

# Patentable Subject Matter: Do the 2005 USPTO Interim Guidelines Intersect *State Street* at a Roundabout?

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*ABSTRACT: The treatment of patentable subject matter in the U.S. patent system has evolved in numerous ways since its inception. However, this evolution is not as drastic as one might guess, given that Congress enacted the first patent laws in 1793. Recently, the United States Patent & Trademark Office (“USPTO”) issued Interim Guidelines to help patent examiners determine whether a particular invention is subject-matter eligible for patent protection. Though the USPTO attempted to harmonize these Interim Guidelines with the relevant case law of both the U.S. Court of Appeals for the Federal Circuit and the Supreme Court, there are differences that could lead to divergent outcomes for the same claim language depending on which test a court employs. A better approach is to use the utility requirement from 35 U.S.C. § 101 to draw the line between eligible and ineligible subject matter.*

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## I. INTRODUCTION

The U.S. software market is enormous.<sup>1</sup> The Software and Information Industry Association estimated that the total worldwide revenue for packaged software<sup>2</sup> generated in 2004 alone was \$179 billion, and the “United States is estimated to hold approximately a 50% share of the world market,” with revenues for 2005 estimated to grow by five to six percent.<sup>3</sup> To continue the growth of the software industry, the law must provide software developers with adequate assurance that they will be able to benefit from development costs.<sup>4</sup> Often, patents are the most attractive form of such protection and many software developers pursue patents on their products.<sup>5</sup> As some commentators point out, the increased availability of patent protection for software programs has not had a deleterious effect on the software industry as a whole.<sup>6</sup>

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1. Throughout this Note, the term “software” refers to any type of computer software, which includes any computer program or set of instructions that direct a computer or computerized machine to perform a certain task through a specified method or process. As such, the term, as used in this Note, includes sophisticated application programs as well as rudimentary lists of operations.

2. Packaged software is software that is developed to be sold to individual consumers or businesses, as opposed to software that is developed for a single customer. SOFTWARE & INFO. IND. ASS'N, PACKAGED SOFTWARE INDUSTRY REVENUE AND GROWTH (2006) 1, available at [http://www.siiia.net/software/pubs/growth\\_software05.pdf](http://www.siiia.net/software/pubs/growth_software05.pdf). “Broad categories of packaged [software] include: [o]perating systems[,], [u]tilities[,], [a]pplications[,], [and], [p]rogramming languages.” *Id.*

3. *Id.*

4. The limited monopoly the federal government grants to an inventor when it issues a patent is an integral part of a capitalistic society because the limited monopoly creates an economic incentive for the public to invent new products. Vincent Chiappetta, *Patentability of Computer Software Instruction as an “Article of Manufacture”*: *Software as Such as the Right Stuff*, 17 J. MARSHALL J. COMPUTER & INFO. L. 89, 98 (1998).

5. Software developers’ preference for patent protection in addition to or in lieu of copyright protection is largely due to the fact that copyright does not cover the functional aspects of the software in the way a patent on the same software covers such functional aspects. Shawn McDonald, *Patenting Floppy Disks, or How the Federal Circuit’s Acquiescence Has Filled the Void Left by Legislative Inaction*, 3 VA. J.L. & TECH. 9, ¶ 7 (1998). Instead, copyrights cover merely the “actual expression of the algorithm in the form of the software code itself.” *Id.* In this vein, the First Circuit noted that “the literal elements of computer programs, i.e., their source and object codes, are the subject of copyright protection.” *Lotus Dev. Corp. v. Borland Int’l, Inc.*, 49 F.3d 807, 816 n.11 (1st Cir. 1998) (internal citations omitted). Something that “functions as a method of operating the computer . . . is uncopyrightable.” *Id.* at 818.

6. Robert P. Merges, *Patents, Entry and Growth in the Software Industry*, available at <http://ssrn.com/abstract=926204>. Professor Merges argues that “[p]atents have not killed the software industry; they have not led to a slowdown in entry [of new firms into the industry]; and they do not appear to have had much if any effect on industry structure.” *Id.* at 3–4. This is by no means the only viewpoint on the issue. In a forum held at Massachusetts Institute of Technology in 1989, Dan Bricklin, an early software developer, voiced concerns regarding the patenting of software. *Id.* at 2–3. Some of those concerns were the large number of potentially patentable processes in complicated software, the potential cost to patent and possibly procure licensing

In the last thirty-five years, the Federal Circuit and the Supreme Court have decided an increasing number of cases regarding how patent claims directed toward software<sup>7</sup> fit within the statutory framework of patentable subject matter.<sup>8</sup> In the interests of efficiency and consistency, the USPTO must properly instruct patent examiners how to assess the patentability of software-related claims in accordance with judicial precedent. Furthermore, clear guidelines with respect to eligible subject matter better enable patent practitioners to draft software-related claims and provide guidance when litigation involves a patent containing software-related claims.

Part II of this Note provides the relevant background relating to the scope of patent protection and delineates the types of inventions that are patentable according to the statutory and legal framework. Part II.A provides a brief history and overview of the statutory scheme for patentability and a brief introduction to the judicial precedent relevant to subject matter eligible for patent protection.<sup>9</sup> Parts II.B.1 and II.B.2 discuss in detail precedent relevant to judicial exceptions to statutory subject matter, including the business-method exception and the mathematical-algorithm exception.<sup>10</sup> Part II.B.3 focuses on the case law preceding the Federal Circuit's decision in *State Street Bank & Trust Co. v. Signature Financial Group*,

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agreements for patents obtained from all those processes, and the nature of the software industry being "cottage-based," with many of the advances in the PC industry coming out of small shops. *Id.* In 1994, the League for Programming Freedom also voiced concerns over patent protection in the context of software and argued that patents were inappropriate in the software industry. *Id.* at 4. However, it is undeniable that much has changed in the world of software since 1989 and 1994.

7. The claim or claims of a patent describe what the applicant specifically believes the invention to encompass. A Guide to Filing a Non-Provisional (Utility) Patent Application, <http://www.uspto.gov/web/offices/pac/utility/utility.htm#non> (last visited Feb. 5, 2007). The claims of a patent are similar to the legal title to real property and serve to describe the metes and bounds of the invention. Patent.org, FAQs About Intellectual Property, <http://www.patent.org/pg-tpl.php?doc=info> (last visited Feb. 5, 2007). A claim may be directed toward or include software if it covers a machine programmed to carry out a specific set of operations in a particular order (i.e., to execute the software) or if it covers a process for achieving a specific output (i.e., the methods in the software itself). Patent examiners determine the patentability of the claims in a patent application on a claim-by-claim basis. U.S. PATENT & TRADEMARK OFFICE, U.S. DEPT. OF COMMERCE, MANUAL OF PATENT EXAMINING PROCEDURE § 704.11(a) (8th ed., rev. 4, 2005) [hereinafter MPEP].

8. See *infra* Part II.A–B and accompanying notes (providing an overview of the relevant case law from both the Supreme Court and the Federal Circuit).

9. *Infra* Part II.A. In this Note, the terms "patentable subject matter" and "eligible subject matter" are interchangeable. Both refer to inventions that courts and the USPTO would consider available for patent protection per 35 U.S.C. § 101; antonyms are "unpatentable subject matter" or "ineligible subject matter" as used herein. The term "statutory subject matter" refers to subject matter that falls within one of the four enumerated categories in § 101, and "nonstatutory subject matter" is that which does not fall within one of those categories.

10. *Infra* Part II.B.2. The mathematical-algorithm exception is merely a specialized application of the abstract-idea exception courts often apply specifically to software-related inventions. See *infra* Part II.B.2.

*Inc.*<sup>11</sup> regarding whether software-related inventions are eligible subject matter. Part II.B.4 details the Federal Circuit's decision in *State Street* and the resulting standard for eligible subject matter.

Part III shifts focus to the current standards for eligible subject matter that courts and the USPTO apply. Part III.A explains the USPTO October 2005 Interim Guidelines ("Interim Guidelines") examiners use in determining whether a claimed invention qualifies as eligible subject matter.<sup>12</sup> Part III.B compares the Interim Guidelines with *State Street* and posits that although the USPTO sought to clarify subject-matter eligibility, an examiner closely following the Interim Guidelines could find that a patent application claimed ineligible subject matter when the same claim would be patentable under *State Street*. To illustrate the possible divergent outcomes, this Note uses a method claim for calculating a baseball player's contribution to a fantasy team's score.<sup>13</sup> Part III.C provides an alternative approach to either the Interim Guidelines or *State Street* for courts and the USPTO to use when determining subject-matter eligibility.<sup>14</sup>

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11. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998).

12. USPTO, Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility (2005), available at [http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101\\_20051026.pdf](http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf) [hereinafter Interim Guidelines]. The substantive portion of the Interim Guidelines has since been incorporated into chapter 2100 of the MPEP. See MPEP, *supra* note 7, § 2106 (8th ed., rev. 6, 2007), available at [http://www.uspto.gov/web/offices/pac/mpep/mpep\\_e8r6\\_2100.pdf](http://www.uspto.gov/web/offices/pac/mpep/mpep_e8r6_2100.pdf).

13. The hypothetical claim is a method for calculating a baseball player's one-game contribution to a fantasy team's score comprising: dividing the player's total bases achieved in a game by the player's number of plate appearances in the game to achieve a value designated as alpha; multiplying alpha by 5 for any homeruns the player hit in the game; multiplying alpha by 4 for any triples the player hit in the game; multiplying alpha by 3 for any doubles the player hit in the game; multiplying alpha by 2 for any singles the player hit in the game; multiplying alpha by 2.5 for any run the player batted in during the game; multiplying alpha by 0.25 for any strikeouts the player recorded during the game; multiplying alpha by 0.5 for each out attributable to the player during the game while the player's team was on offense; and, designating the final value beta so that beta may be used in determining the score of an entire fantasy team.

14. See *infra* Part III.C (discussing a better rule for determining subject-matter eligibility). Though legislation in the area of patent law seems imminent, the direction such legislation should take is beyond the scope of this Note. Rather, this argument is confined to how well the Interim Guidelines fit into the relevant case law, and whether an alternative existing doctrine would be a better tool for the courts and the USPTO. How patent law should be changed to better serve the needs of software developers and the American public, or whether patent law should be technology-specific, is beyond the scope of this Note.

## II. BACKGROUND AND LEGAL FRAMEWORK

### A. STATUTORY SCHEME AND JUDICIAL EXCEPTIONS TO ELIGIBLE SUBJECT MATTER

The U.S. Constitution empowers the federal government to grant patents.<sup>15</sup> For an invention to be eligible for a patent, it must meet certain statutorily defined criteria: the invention must fit within the statutorily prescribed eligible subject matter,<sup>16</sup> and it must be useful,<sup>17</sup> novel,<sup>18</sup> and nonobvious.<sup>19</sup> These statutory requirements help ensure that the potential benefit to society from the invention's availability justifies the limited monopoly a patent owner receives.<sup>20</sup> Whether a particular invention is patentable subject matter under 35 U.S.C. § 101 is a threshold issue that the invention must satisfy before the USPTO will assess other statutory requirements.<sup>21</sup>

Since the original Patent Act of 1793, neither the justifications for granting patents nor the statutory definition of patentable subject matter has changed significantly.<sup>22</sup> The power that the Constitution grants to Congress contains no explicit limitation on the subject matter available for patent protection, but instead states the ends Congress should achieve when it

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15. The Constitution grants Congress the authority “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” U.S. CONST. art. I, § 8, cl. 8. It is from the authority in this provision that Congress promulgates patent laws.

16. See 35 U.S.C. § 101 (2000) (defining the statutory subject matter available for patent protection to include a “process, machine, manufacture, or composition of matter, or any new and useful improvement thereof”).

17. *Id.*

18. *Id.*

19. *Id.* § 103.

20. Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1042–43 (1989).

21. See Interim Guidelines, *supra* note 12, at 11–14 (instructing patent examiners to first look to whether the invention falls within the statutory definition of “patentable subject matter” before the examiner undertakes analysis for anticipation, obviousness, or whether the application meets the statutory requirements of § 112). If the invention does not fit into one of the statutorily defined categories of inventions for which the USPTO may grant a patent, it is irrelevant whether the invention meets the other statutory requirements. The Interim Guidelines “set forth the procedures USPTO personnel will follow when examining applications” and that personnel are to “rely on these Guidelines in the event of any inconsistent treatment of issues between these Guidelines and any earlier provided guidance from the USPTO.” *Id.* at 2. Although the USPTO issued the Interim Guidelines seven years after the Federal Circuit’s decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), the USPTO issued the Interim Guidelines as a response to that decision because it believed that the current guidelines were out of date with regard to “computer-related inventions.” Interim Guidelines, *supra* note 12, at 1.

22. Robert Greene Sterne & Lawrence B. Bugaisky, *The Expansion of Statutory Subject Matter Under the 1952 Patent Act*, 37 AKRON L. REV. 217, 217 (2004).

grants a patent and lists the means Congress may employ to achieve these ends.<sup>23</sup>

The first patent laws, which Congress promulgated in the 1793 Patent Act, defined patentable subject matter as “any new and useful art, machine, manufacture[,] or composition of matter, or any new and useful improvement [thereof].”<sup>24</sup> Congress replaced the word “art” with “process” in 1952<sup>25</sup>—the only change made regarding patentable subject matter in 159 years. This was not a substantive change; Congress implemented the change “to avoid the necessity of expla[ining] . . . the word ‘art,’” because it was being “interpreted by the courts to be practically synonymous with process or method.”<sup>26</sup> Also in 1952, Congress stated its intention that patentable subject matter “include anything under the sun that is made by man.”<sup>27</sup>

In today’s patent system, some scholars maintain that the scope of patentable subject matter is very broad and assert that under the current system, “if you can name it, you can claim it.”<sup>28</sup> This categorization of the patent system is an overstatement.<sup>29</sup> However, the intention to include any man-made invention, coupled with only one minor change to the relevant statutory language in 213 years, demonstrates that Congress intended that a broad scope of subject matter be eligible for patent protection.<sup>30</sup> In light of this history and the wording of the current statute, it stands to reason that any invention that is a “process, machine, manufacture[,] or composition of matter”<sup>31</sup> should be patentable subject matter.

Despite the broad spectrum of patentable subject matter that this legislative history evinces, the Supreme Court has carved out some subject matter, based on the language of the Constitution, that is not available for patent production even though the subject matter appears to fall within

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23. U.S. CONST. art. I, § 8, cl. 8; *see also* Chad King, Note, *Abort, Retry, Fail: Protection for Software-Related Inventions in the Wake of State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 85 CORNELL L. REV. 1118, 1128–29 (2000) (discussing the limitations, based on the wording of the Constitution, of Congress’s power to grant patents).

24. Act of Feb. 21, 1793, ch. 11, § 1, 1 Stat. 318, 319 (repealed 1836).

25. S. REP. NO. 82-1979, at 5 (1952).

26. *Id.*

27. *Id.*; H.R. REP. NO. 82-1923, at 6 (1952).

28. MARTIN J. ADELMAN ET AL., CASES AND MATERIALS ON PATENT LAW 58 (2d ed. 2003).

29. *See infra* notes 32–39 and accompanying text (explaining some categories of man-made inventions that courts have determined are not eligible for patent protection even though the inventions *prima facie* qualify for patent protection based on the definition of patentable subject matter in § 101).

30. Bricanna Dolmage, *The Evolution of Patentable Subject Matter in the United States*, 27 WHITTIER L. REV. 1023, 1025 (2006).

31. 35 U.S.C. § 101 (2000).

§ 101. This subject matter includes laws of nature,<sup>32</sup> abstract ideas,<sup>33</sup> and natural phenomena.<sup>34</sup> The Supreme Court developed these exceptions to patentable subject matter because the language of the Constitution permits Congress to issue patents only to promote science and useful arts.<sup>35</sup> The Supreme Court's main rationale used in developing these exceptions was the belief that everyone should have free access to abstract ideas, natural phenomena, and laws of nature, "as they are the basic tools of scientific and technological work."<sup>36</sup>

More recently, two additional exceptions to eligible subject matter emerged that are adapted particularly to the patent eligibility of software-related inventions.<sup>37</sup> Even though these exceptions relate more directly to the patentability of software,<sup>38</sup> they are still merely pointed examples of the traditional judicial exceptions discussed above.<sup>39</sup>

## B. PATENTABILITY OF SOFTWARE

### 1. Business-Method Exception

Generally, courts view business methods as any method or process that recites a particular business technique.<sup>40</sup> For example, a claim reciting a method of doing business in which certain items were sold at a loss to attract customers to higher-margin items is a business-method claim.

This exception has been a source of much confusion for courts. With no citation to relevant case law, the district court judge in *State Street* determined that "[a]s established by a series of older cases, business

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32. *O'Reilly v. Morse*, 56 U.S. (15 How.) 61 (1853). In *O'Reilly*, the Court held that the "mere discovery of a new element, or law, or principle of nature . . . is not the subject of a patent." *Id.* at 132.

33. *Rubber-Tip Pencil Co. v. Howard*, 87 U.S. (20 Wall.) 498 (1874). Here, the Court determined that "[a]n idea of itself is not patentable." *Id.* at 507.

34. *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127 (1948). The Court held that anyone "who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes." *Id.* at 130.

35. As noted, the Constitution grants Congress the power "[t]o promote the Progress of Science and useful Arts." U.S. CONST. art. I, § 8, cl. 8. This is not an open-ended grant of power, but rather contains words that limit the scope of Congress's authority. As with any statutory-construction issue, there are terms in this provision that are open to different definitions and limitations—specifically, what constitutes a useful art. See King, *supra* note 23, at 1128 n.64 (discussing the different popular interpretations of "useful arts").

36. *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972).

37. *Infra* Parts II.B.1–2.

38. King, *supra* note 23, at 1129.

39. *Infra* notes 87–91 and accompanying text.

40. See *In re Schrader*, 22 F.3d 290, 298 (Fed. Cir. 1994) (Newman, J., dissenting) (criticizing the business-method exception).

methods are unpatentable abstract ideas.”<sup>41</sup> However, on appeal, the Federal Circuit denied the existence of the business-method exception and asserted that neither the Federal Circuit nor its predecessor, the Court of Customs and Patent Appeals (“CCPA”), had ever used the exception to declare an invention unpatentable due to lack of patentable subject matter.<sup>42</sup> The Federal Circuit stated that “business methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method.”<sup>43</sup> Accordingly, although it is unclear what case gave rise to the business-method exception, it is clear what case disposed of any notion that it should be an exception to statutory subject matter.<sup>44</sup>

## 2. Mathematical-Algorithm Exception

In its 1972 decision, *Gottschalk v. Benson*, the Supreme Court announced the mathematical-algorithm exception.<sup>45</sup> For purposes of patentability, a mathematical algorithm consists of a method that includes either “inputting numbers, calculating numbers, outputting numbers, [or] storing numbers.”<sup>46</sup> The baseball-player claim<sup>47</sup> provides a simple example of a claim including a mathematical algorithm.

The claimed invention in *Benson* was “a method for converting binary-coded decimal (“BCD”) numerals into pure binary numerals.”<sup>48</sup> The claimed method used a mathematical algorithm to complete this task.<sup>49</sup> The Court noted that “[t]he mathematical procedures can be carried out in existing computers long in use. And . . . they can also be performed without a computer.”<sup>50</sup> Accordingly, the Court reasoned that “the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself,” and therefore the claimed invention was not eligible subject matter under § 101.<sup>51</sup> Furthermore, the Court held that

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41. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 927 F. Supp. 502, 515 (D. Mass. 1996), *rev'd*, 149 F.3d 1368 (Fed. Cir. 1998), *cert. denied*, 525 U.S. 1093 (1999).

42. *State St.*, 149 F.3d at 1375.

43. *Id.*

44. The Supreme Court has not ruled on the existence of the business-method exception. Since the Federal Circuit is a U.S. Court of Appeals, the only binding precedent on the Federal Circuit is that of the Supreme Court. Because the Federal Circuit is a specialized patent court, and all patent-related appeals go to the Federal Circuit, its rulings on such issues are generally conclusive for practitioners unless disturbed by the Supreme Court. 28 U.S.C. § 1295 (2006).

45. *Gottschalk v. Benson*, 409 U.S. 63, 73 (1972).

46. *State St.*, 149 F.3d at 1374 (citing *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994)).

47. *Supra* note 13.

48. *Benson*, 409 U.S. at 64.

49. *Id.* at 65.

50. *Id.* at 67.

51. *Id.* at 72.

“[p]henomena of nature, . . . mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”<sup>52</sup> In its ruling, however, the Court acknowledged an earlier decision where it held that if an inventor applied a phenomena of nature, mental process, or abstract idea to achieve a “new and useful end,” it may be eligible for a patent.<sup>53</sup> The Court expressly denounced the idea that “the decision precludes a patent for any program servicing a computer.”<sup>54</sup>

The *Benson* decision to withhold patent protection from the software claims because such a patent essentially would be “a patent on the algorithm itself”<sup>55</sup> was based on the same policies that underlie the natural phenomena, law of nature, and abstract idea exceptions.<sup>56</sup> That is, that the public is free to use laws of nature, natural phenomena, or the mathematical expression thereof freely, without fear of infringing on another’s patent rights.<sup>57</sup> A common example of a claim that could result in a patent on a mathematical algorithm is a method for calculating the length of the hypotenuse of a right triangle by calculating the square root of the sum of the squares of the other two sides (i.e., the Pythagorean Theorem). This claim would amount to a patent on the Pythagorean Theorem and would prevent all others from using it because it is not tied to a specific process, machine, or output condition.

The Supreme Court decided another case involving a mathematical algorithm in *Parker v. Flook*.<sup>58</sup> In this case, the applicant filed a patent application with a claim for a method to update the dynamic maximum values of physical phenomena, or “alarm limits,” in a catalytic-conversion process.<sup>59</sup> The method involved three steps: (1) measuring certain physical characteristics (such as pressure) of a fluid stream; (2) calculating, with a computer, an updated alarm limit using a mathematical algorithm; and (3) updating the alarm limit.<sup>60</sup> The Court found that this method was not patentable subject matter because only the mathematical algorithm was new and useful; the process that used the algorithm was not.<sup>61</sup> The Court

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52. *Id.* at 67.

53. *Benson*, 409 U.S. at 67 (quoting *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948)).

54. *Id.* at 71.

55. *Id.* at 72.

56. *Id.* at 67.

57. *King*, *supra* note 23, at 1132 & n.80.

58. *Parker v. Flook*, 437 U.S. 584, 585 (1978).

59. *Id.*

60. *Id.*

61. *Id.* at 594 (“The chemical processes . . . are well known, as are the practice of monitoring the chemical process variables, the use of alarm limits to trigger alarms, the notion

reiterated that “a process is not unpatentable simply because it contains a law of nature or mathematical algorithm,”<sup>62</sup> thus confining its decision to fit within rules it had previously announced for patents having method claims that include mathematical algorithms. The Court stated “that a claim for an improved method of calculation, even when tied to a specific end use, is unpatentable subject matter under § 101.”<sup>63</sup> The Court relied on the fact that this area of patent rights was “wholly unforeseen by Congress,” and as a result, the Court determined it should “proceed cautiously.”<sup>64</sup>

Finally, in its 1981 decision, *Diamond v. Diehr*,<sup>65</sup> the Court upheld a method claim wherein the method included a mathematical algorithm.<sup>66</sup> The claimed method in *Diehr* was an improved process for curing synthetic rubber.<sup>67</sup> That method used an algorithm to calculate the time remaining until the process had fully cured the specified article.<sup>68</sup> The Court looked favorably upon the process claims because the claims “involve[d] the transformation of an article . . . into a different state or thing.”<sup>69</sup> Since the process in *Diehr* transformed uncured, raw synthetic rubber into cured products, it involved the transformation of an article into a different state.<sup>70</sup> The Court determined that the applicants’ claims were “a process for molding rubber products” and were not “an attempt to patent a mathematical formula.”<sup>71</sup> As it did in *Benson*,<sup>72</sup> the Court harmonized the current case with the Court’s traditional pronouncements of judicial exceptions to patentable subject matter.<sup>73</sup> However, the consonance the

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that alarm limit values must be recomputed and readjusted, and the use of computers for ‘automatic monitoring-alarming.’”)

62. *Id.* at 590. This determination is in line with the Court’s pronouncement in *Benson* that a patent claim having a mathematical algorithm is invalid if it wholly precludes the use of that algorithm by others. *Gottschalk v. Benson*, 409 U.S. 63, 72 (1972).

63. *Parker*, 437 U.S. at 594.

64. *Id.* at 596.

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

66. *Id.* at 177–78.

67. *Id.* at 177.

68. *Id.*

69. *Id.* at 184. This line of reasoning, the transformation of an article to a different state or thing, has its roots in *Cochrane v. Deener*, which upheld a claim for an improved method of manufacturing flour. *Cochrane v. Deener*, 94 U.S. 780, 787–88 (1877). The Court held that a machine that grinds wheat kernels into flour transforms the wheat into a different state. *Id.*

70. *Diehr*, 450 U.S. at 191.

71. *Id.* Because of the limitations in the appellants’ broadest claim, the public could freely use the mathematical formula in a general manner but would be precluded from using the formula in connection with the specific limitations in the application of curing synthetic rubber. *Id.* at 179 n.5, 181.

72. *See* *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (detailing the Court’s longstanding rules on patentable inventions).

73. *Diehr*, 450 U.S. at 185–89. Even though the method claim in *Diehr* seems similar to the claim in *Flook*, the claim in *Flook* is different because nothing in the claimed process involved

Court espoused for its prior decisions is tenuous for some commentators who construe the Court's previous decision in *Parker v. Flook* as a "nearly absolute prohibition against mathematical algorithms."<sup>74</sup> In any event, the Court consistently has held that if an applicant attempts to claim a method of calculation or a mathematical algorithm without including specific process limitations within the claim that contains the algorithm, the claimed invention is unpatentable subject matter.<sup>75</sup>

### 3. Standards/Tests Prior to *State Street*

Historically, courts construed § 101 to exclude software from the realm of patentable subject matter.<sup>76</sup> Both the courts and the USPTO have spent a considerable amount of time and energy determining whether software is patentable subject matter.<sup>77</sup> They eventually came to the conclusion that software is patentable subject matter, but only if the claim drafter presents and defines it so as to escape the other exceptions to patentable subject matter that the Supreme Court has articulated.<sup>78</sup> Software companies desire patent protection for software in addition to or in place of copyright protection because popular software generally is very lucrative,<sup>79</sup> and patents offer broader protection than copyrights in terms of the software's functionality.<sup>80</sup>

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the transformation of an article to a different state or thing. *Id.* The Court relied on this distinction to distinguish the two cases. *Id.* at 186–87.

74. King, *supra* note 23, at 1134.

75. *Diehr*, 450 U.S. at 188–92. The Federal Circuit has later read the Court's decision in *Diehr* to stand for the proposition that a method claim containing a mathematical algorithm does not fall within a judicial exception to statutory subject matter if the algorithm is part of a process that transforms a physical object to a different state or thing. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1374 (1998) (citing *Diehr*, 450 U.S. at 192). The Federal Circuit also noted that confusion surrounding the mathematical-algorithm exception may be mitigated "[b]y keeping in mind that the mathematical algorithm is unpatentable only to the extent that it represents an abstract idea . . ." *Id.* at 1373 n.4.

76. See Dan L. Burk & Mark A. Lemley, *Is Patent Law Technology-Specific?*, 17 BERKELEY TECH. L.J. 1155, 1160 n.16 (2002) (referencing sources that discuss the "curious history of the patentability of software"); see also Dolmage, *supra* note 30, at 1026 (commenting about the history of software as patentable subject matter).

77. Dolmage, *supra* note 30, at 1026.

78. *Id.* at 1024 n.31 and accompanying text; see also *Gottschalk v. Benson*, 409 U.S. 63, 72 (1972) (holding that "patent laws should be extended to cover [software] programs"). The primary exceptions that claims to software had to overcome are the business-method and mathematical-algorithm exceptions. King, *supra* note 23, at 1129.

79. King, *supra* note 23, at 1123.

80. A copyright merely covers the actual code for the software. If the software developer, or a rival developer, makes a minor change in the code, the resulting software is generally eligible for another copyright despite its close connection and derivation from the original work. See *supra* note 5 and accompanying text (explaining the limited coverage that copyright offers to a software developer). A skillful patent attorney could draft claims for a computer program in broad enough terms to cover many minor permutations of the program, thereby

The Supreme Court has not revisited the issue of software as patentable subject matter since its decision in *Parker v. Flook*,<sup>81</sup> but the Federal Circuit has recently heard such cases.<sup>82</sup> The Federal Circuit's predecessor, the CCPA, developed the Freeman-Walter-Abele test to determine whether a claim with a mathematical algorithm constituted ineligible subject matter.<sup>83</sup> Under the two-step test, a court first determines whether the claim necessarily includes a mathematical algorithm.<sup>84</sup> If it does, the court determines whether the claimed invention applies the mathematical algorithm to a physical part or process of the invention.<sup>85</sup> If so, the invention does not come within the mathematical-algorithm exception and that the subject matter is patentable.<sup>86</sup>

The Federal Circuit later abandoned the Freeman-Walter-Abele test in *In re Alappat*.<sup>87</sup> The court indicated its disapproval of a general mathematical-algorithm exception by stating it was "an overly broad, fourth category of subject matter excluded from § 101."<sup>88</sup> Even though many in the patent community believed that *Benson*, *Flook*, and *Diehr* created a fourth category of unpatentable subject matter, the Federal Circuit reasoned that in that line of cases, the Supreme Court was "attempt[ing] . . . to explain a rather straightforward concept, namely, that certain types of mathematical subject matter, standing alone, represent nothing more than *abstract ideas* until reduced to some type of practical application . . . ."<sup>89</sup> Indeed, this interpretation of *Benson* appears to square with the Supreme Court's reasoning. In *Benson*, the Court explicitly stated that even though "[p]henomena of nature, . . . mental processes, and abstract intellectual

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preventing rival companies from making minor changes to the original program in an attempt to circumvent the patent. That same patent attorney could also draft claims for the next iteration of the developer's program so that when the original patent term on the first version of the program expired, another patent term would protect the next version.

81. Although the Court's decision in *Diamond v. Diehr* involved machine calculations that it could have construed as a type of software claim, the claim itself was not explicitly a claim to software in the same manner as later cases before the Federal Circuit.

82. See *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998) (holding the claimed software as eligible subject matter); *In re Trovato*, 60 F.3d 807, 807 (Fed. Cir. 1995) (discussing the patentability of software and holding that computer software may be patentable).

83. *State St.*, 149 F.3d at 1373–75. The CCPA developed this test through three decisions: *In re Abele*, 684 F.2d 902 (C.C.P.A. 1982); *In re Walter*, 618 F.2d 758 (C.C.P.A. 1980); and *In re Freeman*, 573 F.2d 1237 (C.C.P.A. 1978). *Id.* at 1374.

84. *Id.*

85. *Id.*

86. *Id.*

87. *In re Alappat*, 33 F.3d 1526, 1541 (Fed. Cir. 1994); King, *supra* note 23, at 1140 (commenting that in *In re Alappat*, "the Federal Circuit implicitly deserted [the two-step test] . . .").

88. *Alappat*, 33 F.3d at 1543.

89. *Id.*

concepts are not patentable,” the application of one to a new and useful end may be patentable.<sup>90</sup>

Although some commentators argue that the Federal Circuit announced a new standard in *Alappat*,<sup>91</sup> this standard is also fundamentally the same as earlier Supreme Court exceptions to patentable subject matter. The Supreme Court never asserted that mathematical algorithms constituted a separate category of ineligible subject matter but, instead, focused on the exceptions for “laws of nature, natural phenomena, and abstract ideas” when dealing with claims involving mathematical algorithms.<sup>92</sup>

#### 4. The Standard from *State Street*

Commentators generally agree that the Federal Circuit’s decision in *State Street* significantly impacted patent law.<sup>93</sup> In *State Street*, the Federal Circuit held that a method claim allowing a machine to calculate a final individual share price of a complex mutual fund was a practical application of a mathematical algorithm and, therefore, patentable.<sup>94</sup>

90. *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972).

91. See King, *supra* note 23, at 1140–41 (“*Alappat* established a new standard for mathematical algorithms; *Alappat*’s subject matter inquiry focused on whether the claim recites a practical application of the algorithm or only covers the algorithm itself.”).

92. See *Benson*, 409 U.S. at 67 (stating that “[p]henomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work”); *Parker v. Flook*, 437 U.S. 584, 598 (1978) (same) (citing *Benson*, 409 U.S. at 67); *Diamond v. Diehr*, 450 U.S. 175, 185 (1981) (commenting that “[e]xcluded from such patent protection are laws of nature, natural phenomena, and abstract ideas”).

93. See, e.g., Burk & Lemley, *supra* note 76, at 1160–61; Chiappetta, *supra* note 4, at 112–14; Suzanne Swanson, *The Patentability of Business Methods, Mathematical Algorithms and Computer-Related Inventions After the Decision by the Court of Appeals for the Federal Circuit in State Street*, 8 FED. CIR. B.J. 153 (1999); King, *supra* note 23, at 1152–56.

94. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1370 (Fed. Cir. 1998). The broadest claim in the ‘056 patent reads:

A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:

- (a) computer processor means for processing data . . . ;
- (b) storage means . . . for storing data . . . ;
- (c) first means . . . for initializing the storage medium;
- (d) second means . . . for processing data regarding assets in the portfolio and each of the funds . . . ;
- (e) third means . . . for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;
- (f) fourth means . . . for processing data regarding daily net unrealized gain or loss

*State Street* involved a patent that the patentee assigned to Signature Financial Group.<sup>95</sup> State Street Bank & Trust and Signature were involved in negotiations in which State Street Bank sought the rights to use the data-processing system in U.S. Patent 5,193,056 (the “’056 Patent”).<sup>96</sup> Negotiations proved unfruitful, and State Street Bank “brought a declaratory judgment action asserting invalidity, unenforceability, and noninfringement . . . and then filed a motion for partial summary judgment of patent invalidity for failure to claim statutory subject matter under § 101,” which the district court subsequently granted.<sup>97</sup> The district court granted State Street Bank’s motion for summary judgment of noninfringement by finding the ‘056 patent invalid because the claimed subject matter did not fall within the statutorily prescribed subject matter of § 101.<sup>98</sup>

The ‘056 patent contains six claims that are “generally directed to a data processing system (the system) for implementing an investment structure which was developed for use in Signature’s business as an administrator and accounting agent for mutual funds.”<sup>99</sup> This system “facilitates a structure whereby mutual funds . . . pool their assets in an investment portfolio . . . organized as a partnership.”<sup>100</sup> The pooling of investments creates a “Hub and Spoke” configuration wherein each individual mutual fund is representative of a Spoke and the pooled investment portfolio is representative of the Hub.<sup>101</sup> The advantage of this configuration is that it “provides the administrator of a mutual fund with the . . . combination of economies of scale in administering investments coupled with the tax advantages of a partnership.”<sup>102</sup>

The data-processing program “provides means for a daily allocation of assets for two or more Spokes that are invested in the same Hub” and “[takes] into consideration daily changes both in the value of the Hub’s investment securities and in the concomitant amount of each Spoke’s assets.”<sup>103</sup> The system accounts for each Spoke’s relative amount when determining changes in the “Hub’s daily income, expenses, and net realized

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. . . ;

(g) fifth means . . . for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

*Id.* at 1371–72.

95. *Id.* at 1370.

96. *Id.*

97. *Id.* If the ‘056 patent is invalid, then the public is free to use any inventions claimed therein.

98. *Id.*

99. *State St.*, 149 F.3d. at 1370.

100. *Id.*

101. *Id.*

102. *Id.*

103. *Id.* at 1371.

and unrealized gain or loss . . . .”<sup>104</sup> This system yields a true “asset value of each Spoke and accurate calculation of allocation ratios between or among the Spokes.”<sup>105</sup> The court noted that “[g]iven the complexity of the calculations, a computer or equivalent device is a virtual necessity to perform the task.”<sup>106</sup> To summarize: the ‘056 patent discloses a system to spread the various operating costs of maintaining a mutual fund over several mutual funds by combining their assets into a partnership, thereby effecting an economy of scale and reaping the tax benefits of a partnership.<sup>107</sup> It also discloses a mathematical algorithm to calculate, among other things, each individual fund’s portion of the costs at a given moment in time.<sup>108</sup>

The court closely scrutinized the means-plus-function claim language in the ‘056 patent and found that the district court erred in finding that “each ‘means’ clause merely represent[s] a step in [a] process.”<sup>109</sup> The Federal Circuit read the claims not as method claims, but rather as machine claims.<sup>110</sup> The court found that the broadest claim, which is “claim 1,” “[w]hen . . . properly construed . . . is directed to a machine.”<sup>111</sup> Thus, the

104. *State St.*, 149 F.3d at 1371.

105. *Id.*

106. *Id.*

107. U.S. Patent No. 5,193,056 (filed Mar. 11, 1991).

108. *Id.*

109. *State St.*, 149 F.3d at 1371. A means-plus-function claim is one in which the claim describes the function of an element of the invention and a means for performing that function, rather than describing the physical structure of the element.

110. *Id.* “[M]achine’ claims having ‘means’ clauses may only be reasonably viewed as process claims if there is no supporting structure in the written description that corresponds to the claimed ‘means’ elements.” *Id.* Machine claims are within the enumerated statutory categories. 35 U.S.C. § 101 (2006).

111. *State St.*, 149 F.3d at 1371. The court went on to recite “claim 1” in its entirety, adding in brackets the disclosed machine element from the written description that corresponded with the recited means in the claim:

A data processing system for managing financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:

(a) computer processor means [a personal computer including a CPU] for processing data;

(b) storage means [a data disk] for storing data . . . ;

(c) first means [an arithmetic logic circuit configured to prepare the data disk to magnetically store selected data] for initializing the storage medium;

(d) second means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases or decreases based on specific input, allocate the results on a percentage basis, and store the output in a separate file] for processing data regarding assets in the portfolio and each of the funds . . . ;

court concluded that “claim 1 . . . claims a machine . . . made up of . . . the specific structures disclosed in the written description and corresponding to the means-plus-function elements . . . recited in the claim.”<sup>112</sup> When the court construed claim 1 as a machine rather than as a process, the likelihood that the court would determine that the claim recited ineligible subject matter due to the inclusion of a mathematical algorithm decreased.<sup>113</sup>

The court then turned to the district court’s determination that the invention fell into either the mathematical-algorithm exception or the business-method exception.<sup>114</sup> The Federal Circuit looked to the plain meaning of § 101 and the “repetitive use of the expansive term ‘any’” in that section to conclude that “Congress[] inten[ded] not to place any restrictions on the subject matter for which a patent may be obtained.”<sup>115</sup> The court proceeded to survey the judicial exceptions to patentable subject matter, giving special consideration to the mathematical-algorithm exception.<sup>116</sup> The court reaffirmed earlier cases holding that subject matter that included

(e) third means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;

(f) fourth means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily net unrealized gain or loss . . . ;

(g) fifth means [an arithmetic logic circuit configured to retrieve information from specific files, calculate that information on an aggregate basis and store the output in a separate file] for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

*Id.* at 1371–72 (alterations in original). A machine claim is a claim that covers a physical apparatus, as opposed to a method claim that covers a specific set of acts or steps. For example, a machine claim typically reads, “an apparatus comprised of . . .” and goes on to recite specific structure. A method claim typically reads, “a method comprised of the steps of . . .” and goes on to recite steps in a specific order.

112. *Id.* at 1372.

113. “A ‘machine’ is proper statutory subject matter under § 101.” *Id.* at 1372. Construing a claim as directed toward a machine as opposed to a method eliminates the argument that the claim prevents others from using the mathematical algorithm, which argument would otherwise be available, because a method of calculation is one type of mathematical algorithm. If the method of calculation is tied to a machine, the claim would not cover the mathematical algorithm itself because the machine limitations narrow the claim’s scope so that others may use the mathematical algorithm in different contexts.

114. *Id.* at 1372.

115. *Id.* at 1372–73.

116. *See State St.*, 149 F.3d at 1373 (surveying the judicial exceptions to patentable subject matter).

a mathematical algorithm must apply the algorithm in a useful way to be patentable.<sup>117</sup> The Federal Circuit also attempted to clarify the mathematical-algorithm exception. It explained the exception only applies to mathematical algorithms claimed in such a manner as to represent an abstract idea (i.e., it is a specialized application of the abstract-idea exception).<sup>118</sup> The court then announced its holding:

[T]he transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces a useful, concrete and tangible result—a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.<sup>119</sup>

The Federal Circuit found that the district court erred in applying the Freeman-Walter-Abele test because “[a]fter *Diehr* and *Chakrabarty*, the Freeman-Walter-Abele test has little, if any, applicability to determining the presence of statutory subject matter.”<sup>120</sup> The court held that when a court determines “whether a claim encompasses statutory subject matter” it “should not focus on *which* of the four categories of subject matter a claim is directed to . . . but rather on the essential characteristics of the subject matter, in particular, its practical utility.”<sup>121</sup> In this case, the practical utility was the production of financial numbers that the Hub and Spoke system created.<sup>122</sup>

Next, the court determined the applicability of the business-method exception.<sup>123</sup> The court quickly rejected the idea that the claims at issue fell within the business-method exception by stating that the concept itself no longer provided a valid exception to patentable subject matter.<sup>124</sup> According

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117. *Id.* at 1373; *see also In re Alappat*, 33 F.3d 1526, 1565 (Fed. Cir. 1994) (applying this standard).

118. *State St.*, 149 F.3d at 1373 n.4.

119. *Id.* at 1373 (internal citations omitted).

120. *Id.* at 1374. Indeed, as noted above, the Federal Circuit itself abandoned the Freeman-Walter-Abele test in *In re Alappat* because the “application of the test could be misleading, because a process, machine, manufacture, or composition of matter employing a law of nature, natural phenomenon, or abstract idea is patentable subject matter even though a law of nature, natural phenomenon, or abstract idea would not, by itself, be [patentable].” *Id.*

121. *Id.* at 1375.

122. *Id.*

123. *State St.*, 149 F.3d at 1375.

124. *Id.* “Since its inception, the ‘business method’ exception has merely represented the application of some general, but no longer applicable legal principle . . . [B]usiness methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method.” *Id.* The court also noted that “[e]ven the case

to the Federal Circuit, any confusion in the application of the business-method exception did not originate in the Federal Circuit or its predecessor, the CCPA, because neither of those courts invoked the exception.<sup>125</sup> The court explicitly rejected the practice of courts using § 101 as a tool to invalidate patents in which the claims were overly broad, as it believed the district court had done in this case.<sup>126</sup>

### III. PATENTS WITH CLAIMS TO SOFTWARE UNDER THE CURRENT REGIME

#### A. LEGAL FRAMEWORK OF THE DECEMBER 2005 USPTO INTERIM GUIDELINES

In December 2005, the USPTO issued new Interim Guidelines relating to how patent examiners should determine subject-matter eligibility.<sup>127</sup> The USPTO promulgated these Interim Guidelines in a large part due to the Federal Circuit's decision in *State Street* and an "increas[ed] number[] of applications outside the realm of computer-related inventions that raise subject matter eligibility issues."<sup>128</sup> The Interim Guidelines state that their principle objective is "to assist examiners in determining, on a case-by-case basis, whether a claimed invention falls within a judicial exception to statutory subject matter . . . , or whether it is a practical application of a judicial exception."<sup>129</sup>

To that end, the Interim Guidelines instruct the examiner to proceed with traditional patent prosecution inquiries, beginning with the determination of the inventor's perceived utility of, or practical application for, the invention.<sup>130</sup> After the examiner identifies what the applicant believes the invention will encompass, the examiner conducts a search of the prior art.<sup>131</sup> Next, the examiner must determine whether the claimed

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frequently cited as establishing the business-method exception to statutory subject matter, *Hotel Security Checking Co. v. Lorraine Co.*, did not rely on the exception to strike the patent." *Id.* at 1376 (internal citations omitted).

125. *Id.*

126. *Id.* at 1376–77.

127. Interim Guidelines, *supra* note 12, at 1. The *Manual of Patent Examining Procedure* is the comprehensive guide patent examiners use throughout the prosecution of a patent application. MPEP *supra* note 7, Foreword.

128. Interim Guidelines, *supra* note 12, at 1. The USPTO also explained its perceived holding of the Federal Circuit in *State Street*. *Id.* The Guidelines "are based on the USPTO's current understanding of the law and are believed to be fully consistent with binding precedent of the Supreme Court, the Federal Circuit and the Federal Circuit's predecessor courts." *Id.* at 2.

129. *Id.* at 1.

130. *Id.* at 3–4. This inquiry is deferential to the applicant and is based on the utility asserted in the specification as opposed to an exacting inquiry into the utility of a specific claim. *Id.* at 4–5.

131. *Id.* at 5–10. Prior art is generally existing knowledge and/or publications in the public domain.

subject matter is proper under § 101;<sup>132</sup> that is, whether the claim recites subject matter eligible for patent protection. The Interim Guidelines provide guidance to the examiner by giving a brief overview of the relevant case law, including precedent from the Supreme Court, CCPA, and Federal Circuit.<sup>133</sup> Presumably, including this precedent ensures that the examiner is aware of the traditional breadth of eligible subject matter and the framework of the judicial exceptions.

An examiner's threshold inquiry—whether the claimed invention falls within one of § 101's listed categories—is probably the simplest part of determining whether the claim recites patentable subject matter.<sup>134</sup> This inquiry involves comparing the claimed invention to a statutory list of patentable subject matter.<sup>135</sup>

The next inquiry—whether the claimed invention falls within one of the judicially created exceptions for § 101<sup>136</sup>—is much more complicated. Ideas, laws of nature, and natural phenomena are judicial exceptions to eligible subject matter, and the examiner must determine whether the claim fits within any of these exceptions.<sup>137</sup> To guide the examiner in this inquiry, the Interim Guidelines offer some maxims for judicial exceptions gleaned from prior case law.<sup>138</sup>

If the claimed invention includes a judicial exception to § 101, then the examiner must determine if it is a “practical application” of one of the judicially created exceptions to § 101.<sup>139</sup> If the claimed invention either does not include a judicial exception, or does include a judicial exception but is a practical application of that exception, the claim recites eligible subject matter.<sup>140</sup>

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132. *Id.* at 11.

133. Interim Guidelines, *supra* note 12, at 11–14 (citing *Diamond v. Chakrabarty*, 447 U.S. 303 (1980); *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127 (1948); *Gottschalk v. Benson*, 409 U.S. 63 (1972); *In re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994)). The Interim Guidelines cite the Federal Circuit's decision in *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368 (1998) in different sections. *Id.* at 1, 4, 15. Additionally, Annex II of the Interim Guidelines provides a more thorough exposition on the relevant case law interpreting eligible subject matter. *Id.* at 32–41.

134. *See id.* at 14–16 (explaining that “[i]n many instances it is clear within which of the enumerated categories a claimed invention falls” and that “[e]ven if the characterization of the claimed invention is not clear, this is usually not an issue that will preclude making an accurate and correct assessment” of whether the invention is patentable subject matter according to § 101).

135. *Id.* at 14–15.

136. *Id.* at 16.

137. *Id.* at 16–18.

138. Interim Guidelines, *supra* note 12, at 16–17 (citing *Diamond v. Diehr*, 450 U.S. 175 (1981); *Parker v. Flook*, 437 U.S. 584 (1978); *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127 (1948); *O'Reilly v. Morse*, 56 U.S. (15 How.) 61 (1853)).

139. *Id.* at 19.

140. *Id.* at 17–18.

The Interim Guidelines provide two principal methods for determining whether the claimed invention involves a practical application of a judicial exception.<sup>141</sup> The examiner's first available method is relatively straightforward. The examiner must decide whether "[t]he claimed invention 'transforms' an article or physical object to a different state or thing."<sup>142</sup> For example, consider a claim reciting a method for the conversion of a given amount of water into oxygen and hydrogen gas. If such a claim included a mathematical algorithm to determine the optimal amount of energy added to the water, this would almost certainly be a practical application of a judicial exception because the water molecules would be transformed into separate oxygen and hydrogen molecules.<sup>143</sup>

The examiner's second available method is more complicated. Here, the Interim Guidelines require the examiner to determine whether "[t]he claimed invention otherwise produces a useful, concrete, and tangible result . . . ."<sup>144</sup> The Interim Guidelines attempt to provide guidance as to what a useful, concrete, and tangible result is,<sup>145</sup> but, save for the explanation of "useful," the guidance is impractical.<sup>146</sup> The Interim Guidelines state that the examiner should not focus "on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that *the final result achieved* by the claimed invention is 'useful, tangible and concrete.'"<sup>147</sup> For example, a method claim using a mathematical algorithm for calculating the future value of an ordinary annuity would likely produce a result—the future value of the annuity—that is useful, tangible, and concrete. If so, such a claim recites eligible subject matter since it is a practical application of the mathematical algorithm.

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141. *Id.*

142. *Id.* at 19. This standard comes from the Court's decision in *Diamond v. Diehr*, 450 U.S. 175, 183 (1980).

143. However, even though the subject matter qualifies for patent protection, this method must also be useful, novel, and non-obvious to be patentable. *Supra* notes 16–19 and accompanying text.

144. Interim Guidelines, *supra* note 12, at 19.

145. *Id.* at 20–22. A useful result is one that satisfies the utility requirement of § 101; a tangible result is one that is not abstract; and a concrete result is one that is repeatable and predictable. *Id.*

146. *Infra* Part III.C.

147. Interim Guidelines, *supra* note 12, at 20. "For an invention to be 'useful' it must satisfy the utility requirement of § 101. The USPTO's official interpretation of the utility requirement provides that the utility of an invention has to be (i) specific, (ii) substantial and (iii) credible." *Id.* at 20–21 (internal citations omitted). "[T]he tangible requirement . . . require[s] that the claim must recite more than a § 101 judicial exception, in that the process claim must set forth a practical application of that § 101 judicial exception to produce a real-world result. [T]he opposite meaning of 'tangible' is 'abstract.'" *Id.* at 21–22 (internal citations omitted). For the claimed invention to be concrete, "the process must have a result that can be substantially repeatable or the process must substantially produce the same result again." *Id.* at 22 (citing *In re Swartz*, 232 F.3d 862, 864 (Fed. Cir. 2000)).

Even if a patent claim survives to this point, an examiner may still find that the claim recites ineligible subject matter if the claim as a whole would preempt the use of one of the judicially created exceptions.<sup>148</sup> The method claim set forth above for using a mathematical algorithm to calculate the future value of an ordinary annuity would fall within this class of claims that have a practical application but that wholly preempt a judicial exception. Even though such a claim recites eligible subject matter because of its practical application, if drafted properly the claim would wholly preempt others from using the mathematical algorithm that calculated the future value. Consequently, an examiner might likely qualify the claim as ineligible subject matter.

*B. COMPARISON OF STATE STREET AND THE INTERIM GUIDELINES*

Even though the USPTO intended that the Interim Guidelines be consonant with the relevant case law to the point of using similar language, the same claim might have different results depending on what test an examiner uses. That is, an examiner who closely follows the Interim Guideline's patent-examination procedures could reject a claim on the basis of ineligible subject matter when the same claim would likely pass muster under the Federal Circuit's test in *State Street*. This is largely because the Interim Guideline's method more closely resembles the Freeman-Walter-Abele test than it does the test that the Federal Circuit set forth in *State Street*. The baseball-player claim best illustrates this discrepancy.<sup>149</sup>

The baseball-player claim contains a mathematical algorithm, as the claim consists of a set of calculations performed in a specific order. The end result, or the final output of the algorithm, is the individual's contribution to the fantasy team's score.<sup>150</sup> A typical fantasy baseball league aggregates this score (possibly in a method using another mathematical algorithm) with the contributions from other players on the team. The software then compares the aggregated score to scores of other teams in that fantasy league each day throughout the season.

If a patent examiner applied the Interim Guidelines to this claim, the relevant question that the examiner must answer is whether the claim recites eligible subject matter.<sup>151</sup> As noted above, to answer this question, the examiner must first determine whether the claimed invention falls within

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148. *Id.* at 23. "Even when a claim applies a mathematical formula, for example, as part of a seemingly patentable process, the examiner must ensure that it does not in reality 'seek[] patent protection for that formula in the abstract.'" *Id.* (citing *Diamond v. Diehr*, 450 U.S. 175, 187 (1981)).

149. *See supra* note 13 (describing the baseball-player claim).

150. *See supra* note 13 (same).

151. Interim Guidelines, *supra* note 12, at 11.

one of the four categories listed in § 101.<sup>152</sup> The baseball-player claim is directed toward a method, which is a type of process.<sup>153</sup> Therefore, a patent examiner should find that the claim is directed to a statutory category found in § 101 and proceed with the inquiry.

The examiner must then determine whether the claim is directed toward ineligible subject matter based on a judicially created exception.<sup>154</sup> It is this inquiry that closely resembles the Freeman-Walter-Abele test, under which the examiner asks whether the claim “directly or indirectly recite[s]” a mathematical algorithm.<sup>155</sup> Similarly, the Interim Guidelines direct the examiner to determine if the claimed invention is an abstract idea, natural phenomena, or law of nature.<sup>156</sup> The Interim Guidelines pinpoint mathematical algorithms as a type of abstract idea, which is ineligible subject matter.<sup>157</sup> The problem is not whether the examiner determines that the claim is directed to ineligible subject matter or a practical application of the ineligible subject matter. Rather, the problem is that the examiner must make the inquiry.

According to the Federal Circuit, the dispositive inquiry is whether the claim is directed toward statutory subject matter, not whether the claim contains something that, standing alone, would be nonstatutory.<sup>158</sup> That inquiry should “focus on . . . the essential characteristics of the subject matter, in particular, its practical utility.”<sup>159</sup> In *State Street*, the Federal Circuit did not focus on whether the claim included some type of nonstatutory subject matter.<sup>160</sup> Instead, the Federal Circuit looked at the result the claim achieved—whether the patent applicant “applied [the algorithm] in a useful way.”<sup>161</sup> The Federal Circuit held the claim at issue in *State Street* valid because the claimed invention produced a “useful, concrete and tangible”

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152. *Id.* at 14–16.

153. 35 U.S.C. § 100(b) (2006) (defining “process” as a “process, art or method, and [any] new use[s] of a known process, machine, manufacture, composition of matter, or material”).

154. Interim Guidelines, *supra* note 12, at 16.

155. *State St. Bank & Trust Co. v. Signature Fin. Group Inc.*, 149 F.3d 1368, 1374 (Fed. Cir. 1998) (quoting *In re Pardo*, 684 F.2d 912, 915 (1982)).

156. Interim Guidelines, *supra* note 12, at 16–17.

157. *Id.* at 17.

158. *State St.*, 149 F.3d at 1374 n.6 (“A claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula . . . .”) (quoting *Diamond v. Diehr*, 450 U.S. 175, 187 (1981)).

159. *Id.* at 1375.

160. *Id.* at 1374 n.6 (stating that if a “claim containing a mathematical formula implements . . . that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect . . . then the claim satisfies the requirements of § 101” (quoting *Diehr*, 450 U.S. at 192)).

161. *Id.* at 1373 (“[T]o be patentable an algorithm must be applied in a ‘useful’ way.”).

result.<sup>162</sup> By correlation, the Federal Circuit stated that a mathematical algorithm that is not useful is not patentable.<sup>163</sup>

As alluded to above, the Interim Guidelines suggest a different approach.<sup>164</sup> An examiner applying the Interim Guidelines would not inquire into what result the invention achieves until the examiner has first made multiple inquiries as to whether the claimed invention is eligible subject matter.<sup>165</sup> Under the Interim Guidelines, the examiner first must determine whether the invention falls within one of the four enumerated statutory categories.<sup>166</sup> When the examiner makes this determination in light of the legislative history and relevant case law (as the Interim Guidelines instruct the examiner to do<sup>167</sup>), the examiner would find more easily that the invention consists of statutory subject matter. But, the examiner must next determine whether the invention falls within a judicial exception to statutory subject matter,<sup>168</sup> which is akin to the first step in the Freeman-Walter-Abele test.<sup>169</sup> A determination that the invention recites a judicial exception would seem to swing the pendulum toward a finding of ineligible subject matter. Finally, if the examiner does determine that the claimed invention recites a judicial exception, the examiner inquires into the result that the claimed invention produces.<sup>170</sup> It is this last inquiry that may transform an invention that appears to be ineligible subject matter into eligible subject matter.<sup>171</sup>

This entire process seems to shift the claim in and out of patentability depending on the stage of inquiry, which is fundamentally different than the doctrine the Federal Circuit set forth in *State Street*, which took a more holistic approach to whether the claimed invention was eligible subject matter.<sup>172</sup> Rather than swinging the fate of the claimed invention in and out of the realm of eligible subject matter through a series of inquiries, the Federal Circuit, at the outset of its inquiry, focused on the result the claimed invention achieved.<sup>173</sup> The court looked unfavorably on first asking whether

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162. *Id.* at 1373 (quoting *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994)).

163. *State St.*, 149 F.3d at 1373.

164. *Supra* notes 154–57 and accompanying text.

165. Interim Guidelines, *supra* note 12, at 14–18.

166. *Id.* at 14.

167. *Id.* at 11–14.

168. *Id.* at 16.

169. This consists of determining whether the claim directly or indirectly recites a mathematical algorithm. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1374 (Fed. Cir. 1998) (quoting *In re Pardo*, 684 F.2d 912, 915 (C.C.P.A. 1982)).

170. Interim Guidelines, *supra* note 12, at 20.

171. *Id.*

172. See *State St.*, 149 F.3d at 1374 n.6 (“The dispositive inquiry is whether the claim as a whole is directed to statutory subject matter.”).

173. *Id.* at 1373–75.

the claim includes a judicial exception to eligible subject matter and using that as the initial classifying factor.<sup>174</sup>

Applying the Interim Guidelines, after an examiner determined that the baseball-player claim included statutory subject matter, an examiner likely would determine that the baseball-player claim recited ineligible subject matter because it constituted an abstract idea, or, more particularly, a mathematical algorithm. The claim would be considered ineligible subject matter, and only if the examiner found that the claim's result was a practical application of the mathematical algorithm would the claim be eligible for patent protection. By contrast, the Federal Circuit's *State Street* approach would look to both the claim's contents and the claim's results from the outset. The claim would be evaluated as a whole to determine if it qualified as eligible subject matter—and unlike under the Interim Guidelines' scheme, this inquiry would not be a last-ditch attempt to pull what already had been labeled ineligible subject matter back into the realm of eligible subject matter. In other words, unlike the set of inquiries set forth in the Interim Guidelines, the *State Street* test would not base the burden of proving subject-matter eligibility on the result that the claim achieved after the claim was already cast in an ineligible light because it contained a judicial exception.

Viewed as a whole from the outset, the baseball-player claim is more likely to be a practical application of a judicially created exception for at least two reasons. First, the claim is drawn toward a method, which is presumptively eligible subject matter since it is included in the four categories listed in § 101. Second, because the claim would not already be cast in an ineligible light for containing a mathematical algorithm, the result need not be so persuasive as to turn it from something that had been labeled ineligible subject matter back into the realm of eligible subject matter.

### C. THE OLDER, BETTER APPROACH

The Interim Guidelines and *State Street* both attempt to reconcile patent eligibility of claims that include judicial exceptions with precedent from the Supreme Court and the Federal Circuit.<sup>175</sup> Although they take somewhat different roads, both tests analyze what result an invention involving a judicial exception achieves—the result must be useful, tangible, and concrete.<sup>176</sup> However, this confusing and complicated doctrine could be

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174. See *id.* at 1373–74 (stating that “[t]he district court erred by applying the Freeman-Walter-Abele test to determine whether the claimed subject matter was an unpatentable abstract idea” and that “[a]fter *Diehr* and *Chakrabarty*, the Freeman-Walter-Abele test has little, if any, applicability”).

175. See generally *id.* at 1368; *supra* note 127.

176. *State St.*, 149 F.3d at 1375; Interim Guidelines, *supra* note 12, at 2.

dispatched without resort to such line drawing. Section 101 already requires that an invention be useful to be eligible for a patent.<sup>177</sup> Courts and examiners alike could use this requirement to distinguish those inventions that “the patent laws were designed to protect”<sup>178</sup> from those that do not promote the progress of science and the useful arts.<sup>179</sup>

The utility requirement of § 101 is as old as the patent system itself.<sup>180</sup> This means that courts, patent practitioners, and the USPTO have had over 200 years to interpret the meaning of this requirement and to determine which types of inventions meet the requirement. Unfortunately, both the Interim Guidelines and *State Street* ultimately turn on a doctrine announced by the Federal Circuit less than fifteen years ago,<sup>181</sup> the relative infancy of which almost certainly contributes to discrepancies.<sup>182</sup>

The Manual of Patent Examining Procedure (“MPEP”) sets forth the current requirements that the USPTO follows for determining utility.<sup>183</sup> If the invention does not have a well-established utility, then the utility must be specific, substantial, and credible.<sup>184</sup> “Specific” in this context means that the invention must be useful to a particular application rather than for some

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177. 35 U.S.C. § 101 (2006). The Interim Guidelines interpret the Federal Circuit’s definition of “useful” in *State Street* in the same manner as the MPEP interprets “useful.” MPEP, *supra* note 7.

178. *Diamond v. Diehr*, 450 U.S. 175, 192 (1981).

179. Indeed, much Supreme Court precedent creating judicial exceptions relied on the utility requirement. *See, e.g.*, *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948) (stating that a “phenomenon of nature” is not patentable, but the application of one put to a new and useful end may be); *Mackay Radio & Tel. Co. v. Radio of Am.*, 306 U.S. 86, 94 (1939) (stating that that a “novel and useful structure” created by a scientific truth may be patentable, and that even though “a scientific truth, or the mathematical expression of it, is not [a] patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be”); *Cochrane v. Deener*, 94 U.S. 780, 787–88 (1877) (stating that a “new and useful” method was just as patentable as a machine); *Rubber-Tip Pencil Co. v. Howard*, 87 U.S. (20 Wall.) 498, 507 (1874) (stating that “[a]n idea itself is not patentable, but a new device by which it may be made practically useful is”).

180. Act of Feb. 21, 1793, ch. 11, § 1, 1 Stat. 318, 319 (repealed 1836).

181. *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994).

182. By contrast, the MPEP sets forth a well-developed scheme for assessing utility pursuant to § 101. The USPTO treats an applicant’s assertion of utility as presumptively correct. *In re Branna*, 51 F.3d 1560, 1566 (Fed. Cir. 1995). However, the USPTO may then make a showing that a person of ordinary skill in the art would reasonably doubt the applicant’s asserted utility. *Id.* Such a showing shifts the burden to the applicant to provide evidence sufficient to convince a person of ordinary skill in the art that the invention meets the utility requirement. *Id.*; MPEP, *supra* note 7, §§ 2107–2107.02(V).

183. MPEP, *supra* note 7, §§ 2107–2107.01. The utility requirement is closely related to the requirement, found in 35 U.S.C. § 112, that the patent application enable a person of ordinary skill in the art to make and use the invention. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1358 (Fed. Cir. 1999); MPEP, *supra* note 7, § 2107.01(IV); Interim Guidelines, *supra* note 12, at 22.

184. MPEP, *supra* note 7, §§ 2107–2107.01; Interim Guidelines, *supra* note 12, at 20–21.

broad purpose.<sup>185</sup> For example, an asserted utility of diagnosing a yet unknown disease or an assertion that the invention *might* be useful is not specific.<sup>186</sup> Conversely, an asserted utility of diagnosing Hepatitis A would be specific.

The term “substantial” requires the use to be applicable to a real-world result.<sup>187</sup> For example, a detection method that identifies chemicals with known therapeutic properties possesses a real-world, and therefore, substantial use.<sup>188</sup> By contrast, a detection method that identifies chemicals without known or with only theoretical therapeutic properties would require further research to have a real-world use<sup>189</sup> and only would possess an insubstantial use.<sup>190</sup> The credibility requirement simply means that a person of ordinary skill in the art, in view of the contents of the patent application and “any other evidence of record,” would find that the invention has a specific and substantial use.<sup>191</sup>

As noted previously, the Interim Guidelines and the *State Street* test also require that the result be useful,<sup>192</sup> and the Interim Guidelines apply the same standard as the MPEP for determining what “useful” means in this context.<sup>193</sup> However, the “tangible” and “concrete” requirements for the result give no practical guidance to examiners or courts in determining whether an invention constitutes eligible subject matter. The Interim Guidelines indicate that the tangible requirement means the claim must produce a real-world result and then attempt to define “tangible” by announcing it is the opposite of “abstract.”<sup>194</sup> The Federal Circuit’s decision in *State Street* provides no better guidance. Instead of clearly defining what a “tangible result” is, the court gives examples of results that are tangible.<sup>195</sup> The MPEP already requires a useful result to have a real-world use, and the

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185. MPEP, *supra* note 7, § 2107.01 (I)(A).

186. *Id.*

187. *Id.* § 2107.01(B).

188. *Id.*

189. *Id.*

190. MPEP, *supra* note 7, § 2107.01(B).

191. *Id.* §§ 2107(I), 2107.02(III). The credibility requirement is likely the result of the interplay between the utility requirement in § 101 and the enablement requirement in § 112. *Supra* note 184 and accompanying text.

192. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998) (citing *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994)); Interim Guidelines, *supra* note 12, at 19.

193. Interim Guidelines, *supra* note 12, at 20–21.

194. *Id.* at 21–22. It is rare that defining a word in the dispositive adds much practical guidance.

195. *State St.*, 149 F.3d at 1373–75. Because the Federal Circuit defines a tangible result based on prior cases, the development of the doctrine depends on further litigation of the issue.

MPEP provides more instruction as to what constitutes a real-world result.<sup>196</sup> Accordingly, *State Street's* test and the Interim Guidelines' inclusion of the tangible requirement are superfluous.<sup>197</sup>

The Interim Guidelines' requirements, and the *State Street* test's requirement, that an invention produce a concrete result fares no better than the tangible requirement. Similarly, the Federal Circuit does not define "concrete," but instead provides examples of results from past cases in which it found that the result was concrete.<sup>198</sup> The Interim Guidelines interpret "concrete" to require that the result is repeatable and again resort to defining the term by its opposite.<sup>199</sup> However, if the result of a claim is not repeatable, a person of ordinary skill in the art must undertake undue experimentation to make and use the invention to achieve the result the claim covers, and the claim would therefore fail the enablement requirement from the first paragraph of 35 U.S.C. § 112.<sup>200</sup> The Interim Guidelines and *State Street's* inclusion of the concrete requirement is unnecessary because a claim that does not achieve a repeatable result will not be eligible for patent protection due to the claim's failure to meet the utility requirement in § 101 (according to the Federal Circuit's and the USPTO's interpretation of that requirement in conjunction with § 112).<sup>201</sup>

Although these doctrines are not without flaws,<sup>202</sup> they likely would weed out ineligible subject matter in accordance with the judicial exceptions

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196. *Supra* notes 187–91 and accompanying text.

197. It seems that the more terms an examiner must apply, the more complicated and time-consuming the examiner's task becomes. In the interest of efficiency, patentability requirements should be as concise as possible, without using three words where one will do.

198. *State St.*, 149 F.3d at 1373–75.

199. Interim Guidelines, *supra* note 12, at 22 (stating that "[t]he opposite of 'concrete' is unrepeatable or unpredictable"). The Interim Guidelines cite the Federal Circuit's decision in *In re Swartz*, 232 F.3d 862, 864 (Fed. Cir. 2000), for the assertion that a concrete result is one that is repeatable. *Id.* However, the Federal Circuit's decision in *State Street* makes no mention of the repeatability of results or how it affects patentability. *See generally State St.*, 149 F.3d at 1368.

200. If a claimed process does not produce substantially the same result each time one completes the process, a person of ordinary skill in the art would have to continue completing the process indefinitely until such person achieved the claimed result, which almost certainly meets the MPEP's definition of undue experimentation. MPEP, *supra* note 7, § 2164.01(a). The MPEP directs an examiner, when determining whether a person of ordinary skill in the art would have to undertake undue experimentation to make and use the invention, to determine the "breadth of the claims," "nature of the invention," "state of the prior art," "level of one of ordinary skill in the art," "level of predictability in the art," "amount of direction provided by the inventor," "existence of working examples," and "quantity of experimentation needed to make or use the invention based on the content of the disclosure." *Id.*

201. *Supra* note 184. As with the tangible requirement, the concrete requirement is superfluous and obfuscates the test courts and examiners apply when they determine whether a claim constitutes eligible subject matter. *Supra* note 197.

202. The term "useful" can be difficult to interpret. *Brenner v. Manson*, 383 U.S. 519, 529 (1966); *see Diamond v. Diehr*, 450 U.S. 175, (1981) (Stevens, J., dissenting) (commenting that in determining whether an invention is eligible subject matter it should be presumed to be

with at least as much certainty as either the Interim Guidelines or *State Street*. A patent practitioner would be hard pressed to draft a claim that merely covers an abstract idea, natural phenomenon, or law of nature in a way that would provide a specific and substantial utility and enable a person of ordinary skill in the art to make and use the invention in accordance with the MPEP.

Without tying the ineligible subject matter to a specific process or machine, so that the application of the ineligible subject matter is specific to a certain method or structure, the claim would not pass muster under the utility requirement. The baseball-player claim, if not used in a fantasy sports league, would not have a specific use since there would be no specific application for the algorithm. Instead, the claim would consist of a method for calculating numbers—an abstract idea. Furthermore, without including a claim limitation to connect the ineligible subject matter to some real-world (as opposed to theoretical) use, the claim would also fail under the utility requirement. The baseball-player claim would not have a substantial use without containing some limitation in the claim about how the claim drafter would use the result of the mathematical algorithm in the real world, i.e., to determine the player's contribution to the team's score.

Instead of relying on tests for determining eligible subject matter that are specific to the judicial exceptions, courts and patent examiners should scrutinize all claims according to the same standard. It is improbable that the Congress that included the utility requirement at the inception of the U.S. patent system envisioned that the utility requirement would separate patentable inventions involving software from unpatentable ones. However, the principles that the USPTO now furthers when it applies the current utility requirement show that the USPTO has sufficiently developed the concept of utility—and that concept is at least as well suited as either the Interim Guidelines or *State Street*—to separate eligible from ineligible subject matter.

#### IV. CONCLUSION

The history of the patent system in the United States indicates that patents are available for an immensely wide variety of inventions.<sup>203</sup> The advent of computers and computer-related technology has been difficult for courts to deal with when determining whether claim drafters have directed claims including some type of software (which often falls within a judicial exception to patentable subject matter) toward subject matter eligible for patent protection.<sup>204</sup>

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useful). In such a regime, the utility requirement would likely do a poor job distinguishing eligible subject matter from ineligible subject matter.

203. *Supra* notes 24–31 and accompanying text.

204. *Supra* notes 41–125 and accompanying text.

The Interim Guidelines and the Federal Circuit's decision in *State Street* provide tests for determining whether claims involving judicial exceptions to eligible subject matter are nevertheless patentable because the claimed invention is a practical application of the judicial exception.<sup>205</sup> However, because each test takes a different route to arrive at the determination of whether the claimed invention is a practical application of a judicial exception, and because judicial interpretation has failed to hone sufficiently each test, the two tests could lead to divergent outcomes for the same claim.<sup>206</sup>

Courts and patent examiners should not use different patentability requirements for claims that include judicial exceptions than they use for claims that do not include judicial exceptions. The utility requirement, which has always been part of the U.S. patent system and has remained unchanged since 1793, suffices to separate the inventions that the patent system should protect from those it should not.

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205. *Supra* Part III.

206. *Supra* Part III.B.