GPS receiver to a plurality of GPS satellites;

providing an estimate of an absolute time of reception of a plurality of satellite signals;

providing an estimate of a position of the GPS receiver; providing satellite ephemeris data;

computing absolute position and absolute time using said pseudoranges by updating said estimate of an absolute time and the estimate of position of the GPS receiver.

*Id.* at 1331.

71. *Id.* at 1332. The court elaborated further that “there is no evidence here that the calculations here can be performed entirely in the human mind.” *Id.* at 1333.



entirely convincing.<sup>72</sup> Both *CyberSource* and *SiRF Technology* inventions make use of locational data and provide a useful aggregate analysis of the information. The extension of this line of reasoning in *CLS Bank* and *Bancorp* leads to the same paradoxical result: while the calculations are theoretically possible to do with a pen and paper, no human mind can update and maintain such vast financial data structures in real time without the aid of a physical machine. Thus, a formulation of a patent eligibility test that can consistently link new computer-implemented methods to specific technology remains elusive.

### C. CHANGING POSITIONS IN THE FEDERAL CIRCUIT

In prior eras, the Federal Circuit has made several attempts to formulate a test now sought in the *CLS Bank* rehearing. The Freeman-Walter-Abele test, derived from three cases decided between 1978 and 1982, comprised two steps: first, the court determined whether the claim at issue recited an “algorithm”; second, if the claim did recite an algorithm, the court determined whether that algorithm is “applied in any manner to physical elements or process steps.”<sup>73</sup> In 1994, Judge Plager applied the Freeman-Walter-Abele test in *In re Schrader*, finding a method pertaining to an auction strategy to be ineligible subject matter.<sup>74</sup> Judge Newman dissented even then, contending that the matter should be remanded on § 102 and § 103 grounds.<sup>75</sup> The Freeman-Walter-Abele test was rejected by a majority in *AT&T v. Excel Communications*, which noted that *State Street Bank & Trust Co. v. Signature Financial Group* had questioned its continuing vitality, and concluded that “this type of physical limitations analysis seems of little value.”<sup>76</sup>

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72. See note 38, *supra*, and accompanying text. This problem stems from what is called the Church-Turing thesis in computer science: that any algorithm written in language (and thus understandable to a human mind) can be written in a pure mathematical expression and vice versa, thus there is no boundary but only a spectrum of complexity. See Ben Klemens, *The Rise of the Information Processing Patent*, 14 B.U. J. SCI. & TECH. L. 1, 10 (2008).

73. *In re Bilski*, 545 F.3d 943, 958–59 (Fed. Cir. 2008) (citing *In re Freeman*, 573 F.2d 1237, 1245 (C.C.P.A. 1978); *In re Walter*, 618 F.2d 758, 767 (C.C.P.A. 1980); *In re Abele*, 684 F.2d 902, 907 (C.C.P.A. 1982)).

74. *In re Schrader*, 22 F.3d 290, 292, 294 (Fed. Cir. 1994).

75. *Id.* at 297 (Newman, J., dissenting).

76. *AT&T Corp. v. Excel Commc'ns, Inc.*, 172 F.3d 1352, 1359 (Fed. Cir. 1999), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008). See also *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373–74 (Fed. Cir. 1998), *abrogated by In re Bilski*, 545 F.3d 943, 959 (Fed. Cir. 2008). The claims at issue in *State Street* involved a data processing system for a “hub and spoke” financial portfolio management platform, and were found to be patent-eligible subject matter. *Id.* at 1370.

In the mid-1990s, *In re Alappat* articulated the “useful, concrete, and tangible result” test, attempting to describe the very opposite of an abstract idea by drawing on the “new and useful” language of § 101.<sup>77</sup> *In re Alappat* effectively paved the way for software patents, and Judges Plager, Rader, and Newman each wrote a separate concurrence affirming the patentability of the practical application of a mathematical algorithm, favoring a broad interpretation of § 101, but did not challenge the “useful, concrete, and tangible” test adopted by the majority.<sup>78</sup> This test was in turn rejected by *In re Bilski*. The Court also rejected a proposed “technological arts” test as “inadequate” because “the meanings of the terms ‘technological arts’ and ‘technology’ are both ambiguous and ever-changing.”<sup>79</sup> While the “technological arts” limitation on patentability has been praised by some commentators as an effective solution adopted by the European Patent Office, others have found it raises similar boundary definition problems.<sup>80</sup> *In re Alappat* raised another thorny issue that has resurfaced in the second question posed in the *CLS Bank* rehearing: the equivalence of software and a special purpose machine hardwired to carry out the same action.<sup>81</sup> This recognition gave rise to the practice of claiming a computer-implemented method as an apparatus.<sup>82</sup> A contemporaneous case recognized computer programs “embodied in a tangible medium,” such as a disk, to be patentable subject matter, giving rise to media-based claim drafting.<sup>83</sup> These equivalences highlighted the shortcomings of a physicality requirement for

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77. *In re Alappat*, 33 F.3d 1526, 1544, 1552 (Fed. Cir. 1994) (upholding patent eligibility of a “rasterizer” for pixel displays).

78. *Id.* at 1568–85.

79. *In re Bilski*, 545 F.3d 943, 959–60 (Fed. Cir. 2008) *aff’d but criticized sub nom.* *Bilski v. Kappos*, 130 S. Ct. 3218 (U.S. 2010).

80. Susan J. Marsnik & Robert E. Thomas, *Drawing A Line in the Patent Subject-Matter Sands: Does Europe Provide A Solution to the Software and Business Method Patent Problem?*, 34 B.C. INT’L & COMP. L. REV. 227, 230, 320 (2011) (“Instead of serving as a panacea for U.S. patent examiners and courts, the European technical requirement fails to provide a meaningful constraint for software patents and many business method patents on either side of the Atlantic.”).

81. *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994) (“[S]uch 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”).

82. *Id.* This equivalence was originally addressed in *In re Bernhart*, 417 F.2d 1395, 1395 (C.C.P.A. 1969).

83. *See In re Beauregard*, 53 F.3d 1583, 1584 (Fed. Cir. 1995) (giving rise to the “Beauregard” claim form).

software inventions, and the ease with which claiming strategies could circumvent artificially constructed categories.<sup>84</sup>

By 1998, a shift away from attempting to limit § 101 began to take shape in *State Street*, unanimously decided by Judges Plager and Bryson and former Judge Rich.<sup>85</sup> In rejecting a categorical exception from patentable subject matter for business methods, the court found that concerns about breadth are best addressed by the subsequent statutory requirements.<sup>86</sup> Analogous reasoning was adopted shortly after by Judges Plager, Clevenger, and Rader in *AT&T*, finding claims pertaining to a system for automatic call routing fell “comfortably within the broad scope of patentable subject matter under § 101.”<sup>87</sup> Both holdings were abrogated by the machine-or-transformation test of *In re Bilski*, but these analyses provide a clear record of the evolution from a rule-based approach towards a coarse filter approach favoring eligibility among some of the longest-serving judges.<sup>88</sup> Interestingly, Judge Bryson appears to have moved towards limiting patent eligibility in *CyberSource* from the majority position of *State Street*.<sup>89</sup>

Judge Linn voted with Judge O’Malley in *CLS Bank*, adopting the manifest abstractness approach.<sup>90</sup> While Judge Linn had voted with the majority in favor of the machine-or transformation test in *In re Bilski*, a year before that, Judge Linn dissented in part in *In re Nuijten* from a holding that certain encoded signals were not patent-eligible subject matter because they did not fall into any of the four statutory categories.<sup>91</sup> Judge Linn found the invention to be a manufacture, and wrote that it should be analyzed under

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84. *See* *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057, 1074 (Fed. Cir. 2011) (“When careful claim drafting or new claim formats avoid eligibility restrictions, the doctrine becomes very hollow.”).

85. *See* *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1370, 1375 (Fed. Cir. 1998), *abrogated by In re Bilski*, 545 F.3d 943, 959 (Fed. Cir. 2008). The claims at issue in *State Street* involved a data processing system for a “hub and spoke” financial portfolio management platform, and were found to be patent-eligible subject matter. *Id.* at 1370.

86. *Id.* at 1375, 1377 (noting that “whether the patent’s claims are too broad to be patentable is not to be judged under § 101, but rather under §§ 102, 103 and 112”).

87. *AT&T Corp. v. Excel Commc’ns, Inc.*, 172 F.3d 1352, 1356 (Fed. Cir. 1999), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (noting that because processes are a category of patentable subject matter, “the judicially-defined proscription against patenting of a ‘mathematical algorithm,’ to the extent such a proscription still exists, is narrowly limited to mathematical algorithms in the abstract”).

88. *See In re Bilski*, 545 F.3d 943, 976–98 (Fed. Cir. 2008) (Newman, J., dissenting); *Id.* at 1011–15 (Rader, J., dissenting).

89. *See* note 66, *supra*, and accompanying text.

90. *See* notes 15–22, *supra*, and accompanying text.

91. *In re Nuijten*, 500 F.3d 1346 (Fed. Cir. 2007).

“§ 101’s textual requirements that statutory subject matter be ‘new’ and ‘useful.’”<sup>92</sup> Thus, it appears that Judge Linn may favor a broader statutory interpretation of patent eligibility.<sup>93</sup>

Judge Lourie joined Judges Rader and O’Malley in *Ultramercial*, applying a coarse filter approach to claims disclosing a method of distributing media content over the Internet in exchange for the users’ views of advertising, and referring to *Bilski* for the proposition that patentable subject matter may include business methods.<sup>94</sup> However, Judge Lourie also voted in favor of the machine-or-transformation test in *In re Bilski*, and in favor of the *Bancorp* rule that a “computer must be integral to the claimed invention, facilitating the process in a way that a person making calculations or computations could not.”<sup>95</sup> Thus, Judge Lourie may take a fact-specific approach to cases rather than advancing a broad philosophy.

Finally, Judges Wallach and Reyna joined the Federal Circuit in 2011 and have not yet authored an opinion on the issue.<sup>96</sup> Judge Wallach voted with the majority in *Bancorp*; however, time will tell if that will be a long-standing position.<sup>97</sup> The new members of the Federal Circuit will likely play a significant role in the final outcome of this debate.

### III. A LIFE IN THE MAELSTROM FOR COMPUTER-IMPLEMENTED INVENTIONS

Software patents have had the unique distinction of occupying a remarkably indeterminate place in the law for the entire lifespan of computer technology. Despite this uncertainty, the number of computer-implemented invention patents has grown tremendously in the last two decades, in step with the boom in information technology, bringing these patents into the center stage of intellectual property litigation.<sup>98</sup> Notwithstanding calls from

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92. *Id.* at 1358–69 (Linn, J., dissenting).

93. *See id.*

94. *Ultramercial, LLC v. Hulu, LLC*, 657 F.3d 1323, 1325–26 (Fed. Cir. 2011), *cert. granted, judgment vacated sub nom. WildTangent, Inc. v. Ultramercial, LLC*, 132 S. Ct. 2431 (U.S. 2012).

95. *See In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008); *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Canada (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012).

96. *See Judges*, U.S. COURT OF APPEALS FOR THE FEDERAL CIRCUIT, <http://www.cafc.uscourts.gov/judges> (last visited Apr. 8, 2013).

97. *See Bancorp Servs.*, 687 F.3d at 1266.

98. *See, e.g., Colleen V. Chien, From Arms Race to Marketplace: The New Complex Patent Ecosystem and Its Implications for the Patent System*, 62 HASTINGS L.J. 297, 304–06 (2010). *See also 2012 Patent Litigation Study*, PricewaterhouseCoopers, LLP (Sept. 2012), available at <http://www.pwc.com/us/en/forensic-services/publications/2012-patent-litigation->

the industry, the patent bar, and the bench, a comprehensive approach to patent protection for computer programs has not materialized.<sup>99</sup> The acceptance of software patents was driven by advances in industrial processes, but as computational technology gained increasing use in automating business methods and developing new financial tools, a host of new doctrinal and policy questions emerged before the courts. The Federal Circuit has had to chart a winding trajectory in following a similarly divided Supreme Court, and the *Prometheus* opinion posed two fundamental issues in § 101 analysis presented in the following Section. The Federal Circuit could significantly advance the inquiry by clarifying its stance on those issues in the current *CLS Bank* rehearing. This Section concludes with the implications of this uncertain history for administrative agencies and the steps taken by the Leahy-Smith America Invents Act (“AIA”) of 2011 that will shape software patents in years to come.

A. METHODS, MACHINES AND PATENTABLE SUBJECT MATTER: THE PULL BETWEEN COURTS AND THE EXAMINATION PROCESS

Software patents owe their existence to the predecessor of the Federal Circuit, the Court of Customs and Patent Appeals (“CCPA”), which gradually dismantled the prohibition on computer program patents in place under the 1968 Patent Office Guidelines and the CCPA’s prior doctrine.<sup>100</sup> The 1968 Guidelines rejected patent protection for software for largely administrative reasons, including lack of a prior art database and examination procedure; yet, the CCPA could find no logical boundary between advances in technology and increasing incorporation of computer-controlled elements in industry.<sup>101</sup> As technology became increasingly information-focused, implementing business strategies and financial transactions rather than industrial applications, the line for patentability became even more difficult to draw. This section describes the formidable challenge the Federal Circuit has faced in reconciling its uneven pre-existing body of precedent with ambiguous guidance from the Supreme Court to address rapidly changing technology.

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study.jhtml (indicating that the “Software” category in patent litigation has moved up from Rank 10 in 1995–2000 to Rank 6 by 2006–2011).

99. See Solutions to the Software Patent Problem Conference Resources, Santa Clara Law High Tech. Institute (Nov. 16, 2012), <http://law.scu.edu/hightech/2012-patent-conference-resources.cfm>.

100. See *Diamond v. Diehr*, 450 U.S. 175, 198–205 (1981) (Stevens, J., dissenting) (providing a detailed review of CCPA case law).

101. See *id.*

1. “Abstract Idea” and “Mental Process” Exceptions to Patentable Subject Matter: A Winding Road in Supreme Court’s Jurisprudence

Despite the inclusion of “process” among the categories of patentable subject matter in § 101 of the 1952 Patent Act, the patentability of processes and methods has been uncertain in a system designed primarily for mechanical inventions.<sup>102</sup> The 1852 case of *Le Roy v. Tatham* is often cited as the origin of the abstract idea doctrine, where the Supreme Court rejected the patentability of a new method for forming lead pipe with known machinery, because a “principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.”<sup>103</sup> Soon after, however, the Court began recognizing methods and processes as patentable subject matter, albeit in an evolving relationship to manufacturing.<sup>104</sup>

In *Gottschalk v. Benson*, the first significant case dealing with a computer-implemented invention, the Supreme Court held a method for converting binary-coded decimal numerals into pure binary numerals to be unpatentable because “the patent would wholly preempt the mathematical formula and in practical effect would be a patent on the algorithm itself.”<sup>105</sup> Thus, the Court reasoned that without limitations on the field of use or specification of machinery, the claim raised a concern of preemption of future uses of the algorithm, both in different fields and in new forms of technical implementation.

Several years later, the Supreme Court formulated an entirely new approach in *Parker v. Flook*, holding that limitations on the field of use in the

102. See *Bilski v. Kappos*, 130 S. Ct. 3218, 3239–49 (2010) (Stevens, J., concurring) (reviewing patentability of methods in English and Early American law).

103. *Le Roy v. Tatham*, 55 U.S. 156, 175 (1852). See also note 14, *supra*; *Diamond v. Diehr*, 450 U.S. 175, 185 (1981).

104. See R. Carl Moy, *Subjecting Rembrandt to the Rule of Law: Rule-Based Solutions for Determining the Patentability of Business Methods*, 28 WM. MITCHELL L. REV. 1047, 1080–81 (2002) (citing *Corning v. Burden*, 56 U.S. 252 (1853), *Burr v. Duryee*, 68 U.S. 531, 570 (1863)). Eventually, a process came to be seen as “a mode of treatment of certain materials to produce a given result. [A process] is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing.” *Cochrane v. Deener*, 94 U.S. 780, 788 (1876).

105. *Gottschalk v. Benson*, 409 U.S. 63, 68, 72 (1972). The Court found that the ‘process’ claim is so abstract and sweeping as to cover both known and unknown uses of the . . . conversion. The end use may (1) vary from the operation of a train to verification of drivers’ licenses to researching the law books for precedents and (2) be performed through any existing machinery or future-devised machinery or without any apparatus.

*Id.*

form of “post-solution activity” do not confer patentability.<sup>106</sup> Rather, “an inventive application of the principle” or “some other inventive concept” besides the application of a mathematical formula is required.<sup>107</sup> While quoting *Benson*, the Court made an unprecedented determination that a new mathematical algorithm may not be the sole inventive concept because even a new algorithm must be treated as prior art.<sup>108</sup> And once the algorithm was assumed to be within the prior art, the application as a whole contained no patentable invention.<sup>109</sup> The majority rejected the argument that this approach imports § 102 and § 103 inquiries into the § 101 determination because the “obligation to determine what type of discovery is sought to be patented must precede the determination of whether that discovery is, in fact, new or obvious.”<sup>110</sup> The dissenters, Justices Stewart and Rehnquist, adopted the opposing view: that this approach did indeed tread on the territory of § 102 and § 103, and that precedent dictated that the process in question should be patentable.<sup>111</sup>

Justice Rehnquist’s view in *Flook* became the majority opinion just three years later in *Diamond v. Diehr*, which held that § 101 “is a general statement of the type of subject matter that is eligible for patent protection ‘subject to the conditions and requirements of this title’ . . . and § 102 covers in detail the conditions relating to novelty.”<sup>112</sup> The majority held that the use of a formula in conjunction with the other steps of a rubber molding process, which utilized a digital computer to continuously calculate optimal temperature in accordance with a known equation, to be patentable subject matter, subject to further examination for novelty under § 102 and nonobviousness under § 103.<sup>113</sup> The majority distinguished *Flook* by finding that the method in *Diehr* was not an “insignificant post-solution activity,” but a “process which, when considered as a whole, is performing a function

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106. *Parker v. Flook*, 437 U.S. 584, 590, 594, 596 (1978) (finding claims for a “method for updating the value of at least one alarm limit on at least one process variable involved in a process comprising the catalytic chemical conversion of hydrocarbons” to be drawn to unpatentable subject matter).

107. *Id.* at 593–94.

108. *Id.* at 591–92 (“[T]he novelty of the mathematical algorithm is not a determining factor at all. Whether the algorithm was in fact known or unknown at the time of the invention, as one of the ‘basic tools of scientific and technological work,’ it is treated as though it were a familiar part of the prior art.” (internal citation omitted) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972))). *See also*, note 149, *infra*, and accompanying text, describing the analytical problem with this approach.

109. *Id.* at 594–95.

110. *Id.* at 593.

111. *Id.* at 600 (Stewart, J., dissenting).

112. *Diamond v. Diehr*, 450 U.S. 175, 189 (1981).

113. *Id.* at 187, 191, 208.

which the patent laws were designed to protect.”<sup>114</sup> Justice Stevens, the *Flook* majority author, was in the minority in *Diehr*, and authored the 5–4 dissent, reiterating the significance of the “inventive concept” inquiry, under which the claimed process would not have qualified for patent protection.<sup>115</sup>

After nearly a thirty-year gap, the Supreme Court returned to the abstract idea doctrine in *Bilski*.<sup>116</sup> The Court found *Bilski*’s claims limiting hedging strategies to energy markets added even less to the underlying idea than the post-solution activity in *Flook*.<sup>117</sup> Without invoking the “inventive concept” inquiry directly, the Court held all claims at issue invalid because “[h]edging is a fundamental economic practice long prevalent in our system of commerce and taught in any introductory finance class.”<sup>118</sup> Justice Stevens, concurred in the outcome but disagreed with the reasoning, pointing out that this basis for invalidity addresses the lack of novelty rather than the abstract idea doctrine.<sup>119</sup> Instead, Justice Stevens, joined by three other members of the Court, urged that a “process” within the meaning of § 101 should not include business methods.<sup>120</sup> The plurality, however, did not limit the definition of process, but adopted a broad view of patentable subject matter, to be refined by the succeeding statutory requirements.<sup>121</sup> This holding resonates with a coarse filter approach to § 101 in the Federal Circuit, however, the tenuous plurality achieved in *Bilski* suggested that the Court’s position may shift in future rulings. The following two sections analyze the tensions behind this outcome and the swing towards narrowing patent eligibility in the *Prometheus* ruling of 2012.

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114. *Id.* at 190.

115. *Id.* at 192.

116. *Bilski v. Kappos*, 130 S. Ct. 3218, 3221–23 (2010).

117. *Id.* at 3231.

118. *Id.*

119. *Id.* at 3236 (Stevens, J., concurring) (“[The reasoning] cannot justify the Court’s conclusion, as the proper construction of § 101 . . . does not involve the familiar issu[e] of novelty that arises under § 102.”) (internal quotations omitted).

120. *Id.* at 3239.

121. The Court held that

The § 101 patent-eligibility inquiry is *only a threshold test*. Even if an invention qualifies as a process, machine, manufacture, or composition of matter, in order to receive the Patent Act’s protection the claimed invention must also satisfy “the conditions and requirements of this title.” § 101. Those requirements include that the invention be novel, see § 102, nonobvious, see § 103, and fully and particularly described, see § 112.

*Id.* at 3225 (emphasis added).



2. *Convergence of Business Methods and Technological Innovation at the USPTO*

For a significant period in the history of patent law, methods of doing business were considered to be unpatentable,<sup>122</sup> although there is some evidence of early patents of financial methods<sup>123</sup> and automation of tabulations.<sup>124</sup> Until the mid-1900s, courts adhered to a general exclusion of business methods from patentable subject matter.<sup>125</sup> The tide changed with Judge Newman's dissent in *In re Schrader*, which questioned the logic of distinguishing between business and industrial uses of computation technology.<sup>126</sup> The USPTO abandoned the business method exception and adopted the *In re Schrader* dissent view in the 1996 Examination Guidelines for Computer-Related Inventions, which stated that such claims "should be treated like any other process claims, pursuant to these guidelines when

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122. *Id.* at 3239–49 (Stevens, J., concurring) (reviewing patentability of business methods in English and Early American law); *see also* *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467, 469 (2d Cir. 1908) ("A system of transacting business disconnected from the means for carrying out the system is not, within the most liberal interpretations of the term, an art."). *But see* *State St. Bank v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1376 (Fed. Cir. 1998) (characterizing the business method exception in early cases as non-binding dicta, since invalidity rested on other factual determinations).

123. *See* Peter R. Lando, *Business Method Patents: Update Post State Street*, 9 TEX. INTELL. PROP. L.J. 403, 407 (2001). Lando states,

The first financial patent was granted on March 19, 1799, to Jacob Perkins of Massachusetts for an invention for 'Detecting Counterfeit Notes.' . . . The first fifty years of the U.S. Patent Office saw the granting of forty-one financial patents in the arts of bank notes (2 patents), bills of credit (1), bills of exchange (1), check blanks (4); detecting and preventing counterfeiting (10), coin counting (1), interest calculation tables (5), and lotteries (17). Financial patents in the paper-based technologies have been granted continuously for over two hundred years.

*Id.*

124. *Id.* at 407–08 (describing patents granted to Herman Hollerith in 1889 that led to formation of the Tabulating Machine Company, which became International Business Machine Corporation in 1924, and pioneered the use of punch cards for processing business data prior to the invention of computers).

125. Until that time, USPTO's *Manual of Patenting Examination Procedure* also asserted that business methods were unpatentable. *See* Rinaldo Del Gallo, III, *Are "Methods of Doing Business" Finally out of Business as a Statutory Rejection?*, 38 IDEA 403, 404–06, 435 (1998).

126. *In re Schrader*, 22 F.3d 290, 297 (Fed. Cir. 1994) (Newman, J., dissenting) (arguing that the distinction is artificial because "data representing bid prices for parcels of land do not differ, in § 101 substance, from data representing electrocardiogram signals (*Arrhythmia*) or parameters in a process for curing rubber (*Diehr*)," which was held patentable subject matter by the Supreme Court).

relevant.”<sup>127</sup> This view was subsequently upheld by the Federal Circuit, thus, the current status of computer programs rests on the tenuous acceptances of computer programs and business methods into the realm of patentable subject matter in the mid-1990s.<sup>128</sup> The Federal Circuit subsequently reversed those opinions in favor of the machine-or-transformation test in *In re Bilski*, which remains as a useful clue together with the uneasy acceptance of business method patents by the Supreme Court in *Bilski v. Kappos*.<sup>129</sup> Thus, in *Bilski*, the Supreme Court faced a convergence of doctrinal questions: (1) the patentability of a computer-implemented algorithms, which were previously examined through the lens of mathematical concepts and natural laws in the context of manufacturing,<sup>130</sup> and (2) the patentability of methods of doing business, which posed a separate doctrinal problem, subject to a distinct line of case law long before the invention of computers.<sup>131</sup> The patentability of business methods, however, is far from settled, as four justices in *Bilski* would have held up a categorical exclusion of business methods from patentable subject matter, and future rulings may limit the language of the *Bilski* majority.<sup>132</sup>

#### B. WRESTLING WITH *PROMETHEUS*

Just two years later, in 2012, the Supreme Court’s *Prometheus* decision sent a “shockwave” through the biotechnology industry by invalidating a diagnostic method patent of the type long accepted as patentable, inviting widespread criticism of patentability jurisprudence.<sup>133</sup> The *Prometheus* claims were drawn to a medical diagnostic method rather than a computer program, yet the Court’s analysis raised uncertain implications for software patents.<sup>134</sup>

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127. USPTO, *Examination Guidelines for Computer-Related Inventions*, 61 Fed. Reg. 7478-02, 7479 (Feb. 28, 1996), 1996 WL 82067; see also Moy, *supra* note 104, at 1055–56.

128. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1377 (Fed. Cir. 1998), *abrogated by* *In re Bilski*, 545 F.3d 943, 959 (Fed. Cir. 2008); *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1359 (Fed. Cir. 1999), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008).

129. *See Bilski v. Kappos*, 130 S. Ct. 3218, 3228 (2010).

130. *Id.* at 3229–31 (applying the Benson-Flook-Diehr doctrine to the process at issues).

131. *See id.* at 3239–49 (Stevens, J., concurring) (reviewing patentability of business methods in English and Early American law).

132. *See id.* at 3232 (Stevens, J., concurring, joined by Justices Ginsburg, Breyer, and Sotomayor).

133. Thomas Engellenmer, *Mayo v. Prometheus: fire but no light*, THE NATIONAL LAW JOURNAL (Apr. 9, 2012), <http://www.law.com/jsp/nlj/PubArticleNLJ.jsp?id=1202548424282&slreturn=1>.

134. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1295 (2012). A representative claim disclosed:

The Court applied an analogous analysis of patentability to claims invoking the natural law, abstract idea, or mental process exceptions, and found the *Prometheus* claims ineligible for patent protection along two principal lines of reasoning.<sup>135</sup> First, reviving the “inventive concept” approach of *Flook*, the Court concluded that the claims involved nothing more than “well-understood, routine, conventional activity previously engaged in by researchers in the field.”<sup>136</sup> Second, in a “preemption” inquiry following *Benson*, the Court concluded that upholding the claims would “risk disproportionately tying up the use of the underlying natural laws, inhibiting their use in the making of further discoveries.”<sup>137</sup> The implication of these approaches for the two sides of the Federal Circuit split are discussed in the following sections.

1. *The Meaning of “Threshold” Test: Patent-Eligible Subject Matter Under § 101 and Patent Validity Requirements of §§ 102, 103, and 112*

Courts have used the term “threshold” test ambiguously in applying § 101 by referring to both the procedural order and the scope of the proper inquiry under § 101, often blurring the distinction between the two.<sup>138</sup> With

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A method of optimizing therapeutic efficacy for treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) administering a drug providing 6–thioguanine to a subject having said immune-mediated gastrointestinal disorder; and

(b) determining the level of 6–thioguanine in said subject having said immune-mediated gastrointestinal disorder,

wherein the level of 6–thioguanine less than about 230 pmol per  $8 \times 10^8$  red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject and

wherein the level of 6–thioguanine greater than about 400 pmol per  $8 \times 10^8$  red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject.

*Id.* at 1295. *See, e.g.*, Bernard Chao, *Moderating Mayo*, 107 NW. U. L. REV. 82, 83 (2012) (“By failing to provide a framework for determining when additional limitations can change an unpatentable concept into a patentable application, the Supreme Court has cast doubt on a host of less controversial patents. But the decision does not have to wreak the havoc that many fear it will.”).

135. *Prometheus*, 132 S. Ct. at 1293 (“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.” (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972))).

136. *Id.* at 1294.

137. *Id.*

138. *See* note 121, *supra*, and accompanying text. *Cf.* note 59, *supra*, and accompanying text. *See also* *CLS Bank Int'l v. Alice Corp. Pty. Ltd.*, 685 F.3d 1341, 1360 *reh'g en banc granted, opinion vacated*, 484 F. App'x 559 (Fed. Cir. 2012) (Prost, J., dissenting) (arguing that *Prometheus*

respect to the procedural order, some judges and commentators have suggested that it is more sensible to address the other statutory requirements first, because this determination does not require grappling with the problematic exceptions to patentability.<sup>139</sup> After *Prometheus* appeared to reject this approach, the *CLS Bank* majority clarified that § 101 may be applied as a coarse filter before the remaining statutory requirements, where the manifest abstraction standard speaks to the weight of the presumption without sidestepping the § 101 inquiry.<sup>140</sup> In *Prometheus*, the Supreme Court also addressed the scope of § 101, explicitly rejecting the Solicitor General's argument that novelty and nonobviousness requirements could resolve the question of patentability because this approach would render the "law of nature" exception to § 101 patentability "a dead letter."<sup>141</sup> The *Prometheus* Court held that the "better established" inquiry under § 101 must maintain a different scope from the remaining requirements, noting that "shift[ing] the patent-eligibility inquiry entirely to these later sections risks creating

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requires that the court "may not simply defer the threshold question of patentability to other provisions of the Act; rather, where the case squarely presents the issue, we must invalidate the patent under § 101."); *Diamond v. Diehr*, 450 U.S. 175, 188 (1981) ("Arrhenius' equation is not patentable in isolation, but when a process for curing rubber is devised which incorporates in it a more efficient solution of the equation, that process is at the very least not barred by § 101.").

139. See *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1335 (Fed. Cir. 2012) (Plager, J., concurring-in-part and dissenting-in-part) (urging the court to "not foray into the jurisprudential morass of § 101 unless absolutely necessary"); see also Dennis Crouch & Robert P. Merges, *Operating Efficiently Post-Bilski By Ordering Patent Doctrine Decision-Making*, 25 BERKELEY TECH. L.J. 1673, 1681–82 (2010) ("By analogy to the doctrine of avoidance, our approach conserves the courts' legitimacy by reserving consideration of § 101 issues for only those cases in which it is absolutely essential."); Michael Risch, *Everything Is Patentable*, 75 TENN. L. REV. 591, 591 (2008) ("The currently confused and inconsistent jurisprudence of patentable subject matter can be clarified by implementing a single rule: any invention that satisfies the Patent Act's requirements of category, utility, novelty, nonobviousness, and specification is patentable." (footnotes omitted)); Donald S. Chisum, *Weeds and Seeds in the Supreme Court's Business Method Patents Decision: New Directions for Regulating Patent Scope*, 15 LEWIS & CLARK L. REV. 11, 14–15 (2011). Chisum states:

Section 101 abstract idea preemption inquiry can lead to subjectively-derived, arbitrary, and unpredictable results. . . . That harm would be largely avoided by implementing the suggested 'facts-first' approach, which minimizes the need to engage in the difficult legalistic inquiry into the meaning of 'abstract idea' and whether a given patent claim 'preempts' it.

*Id.* (footnote omitted).

140. *CLS Bank Int'l v. Alice Corp. Pty. Ltd.*, 685 F.3d 1341, 1352 n.3. (Fed. Cir. 2012) *reh'g en banc granted, vacated*, 484 F. App'x 559 (Fed. Cir. 2012) ("[I]f a court . . . is not wholly convinced that the subject matter of the claims is abstract, the claims in question must be held patent eligible.").

141. *Prometheus*, 132 S. Ct. at 1303.

significantly greater legal uncertainty, while assuming that those sections can do work that they are not equipped to do.”<sup>142</sup>

The Court’s reasoning, however, closely mirrored the language of the very statutory sections the Court deemed inadequate for the task. First, the Court found that the “methods for determining metabolite levels were well known in the art” and the claimed steps were thus “conventional or obvious.”<sup>143</sup> Section 102 describes the requirements of novelty, including types of acceptable prior art, while § 103 employs language nearly identical to the Court’s in determining obviousness:

A patent may not be obtained though the invention is not identically disclosed or described . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.<sup>144</sup>

Similarly, the Supreme Court traced the roots of the preemption doctrine and abstract idea exception to a concern with claims “so abstract and sweeping as to cover both known and unknown uses.”<sup>145</sup> Section 112, however, addresses the same concern:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same.<sup>146</sup>

A specification containing a full, clear, and exact description of a particular use was thus intended to exclude language that was overly broad and could cover undisclosed or unknown future uses.<sup>147</sup>

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142. *Id.*

143. *Id.* at 1297–98 (citing *Parker v. Flook*, 437 U.S. 584, 590 (1978)).

144. 35 U.S.C. § 103(a) (2006).

145. *Prometheus*, 132 S. Ct. at 1301 (citing *Gottschalk v. Benson*, 409 U.S. 63, 67, 68 (1972)).

146. 35 U.S.C.A. § 112(a).

147. One of the reasons software patents increasingly adopted broader claim language was a loosening of this requirement for software patents in several Federal Circuit decisions. *See* Dan L. Burk & Mark A. Lemley, *Is Patent Law Technology-Specific?*, 17 BERKELEY TECH. L.J. 1155, 1162 (2002). This problem is particularly acute and amenable to solution by more rigorous application of § 112 in the software field. *See* Mark Lemley, *Software Patents and the Return of Functional Claiming*, WIS. L. REV. (forthcoming 2013), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2117302](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2117302). However, in the biotechnology field, § 112 may indeed be insufficient to do the work of the natural phenomenon doctrine. *See*

The disagreement about the proper scope of inquiry under § 101 can be traced to the overlap in the statutory language itself. Section 101 requires a “new and useful” invention, while § 102 addresses the technical requirements of novelty. The question remains, however, whether § 101 inquiry must include the “inventive concept” and preemption analyses following *Prometheus*, and if so, how the courts are to conduct these determinations. *Prometheus* was unique in that the patent itself noted that the measuring techniques and correlations in question were known in prior art.<sup>148</sup> Without such disclosure, this approach may invite conjecture by the courts about what steps are in fact “routine” and “conventional.” And in *Flook*, the Court pronounced any algorithm to be inherently in the prior art as a “basic tool[] of scientific and technological work,” novel algorithms are at the heart of many modern inventions.<sup>149</sup> Thus, the Federal Circuit could advance the analysis substantially in the *CLS Bank* rehearing by clarifying the meaning of a “threshold” inquiry in terms of procedural order and scope of the “inventive concept” analysis.

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Samantak Ghosh, *Prometheus and the Natural Phenomenon Doctrine: Let's Not Lose Sight of the Forest for the Trees*, 94 J. PAT. & TRADEMARK OFF. SOC'Y 330 (2012).

148. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1295 (2012). The court noted,

Previous studies suggested that measurement of 6-MP metabolite levels can be used to predict clinical efficacy and tolerance to azathioprine or 6-MP. But those in the field did not know the precise correlations between metabolite levels and likely harm or ineffectiveness. The patent claims at issue here set forth processes embodying researchers' findings that identified these correlations with some precision.

*Id.* (citations omitted) (internal quotation marks omitted). Following *Flook*, the Court found that “putting the formula to the side, there was no ‘inventive concept’ in the claimed application of the formula.” *Id.* at 1299.

149. See Mark A. Lemley, *Point of Novelty*, 105 NW. U. L. REV. 1253, 1278 (2011). Professor Lemley identified the logical problem with this reasoning:

That conclusion was quite remarkable. Under that approach, many drugs would be unpatentable because the discovery of their efficacy involves the mere identification of a previously unknown natural phenomenon. Computer software would be unpatentable because it is composed of algorithms. Even the classic mercury thermometer might not be patentable because it was based on the discovery of a physical attribute of mercury: the fact that it expands at a predictable rate as temperature increases.

*Id.* (footnotes omitted) (citations omitted).

2. *Describing the Invention: Claim Language and Levels of Abstraction in the “Preemption” Inquiry*

Patent law scholars are beginning to recognize that, as in copyright law, an invention can be characterized at multiple levels of abstraction.<sup>150</sup> A related issue is whether the invention is the new totality of all the elements in the claim, or the unique inventive element, not in combination with other steps. *Diehr* emphasized that the invention must be considered as a whole:

It is inappropriate to dissect the claims into old and new elements and then to ignore the presence of the old elements in the analysis. This is particularly true in a process claim because a new combination of steps in a process may be patentable even though all the constituents of the combination were well known and in common use before the combination was made.<sup>151</sup>

The *Prometheus* Court departed from this long-standing practice, by considering the elements of the claims separately, then finding that “when viewed as a whole, add nothing significant beyond the sum of their parts taken separately.” The Court did not address the specific numerical thresholds in the “wherein” clauses of the claim, which were the key findings of the patentee’s research, instead finding that they “simply tell a doctor about the relevant natural laws” and holding that the disclosed steps of the diagnostic method were known in the prior art.<sup>152</sup>

In the *CLS Bank* dissent, Judge Prost similarly discounted certain elements of the claim by purporting to strip the method of “jargon,” yet the majority cautioned against the danger present in arbitrary paraphrasing:

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150. Tun-Jen Chiang, *The Levels of Abstraction Problem in Patent Law*, 105 NW. U. L. REV. 1097, 1152 (2011) (“Once we understand that every invention can be characterized as multiple ideas on many levels of abstraction, it becomes clear that a selection among them must be made.”); see also Peter Lee, *The Evolution of Intellectual Infrastructure*, 83 WASH. L. REV. 39, 68 n.155 (2008) (“[A]n invention, if subjected to a ‘great number of patterns of increasing generality,’ could be conceptualized as a combination of scientific principles and mechanical forces.” (quoting *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930))).

151. *Diamond v. Diehr*, 450 U.S. 175, 188 (1981).

152. *Prometheus*, 132 S. Ct. at 1291, 1295–98. The Court stated that ‘Previous studies suggested that measurement of 6-MP metabolite levels can be used to predict clinical efficacy and tolerance to azathioprine or 6-MP.’ But those in the field did not know the precise correlations between metabolite levels and likely harm or ineffectiveness. The patent claims at issue here set forth processes embodying researchers’ findings that identified these correlations with some precision.

*Id.* (citations omitted).

[N]othing in the Supreme Court's precedent, nor in ours, allows a court to go hunting for abstractions by ignoring the concrete, palpable, tangible, and otherwise not abstract invention the patentee actually claims. It is fundamentally improper to paraphrase a claim in overly simplistic generalities in assessing whether the claim falls under the limited "abstract ideas" exception to patent eligibility under 35 U.S.C. § 101. Patent eligibility must be evaluated based on what the claims recite, not merely on the ideas upon which they are premised.<sup>153</sup>

The temptation to simplify patent claims is understandable in view of the number of cases and the complex technologies judges must handle.<sup>154</sup> On the other hand, some courts are tempted to consider elements outside of the claim in looking for tangible, non-abstract elements.<sup>155</sup> The need for a consistent approach to the level of abstraction is particularly acute in the context of the preemption inquiry, so that courts neither improperly simplify the claims, nor imports additional elements from the specification or other claims.<sup>156</sup> Lack of a consistent approach to defining the invention "make[s] the determination of patentable subject matter depend simply on the draftsman's art and would ill serve the principles underlying the prohibition

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153. *CLS Bank Int'l v. Alice Corp. Pty. Ltd.*, 685 F.3d 1341, 1358, 1351–52 (Fed. Cir. 2012), *reh'g en banc granted, vacated*, 484 F. App'x 559 (Fed. Cir. 2012).

154. See Peter Lee, *Patent Law and the Two Cultures*, 120 YALE L.J. 2, 2 (2010) (advancing a "cognitive miser" model of information processing that relies on simplifying heuristics, and arguing that formalism limits and streamlines judicial engagement with technology); see also The Honorable Paul Michel, *Judicial Constellations: Guiding Principles As Navigational Aids*, 54 CASE W. RES. L. REV. 757, 762 (2004) ("In 1988 we had 217 patent cases pending; today we have 430 patent cases pending. Also, in the intervening years since 1988, the difficulty of the average patent case in our court has gone up at least one order of magnitude. Consequently, we have the same twelve people now doing a vastly larger amount of work on vastly harder cases.").

155. For example, *Research Corp* referred to devices (such as "high contrast film," "a film printer," "a memory," and "printer and display devices") mentioned in claims of the patent other than the claims at issue to support its finding that the claims were not abstract. *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 865 (Fed. Cir. 2010). Representative claim 1 recites:

A method for the halftoning of gray scale images by utilizing a pixel-by-pixel comparison of the image against a blue noise mask in which the blue noise mask is comprised of a random non-deterministic, non-white noise single valued function which is designed to produce visually pleasing dot profiles when thresholded at any level of said gray scale images.

*Id.*

156. See *Diamond v. Diehr*, 450 U.S. 175, 212 (1981) ("Proper analysis, therefore, must start with an understanding of what the inventor claims to have discovered-or phrased somewhat differently-what he considers his inventive concept to be.").



against patents for ‘ideas’ or phenomena of nature.”<sup>157</sup> The preemption inquiry, in turn, heavily depends on how the invention is characterized. For example, in *CLS Bank*, whether the invention is the concept of automating escrow in general, the “shadow” credit records component, or the more detailed flowcharts in the specification<sup>158</sup> would substantially influence the question of whether it is possible for others to make a different escrow system without infringing the claims. Thus, the Federal Circuit could advance § 101 analysis by clarifying the level of description for the purposes of preemption inquiry, as well as how such inquiry is to be conducted by the court without technical expertise in a particular field.

### C. INSTITUTIONAL FORCES AND THE FUTURE OF SOFTWARE PATENTS

As the above discussion shows, patent examination guidelines have sometimes diverged from Federal Circuit rulings, and the current status of software patents is the result of changes at multiple levels of the patent system.<sup>159</sup> The following Section analyzes the role of the Federal Circuit and the constraints on its decision-making, as well as the effects of the lack of bright-line rules on the examination and administrative review. Finally, this Section concludes with a summary of steps taken in the Leahy-Smith America Invents Act (AIA) of 2011 to combat the problem of overbroad method patents.

#### 1. *Rules, Formalism, and the Problem of Being the Federal Circuit*

Scholars have suggested that the prospect of reversal by the Supreme Court leads the Federal Circuit to hyper-interpret Supreme Court precedent out of a desire for certainty and outcome-determinative criteria.<sup>160</sup> Legal scholars have long drawn a distinction between rules and standards: rules provide a determinate legal result that follows from one or more triggering facts; standards, on the other hand, apply a flexible principle or the types of factors to be considered in achieving an overall objective.<sup>161</sup> Thus, statutory

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157. *Parker v. Flook*, 437 U.S. 584, 593 (1978).

158. *See* Br. of Amici Curiae Electronic Frontier Foundation and Public Knowledge in Support of Appellees and Remand, *CLS Bank Int’l v. Alice Corp. Pty. Ltd.*, Appeal No. 2011-1301 (Fed. Cir.).

159. *See* notes 125–127, *supra*, and accompanying text.

160. *See, e.g.*, Lucas S. Osborn, *Instrumentalism At The Federal Circuit*, 56 ST. LOUIS U. L.J. 419, 425 (2012); *see also* Craig Allen Nard, *Legal Forms And The Common Law Of Patents*, 90 B.U.L. REV. 51, 54–55 (2010).

161. Moy, *supra* note 104, at 1063. A widely used example of a rule is a speed limit of 65 miles per hour, whereas an example of a standard might be “a speed that is reasonably safe for the vehicle and driving conditions.” *See also* Russell B. Korobkin, *Behavioral Analysis and Legal Form: Rules vs. Standards Revisited*, 79 OR. L. REV. 23, 23 (2000).

validity requirements serve as *ex ante* rules grounded in factual determination, while the abstract idea and mental process doctrines have functioned as flexible standards to address patents deemed to be too socially costly. Rules have the advantages of notice and horizontal equity to litigants as a group, while standards allow the adjudicator to balance the overall values and objectives.<sup>162</sup> The tension between the patentable subject matter inquiry under § 101 and the patent validity requirements of the subsequent sections arises from the divergent needs of the patent system: to conduct a fact-intensive scrutiny at the examination level *ex ante*, and to address overbroad patents that are perceived as socially harmful when they are asserted in litigation *ex post*.

In formulating its tests for patentability, the Federal Circuit has attempted to fashion predictable rules out of the Supreme Court's amorphous doctrine. However, ignoring or over-interpreting precedent that does not fit the newly-fashioned rule leaves the participants in the judicial process with the "impression of rigid formalism, eviscerating much of the flexibility that is the oft-cited benefit of a policy-driven analysis."<sup>163</sup> Thus, the Federal Circuit's attempts to interpret Supreme Court holdings have garnered criticism as internally inconsistent and insufficiently grounded in policy.<sup>164</sup> The Supreme Court's response, in turn, has been a continuing reluctance to endorse such rules.<sup>165</sup>

The USPTO argues that the Federal Circuit should not adopt a single "test" for the patent-eligibility of computer-implemented inventions because "[t]he Supreme Court has made clear that patent-eligibility is not amenable to bright-line, categorical rules."<sup>166</sup> Innovation inherently confronts the courts with change and unpredictability, and scholars have also argued that rigid rules are ill-suited for patent eligibility determinations, which require adaptability.<sup>167</sup> Judge Plager has agreed with this position in principle, writing

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162. Moy, *supra* note 104, at 1064.

163. Osborn, *supra* note 160, at 459.

164. See, e.g., Menell, *supra* note 9, at 1300–01 (2011); Rochelle Cooper Dreyfuss, *In Search of Institutional Identity: The Federal Circuit Comes of Age*, 23 BERKELEY TECH. L.J. 787, 808–14 (2008); Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1039–41 (2003).

165. See Lee, *supra* note 154, at 42 (arguing that the Supreme Court is "push[ing] back against Federal Circuit formalism").

166. Br. for the United States as Amicus Curiae on Rehearing En Banc in Support of Neither Party, *CLS Bank Int'l v. Alice Corp. Pty. Ltd.*, Appeal No. 2011-1301 (Fed. Cir.).

167. John F. Duffy, *Rules and Standards on the Forefront of Patentability*, 51 WM. & MARY L. REV. 609, 614 (2009) ("[L]ong term failure of rules in defining patentability is also consistent with general models that predict standards to be more durable than rules when conditions are changing, and innovation presents a quintessential circumstance of change.").

that the primary role of the judiciary is resolving the specific conflict at issue before the court, rather formulating comprehensive, systemic solutions for the patent system.<sup>168</sup> Judge Rader's views have also been described as antiformalist, due to his frequent engagement with policy, context, and developments in foreign law.<sup>169</sup> Justice Scalia, on the other hand, has asserted that adherence to democratic principles requires a preference in the legal system for rules over standards.<sup>170</sup> In this view, the discretion inherent in adjudication by a standard requires the adjudicator to assert value judgments, and, in comparison to the constraining impact of a rule, tends to require more resources, judicial and otherwise.<sup>171</sup> Thus, the Federal Circuit must exercise its judicial role at the intersection of pressure from the district courts for greater formalism—more bright-line rules—and the opposite pressure from the Supreme Court for more flexible standards, while contending with patentees that have strong economic incentives to deliberately introduce uncertainties and extend the scope of their patents.<sup>172</sup>

2. *USPTO and BPAI Patent Eligibility Determinations: Forging their Own Paths*

While the courts have played a significant role in delineating the boundaries of patent eligibility, the examination and appeals process has followed its own trajectory. The USPTO has faced a challenging task in integrating Supreme Court and Federal Circuit decisions into cohesive guidelines for examination of patent validity. Until September 16, 2012, its decisions were subject to review by the Board of Patent Appeals and Interferences (“BPAI”), which then became the new Patent Trial and Appeal

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168. See S. Jay Plager, *The Federal Circuit As an Institution: On Uncertainty and Policy Levers*, 43 LOY. L.A. L. REV. 749, 769–70 (2010). Judge Plager writes:

At the appellate level, the cases come to us in defined form and substance, defined in great detail by another forum, and our opinions are expected to respond and be confined to the arguments and issues presented by the parties' advocates. . . . [I]n the extent new rules and doctrinal explications emerge as a consequence of decision, so be it. Even then, the scope of doctrinal explication today is largely constrained by statute and precedent.

*Id.* Harking back to the work of Karl Llewellyn, the early advocate of legal realism, Judge Plager argues that simply a “reasonable regularity of decision” should be the primary objective of the courts. *Id.* at 754–55.

169. Peter Lee, *Antiformalism at the Federal Circuit: The Jurisprudence of Chief Judge Rader*, 7 WASH. J.L. TECH. & ARTS 405, 415–19 (2012).

170. See Moy, *supra* note 104, at 1065 (citing Antonin Scalia, *The Rule of Law as a Law of Rules*, 56 U. CHI. L. REV. 1175, 1176–77 (1989)).

171. *Id.*

172. Plager, *supra* note 168, at 755 (citing Kelly Casey Mullally, *Legal (Un)Certainty, Legal Process, and Patent Law*, 43 LOY. L.A. L. REV. 1109, 1130, 1135–36 (2010)).

Board (“PTAB”).<sup>173</sup> Recent scholarship indicates that BPAI review has frequently applied its own rules inconsistent with Supreme Court and Federal Circuit precedent, and that its increasing reluctance to publish precedential opinions may have contributed to reduced consistency in examination.<sup>174</sup>

In the absence of bright-line rules, the BPAI remained reliant on the machine-or-transformation test, adopted its own “mental process” test, and has excluded applications that contain the phrase “computer readable medium.”<sup>175</sup> In contrast, the current Manual of Patent Examination Procedures states that “computer readable storage medium” claims are patent-eligible with sufficient limitations to the medium, such as executable instructions or stored data.<sup>176</sup> Thus, applicants may be forced to write patent applications in a manner that must pass divergent and at times contradictory standards, differing from the analysis that would be applied if the patent were litigated.<sup>177</sup> In 2010, BPAI made 7,083 total decisions, of which only three were designated as precedential, with no precedential cases published in 2011 at all.<sup>178</sup> There have been no precedential decisions on patentable subject matter analysis since *Bilski*, allowing BPAI and examiners to adopt a variety of frameworks in the patentable subject matter analysis that may lead to conflicting results.<sup>179</sup>

While scholars and practitioners approach the software patent problem from a comprehensive perspective, the USPTO is limited by its lack of rulemaking authority.<sup>180</sup> In addition, the USPTO has had to adapt to new

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173. PTAB was created by the Leahy-Smith America Invents Act of 2011. See 35 U.S.C. § 6(a)–(b), 37 CFR § 41.100–41.208.

174. See, e.g., Joseph Taylor Gooch, *Who's in Charge: an Analysis of BPAI Decisions Regarding Section 101 Patentability in Light of Bilski And Mayo*, 94 J. PAT. & TRADEMARK OFF. SOC'Y, (forthcoming 2013), available at <http://ssrn.com/abstract=2162256>; Jeffrey Fredman, *Silence Is Not Always Golden: Why Decisions of the Board of Patent Appeals and Interferences Should be Precedential*, 88 J. PAT. & TRADEMARK OFF. SOC'Y 859, 867 (2006) (finding that both the rate of affirmances and the rate of publication of precedent opinions have decreased significantly over the last 20 years).

175. Gooch, *supra* note 174.

176. MANUAL OF PATENT EXAMINING PROCEDURE (8th ed. Rev. 9) § 2106.01(II.A.(c)), available at <http://www.uspto.gov/web/offices/pac/mppep/s2106.html>.

177. Gooch, *supra* note 174.

178. See *BPAI/PTAB Final Decision Search*, U.S. PATENT & TRADEMARK OFFICE, <http://e-foia.uspto.gov/Foia/PTABReadingRoom.jsp> (last visited Apr. 8, 2013); *List of Precedential Decisions*, U.S. PATENT & TRADEMARK OFFICE, <http://www.uspto.gov/ip/boards/bpai/decisions/prec/index.jsp> (last visited Apr. 8, 2013).

179. Gooch, *supra* note 174 (demonstrating how the application of two BPAI tests may yield different outcomes for the same claim).

180. Plager, *supra* note 168, at 767 (“[T]he ability of the USPTO to do what is necessary is hindered by the agency’s lack of any substantive rulemaking authority; but there again, the decision to leave the USPTO as one of the few major executive agencies to be so impaired is

technologies without the benefit of bright-line rules from the courts on interpreting statutory law. The examination of software patents did, however, benefit from a significant decision that provided for a more robust obviousness analysis.<sup>181</sup> With respect to patentable subject matter, the 2010 Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of *Bilski v. Kappos* stated that “§ 101 is, by design, a ‘coarse filter,’ ” and:

Therefore, examiners should avoid focusing on issues of patent-eligibility under § 101 to the detriment of considering an application for compliance with the requirements of §§ 102, 103, and 112, and should avoid treating an application solely on the basis of patent-eligibility under § 101 except in the most extreme cases.<sup>182</sup>

Thus, the USPTO has adopted an approach consistent with the coarse filter view in the Federal Circuit, and has continued to avoid § 101 questions whenever possible. In the cases where it is unavoidable, the analysis proceeds as a subjective balancing of factors derived from *Bilski* and prior cases.<sup>183</sup> Researchers, however, have raised doubts about the consistency of the USPTO’s process.<sup>184</sup> Further, as Judge Newman has pointed out, the Manual

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for Congress to make.”); see also Allen K. Yu, *Within Subject Matter Eligibility—A Disease And A Cure*, 84 S. CAL. L. REV. 387, 445–46 (2011) (“To accentuate the role patents play in a nation’s larger Industrial Policy, eligibility may be defined in the context of a nation’s broader economic policy to promote industrial and technological developments. The Article [] argues for a more administrative-driven approach to defining subject matter eligibility.”).

181. David Kappos, Under Sec’y of Commerce for IP & Dir. of the USPTO, Keynote Address at the Center for American Progress: An Examination of Software Patents (Nov. 20, 2012), available at [http://www.uspto.gov/news/speeches/2012/kappos\\_CAP.jsp](http://www.uspto.gov/news/speeches/2012/kappos_CAP.jsp). Kappos stated:

In particular, we have benefited greatly from the seminal 2007 Supreme Court case, *KSR v. Teleflex*, as well as subsequent decisions by the U.S. Court of Appeals for the Federal Circuit. *KSR* and later Federal Circuit cases have strengthened the legal doctrine of obviousness. In other words, they narrowed what is considered patentable. Software experts have long observed that programming is incremental in nature, with modest improvements not worthy of patent protection. *KSR* gave us the ability to recognize this valid observation and incorporate it in our examination process.

*Id.* (citing *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007)).

182. Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of *Bilski v. Kappos*, 75 Fed. Reg. 43,922, 43,923–24 (July 27, 2010), available at [http://www.uspto.gov/patents/law/exam/bilski\\_guidance\\_27jul2010.pdf](http://www.uspto.gov/patents/law/exam/bilski_guidance_27jul2010.pdf).

183. *Id.* at 43,925–26.

184. See Sean Tu, *Luck/Unluck of the Draw: An Empirical Study of Examiner Allowance Rates*, 2012 STAN. TECH. L. REV. 10, 5 (2012).

of Patent Examining Procedure (“MPEP”) instructs the examiners to conduct a thorough search of the prior art before evaluating the invention under § 101; thus, in practice, patent eligibility determinations generally take place in the context of comparison to prior art rather than a theoretical inquiry as a matter of law envisioned by the Federal Circuit.<sup>185</sup>

### 3. *Software Patents Under the Leahy-Smith America Invents Act of 2011*

The Supreme Court has more than once implored Congress to weigh in on the issue of software patents, citing the need for more data and a political consensus on policy goals.<sup>186</sup> While the AIA did not address software directly, several provisions are expected to have a significant effect on the quality of newly-issued and existing software patents.<sup>187</sup> The Transitional Program for Covered Business Method Patents, effective September 16, 2012 and until September 16, 2020, allows a party that has been sued or threatened with suit based on a financial business method patent to challenge its validity before the PTAB, which must reach a decision within a year.<sup>188</sup>

185. *In re Bilski*, 545 F.3d 943, 996 (Fed. Cir. 2008) *aff'd but criticized sub nom.* *Bilski v. Kappos*, 130 S. Ct. 3218 (U.S. 2010) (Newman, J., dissenting) (“Prior to evaluating the claimed invention under 35 U.S.C. § 101, USPTO personnel are expected to conduct a thorough search of the prior art.” (citing MPEP § 2106(III) (8th ed. Rev. 7) (July 2008))).

186. *See Gottschalk v. Benson*, 409 U.S. 63, 73 (1972). The Supreme Court stated:

If these programs are to be patentable, considerable problems are raised which only committees of Congress can manage, for broad powers of investigation are needed, including hearings which canvass the wide variety of views which those operating in this field entertain. The technological problems tendered in the many briefs before us indicate to us that considered action by the Congress is needed.

*Id.* (footnotes omitted); *Parker v. Flook*, 437 U.S. 584, 595 (1978) (“Difficult questions of policy concerning the kinds of programs that may be appropriate for patent protection and the form and duration of such protection can be answered by Congress on the basis of current empirical data not equally available to this tribunal.”).

187. *See* Jeff Kettle, *Congress Giveth and Taketh Away: A Look at Section 18 of the America Invents Act and the Review of Business Method Patents*, 94 J. PAT. & TRADEMARK OFF. SOC'Y 201, 201 (2012). The administrative review is expected to offer advantages over litigation:

[S]ection 18 seems to correct where *State Street* allegedly erred. As a less-expensive and quicker alternative to civil litigation, a petitioner will be most successful when she can present prior art to invalidate the business method patent. Additionally, section 18 does not seem to have an overbroad effect, so businesses will still benefit from investing in business method patents that are novel, ‘unobvious,’ and non-abstract.

*Id.*

188. A Covered Business Method is “a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service.” Leahy-Smith America Invents Act, 35 U.S.C. § 18(d)(1) (2012). *See Changes To Implement Transitional Program for*

Unlike the general Post-Grant Review provision, the Transitional Program will allow challenges to patents issued prior to the adoption of AIA.<sup>189</sup> The AIA also provides for third-party submission of prior art with explanation of its relevance, which is expected to facilitate rejections of overly broad and low quality patents. In addition, the USPTO is planning to implement a new system for “crowdsourcing” searches for prior art, the “Ask Patents” network.<sup>190</sup> These provisions are aimed at ameliorating concerns that low quality patents are frequently issued in the software field due to the difficulty of searching for relevant prior art and identifying synonymous terms and program components of previously used software.

#### IV. CONCLUSION

In the *CLS Bank* rehearing, the sharply split Federal Circuit must reconcile its divergent lines of precedent that have emerged from the coarse filter and limiting test approaches, resulting in the conflicting patentability criteria of recent holdings. The Federal Circuit must further resolve the questions posed by the Supreme Court’s *Prometheus* ruling and the amorphous abstract idea doctrine. The determination under § 101 could be substantially advanced if the Federal Circuit chooses to clarify how the “threshold” test characterization applies to the procedural order and scope of inquiry, the requirements of “inventive concept” analysis, and the appropriate level of abstraction in describing the invention and determining whether the claim preempts the use of a fundamental idea. A review of the tumultuous history of software-related patents suggests that a test adopted in the en banc rehearing is unlikely to be the final word on the issue, and that the tension between the Federal Circuit’s desire for bright-line rules and Supreme Court’s preference for flexible standards will continue to shape the debate about patentability of software. Significant steps implemented by the AIA, however, may reduce the number of overbroad patents through administrative review, reducing the need for litigation on the grounds of § 101. While the merits of patents in the software industry continue to be debated, the Supreme Court’s rejection of a per se business method exclusion in *Bilski* and the scale of the software industry along with its role in modern innovation makes it unlikely that software patents will be rejected

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*Covered Business Method Patents*, 77 Fed. Reg. 7080-01, 7082 (“Proposed § 42.300(c) would provide a one-year timeframe for administering the proceeding after institution, with a six-month extension for good cause. This proposed rule is consistent with 35 U.S.C. 326(a)(11), which sets forth statutory timeframes for post-grant review.”).

189. See Leahy-Smith American Invents Act, § 18(a)(2).

190. Kappos, *supra* note 181.

altogether.<sup>191</sup> The Federal Circuit's ruling, however, may provide a step toward greater rigor in policing the boundaries of patentable inventions, providing greater certainty and a solid foundation for a marketplace of ideas at the heart of a robust technological progress.<sup>192</sup>

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191. See Moy, *supra* note 104, at n.81:

No economist, on the basis of present knowledge, could possibly state with certainty that the patent system, as it now operates, confers a net benefit or a net loss on society. . . . If we did not have a patent system, it would be irresponsible, on the basis of our present knowledge, to recommend instituting one. But since we have had a patent system for a long time, it would be irresponsible, on the basis of our present knowledge, to recommend abolishing it.

*Id.* (quoting Staff of S. Comm. on the Judiciary, Subcomm. on Patents, Trademarks, and Copyright of the Comm. of the Judiciary of the U.S. Senate, 85th Cong., 2d Sess., Econ. Review of the Patent Sys., Study No. 15 76–80 (Comm. Print 1958)). *But see* Ben Klemens, *The Rise of the Information Processing Patent*, 14 B.U. J. SCI. & TECH. L. 1, 22–36 (2008) (arguing that empirical evidence supports the conclusion that patentability should only be extended to claims that are “non-trivially physical”).

192. Judge Easterbrook posits that the main value of an intellectual property system may be creating bargaining institutions rather than stimulating investment in innovation directly. See Frank H. Easterbrook, *Cyberspace Versus Property Law?*, 4 TEX. REV. L. & POL. 103 (1999). Judge Easterbrook identifies three propositions for a well-functioning IP system: (1) Make rules clearer, to promote bargains. (“‘We’ do not know what is best, but in a Coasean world the affected parties will by their actions establish what is best.”); (2) Create property rights where there are none to make bargains possible; (3) Create bargaining institutions. *Id.* at 111–13.