

## Processes as Patentable Subject Matter after *Bilski*:

### Recent Federal Circuit Case Law

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#### *Abstract*

*Congress intended the categories of patentable subject matter to be quite broad, and left the outer limits of its scope to the courts to decide. Judicial interpretation led to three major exceptions: natural phenomena, the laws of nature, and abstract ideas. The computer revolution in the 1960's and subsequent attempts to patent algorithms as processes led to three major Supreme Court opinions regarding the "abstract idea" exception. The Court did not revisit this exception for nearly 30 years. During this time, the development of this area of law culminated in an objective test for patentable subject matter: the machine-or-transformation test. The Federal Circuit declared this test to be the sole test for patentable subject matter analyses, but was soon corrected when the Supreme Court decided to step back into this area. Recent Federal Circuit opinions have shown a divided court, one that still clings to the machine-or-transformation test in some cases, yet ignores it and searches for new limiting criteria in others.*

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## I. Introduction

Congress intended the scope of patentable subject matter under 35 U.S.C. § 101 to “include anything under the sun that is made by man.”<sup>2</sup> Further establishing the breadth of this section, the Supreme Court has cautioned that courts should not read any limitations into the patent laws that were not expressed by Congress.<sup>3</sup> Despite this, judicial interpretation has led to three major exceptions to patentable subject matter: natural phenomena, laws of nature, and abstract ideas.<sup>4</sup> The rationale behind these exceptions is that these discoveries are “manifestations of ... nature, free to all men and reserved exclusively to none.”<sup>5</sup> There has never been any clear guidance from the Supreme Court as to what constitutes these exceptions,<sup>6</sup> and the determination of whether a patent claim covers an abstract idea, law of nature, or natural phenomenon has been difficult since at least the 19<sup>th</sup> century.<sup>7</sup>

As the arbiter of appeals involving patents, the Court of Appeals for the Federal Circuit (CAFC) developed several limiting criteria over the years to define what is and what is not “abstract.”<sup>8</sup> In *In re Bilski*, these efforts culminated in the hailing of the “machine-or-transformation” test as the sole test for determining whether a process claim is patentable under § 101.<sup>9</sup> While affirming the outcome in *Bilski*, the Supreme Court rejected the rationale, directing

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<sup>2</sup> See *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (citing S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H.R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952)).

<sup>3</sup> See *id.* at 308 (citing *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 199 (1933)).

<sup>4</sup> See *id.*

<sup>5</sup> See *id.* (citing *Funk Brothers Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948)).

<sup>6</sup> See *Bilski v. Kappos*, 130 S. Ct. 3218, 3236 (2010) (Stevens, J., concurring). “The Court ... never provides a satisfying account of what constitutes an unpatentable abstract idea.” *Id.*

<sup>7</sup> See, e.g., *O’Reilly v. Morse*, 56 U.S. 62 (1861); *Telephone Cases*, 126 U.S. 1 (1888); *Corning v. Burden*, 56 U.S. 252 (1853); *Cochrane v. Deener*, 94 U.S. 780 (1876).

<sup>8</sup> See *Diamond v. Diehr*, 450 U.S. 175, 193-205 (1981) (Stevens, J., dissenting) (describing Federal Circuit case law after 1960).

<sup>9</sup> See *In re Bilski*, 545 F.3d 943, 954 (2008) (citing Supreme Court precedent to support conclusion that machine-or-transformation test was the sole, definitive test for § 101).

that § 101 analyses should be analyzed with its decades-old precedent.<sup>10</sup> The machine-or-transformation test, while a useful clue, was not the sole test for patent eligibility. Despite this guidance, the Federal Circuit’s post-*Bilski* decisions in this area have been largely similar to before, with the machine-or-transformation test still being used as the *de facto* test for § 101.

Part II of this article discusses the history of the patent eligibility of algorithms as processes, ending with the Federal Circuit and Supreme Court decisions in *Bilski*. Part III describes the Federal Circuit’s reaction to *Bilski* and subsequent case law considering processes as patentable subject matter. Part IV provides an analysis of the Federal Circuit’s reaction.

## **II. Algorithms as Components of a Patentable Process**

### **A. Section 101**

In the 1952 amendments to the Patent Act, Congress replaced the term “useful arts” with the term “process” in the definition of patentable subject matter under 35 U.S.C. § 101.<sup>11</sup> “Useful art” had commonly been understood by courts to encompass processes and methods, and the changes were made with a general effort to update the United States Code.<sup>12</sup> The new § 101 read:

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.<sup>13</sup>

35 U.S.C. § 101 lists the categories of inventions that are patentable. Only a process, machine, manufacture, or composition of matter can be patented. § 101 can be thought of as a “gateway to

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<sup>10</sup> See *Bilski*, 130 S. Ct. at 3226 (holding that interpreting § 101 to be so limited was directly contrary to principles of statutory interpretation).

<sup>11</sup> See *id.* at 3247 (Stevens, J., concurring).

<sup>12</sup> See *id.* (noting that the changes were made for clarity).

<sup>13</sup> 35 U.S.C. § 101 (1952) (defining patentable subject matter).

patentability,” as the first door on the way to several challenges (including the further considerations of novelty and obviousness) before a limited patent monopoly is granted.<sup>14</sup> While employing expansive language, judicial interpretation of this clause has led to three major exceptions that are outside the scope of § 101, and therefore not patentable: abstract ideas, the laws of nature, and natural phenomena.<sup>15</sup>

In the 1960’s, the U.S. Patent & Trademark Office began to receive an influx of computer software related process patents.<sup>16</sup> Neither the patent system nor the judiciary knew what to do about them, as they were unlike any form of process claim that had been seen before.<sup>17</sup> Previous opinions required some form of physical transformation for a process claim to be valid, so it was argued that software, which is essentially a process consisting of a series of algorithms, was not patentable subject matter.<sup>18</sup> A President’s Commission on the Patent System convened and, relying on the Patent Office’s claim that it was unable to handle the administrative burden of reviewing software patent applications, released guidelines stating that “a computer program, whether claimed as an apparatus or a process, was unpatentable.”<sup>19</sup>

Patent examiners rejected many applications, which were often appealed all the way to Court of Customs and Patent Appeals (CCPA). The CCPA disagreed with the President’s Commission, repudiating older doctrines that prevented patents on software.<sup>20</sup> Any appealed PTO rejection of software patent applications was consistently reversed by the CCPA.<sup>21</sup> Soon

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<sup>14</sup> See *Bilski*, 130 S. Ct. at 3225. “The § 101 inquiry is only a threshold test.” *Id.*

<sup>15</sup> See *Chakrabarty*, 447 U.S. at 309.

<sup>16</sup> See *Diehr*, 450 U.S. at 196-97 (Stevens, J., dissenting).

<sup>17</sup> See *id.*

<sup>18</sup> See *id.* (citing *Deener*, 94 U.S. at 787-88).

<sup>19</sup> See *id.* at 197-98 (citing 829 Off. Gaz. Pat. Off. 865 (Aug. 16, 1966)).

<sup>20</sup> See *id.* at 198-99 (describing the repudiation of the “function of a machine” and “mental steps” doctrines).

<sup>21</sup> See *id.* at 200-01 (describing the holdings of *In re Musgrave*, 431 F.2d 992 (1970); *In re Benson*, 441 F.2d 682 (1971)).

the issue came to the Supreme Court, establishing a trio of cases to guide the analysis of patentable subject matter and processes.

## **B. Supreme Court Decisions**

### **1. Gottschalk v. Benson**

Three cases regarding the patentability of processes that run on a computer, *Benson*, *Flook*, and *Diehr*, rose to the Supreme Court between 1972 and 1980. In *Gottschalk v. Benson*, the Court considered a patent examiner's rejection of a method for converting binary-coded decimals into pure binary numerals.<sup>22</sup> Gary Benson claimed this method in a patent application which was initially rejected by the Patent Office, but the rejection was reversed by the CCPA.<sup>23</sup> The Supreme Court granted certiorari in 1972.<sup>24</sup>

The Court considered whether the method could be a process 'within the meaning of the Patent Act' – meaning whether it was a process as defined by 35 U.S.C. § 101.<sup>25</sup> The method claimed was a procedure for solving a mathematical problem, or 'algorithm.'<sup>26</sup> The process could also be performed mentally, with no computer needed.<sup>27</sup> In a review of several precedential 19<sup>th</sup> century opinions, the Court showed that typically some form of a machine is

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<sup>22</sup> See *Gottschalk v. Benson*, 409 U.S. 63, 64 (1972). A binary coded-decimal is a number where each digit is represented as an individual binary numeral. See *id.* at 66-67. So, the decimal number 53 can be represented by the two binary numbers 0101 (5) and 0011 (3). See *id.* Using this method, a predictable 4 bits of information per digit are needed for storing any number in a computer's memory, and the number can easily be converted back to binary (110101). See *id.* at 66.

<sup>23</sup> See *id.* at 64.

<sup>24</sup> See *id.*

<sup>25</sup> See *Benson*, 409 U.S. at 64 (citing 35 U.S.C. § 100(b), 101).

<sup>26</sup> See *id.* at 65 (defining "algorithm").

<sup>27</sup> See *id.* at 66. "The method sought to be patented varies the ordinary arithmetic steps a human would use by changing the order of the steps, changing the symbolism for writing the multiplier in some steps, and by taking subtotals after each successive operation." *Id.*

required in a claim for a process to be patent eligible.<sup>28</sup> And, if a process did not recite a machine, it could still be valid if it included a “[t]ransformation and reduction of an article ‘to a different state or thing’”.<sup>29</sup> Thus, the Supreme Court recited the underpinnings of the machine-or-transformation test: if a claim can be tied to the use of a particular machine, or if it transforms an article to a different state or thing, it is patentable subject matter under 35 U.S.C. § 101.

Despite this language, the Court ultimately held that the practical effect of upholding Benson’s patent was to allow the patenting of an abstract idea.<sup>30</sup> It would cover all new and future uses of binary-coded decimal conversion, had no “practical application except in connection with a digital computer”, and “would wholly preempt the mathematical formula and in practical effect [] be a patent on the algorithm itself.”<sup>31</sup> The patenting of an algorithm was barred because the result would be contrary to the purpose of the act: to promote innovation.<sup>32</sup>

## 2. **Parker v. Flook**

Six years later, the Court heard another case regarding a Patent Office rejection of a method claim due to unpatentable subject matter. In *Parker v. Flook*, the disputed claim covered a method for updating alarm limits in catalytic conversion processes.<sup>33</sup> Dale Flook submitted a patent application for a method of updating alarm limits automatically by: 1) checking a variable,

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<sup>28</sup> See *id.* at 68-70 (discussing *O’Reilly v. Morse*, 56 U.S. 62 (1853); *Telephone Cases*, 126 U.S. 1 (1888); *Corning v. Burden*, 56 U.S. 252 (1853); *Cochrane v. Deener*, 94 U.S. 780 (1876)).

<sup>29</sup> See *id.* at 70 (citing *Tilghman v. Proctor*, 102 U.S. 707, 271 (1880)). Tellingly, the Court noted that there may be process patents that would qualify even if they were outside the realm of this precedent. See *id.* at 72.

<sup>30</sup> See *Benson*, 409 U.S. at 71-72 (rejecting claim because the practical effect would be the patenting of an abstract idea).

<sup>31</sup> *Id.* at 71-72.

<sup>32</sup> See *Chakrabarty*, 447 U.S. at 308. “The Act embodied Jefferson’s philosophy that ‘ingenuity should receive a liberal encouragement.’” *Id.* (quoting *Writings of Thomas Jefferson* 75-76 (Washington ed. 1871)).

<sup>33</sup> 437 U.S. 584 (1978). An ‘alarm limit’ is a number indicating when certain operating conditions exceed their normal limits. See *id.* at 585. Typically alarm limits are static, requiring manual updates for different types of conditions, such as when an engine first starts. See *id.*

such as engine temperature; 2) calculating a new alarm limit using an algorithm; and 3) updating the existing alarm limit to the new value.<sup>34</sup>

The patent office examiner rejected the application because, like in *Benson*, “the practical effect [would be] a patent on the formula or mathematics itself.”<sup>35</sup> Flook argued that by limiting the use of the process to those involved in “the catalytic chemical conversion of hydrocarbons”, the claims did not suffer from the *Benson* flaw of preempting all uses of the formula – an argument accepted on appeal by the CCPA.<sup>36</sup> The addition of “post-solution” activity, i.e. using the process in catalytic chemical conversions, further distinguished the claims from *Benson*.<sup>37</sup>

The Supreme Court reversed. No amount of “post-solution” activity could “transform an unpatentable principle into a patentable process”:

A competent draftsman could attach some form of post-solution activity to almost any mathematical formula; the Pythagorean theorem would not have been patentable, or partially patentable, because a patent application contained a final step indicating that the formula, when solved, could be usefully applied to existing surveying techniques.<sup>38</sup>

Further, while a process claim is not unpatentable merely because it contains an abstract idea or algorithm as an element, “the process itself, not merely the mathematical algorithm, must be new and useful.”<sup>39</sup> Algorithms, abstract ideas, and laws of nature are to be considered elements of the prior art, for they existed before their discovery by man.<sup>40</sup> All of the elements of Flook’s process, including the “practice of monitoring ... variables, the use of alarm limits to trigger alarms, the notion that alarm limit values must be recomputed and readjusted, and the use of

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<sup>34</sup> See *id.* at 585-86.

<sup>35</sup> See *id.* at 587.

<sup>36</sup> See *id.* at 587-88 (describing the holding of the Court of Customs and Patent Appeals). Because the “mere solution of the algorithm would not constitute infringement of the claims, a patent on the method would not pre-empt the formula.” *Id.*

<sup>37</sup> See *Flook*, 437 U.S. at 589-90.

<sup>38</sup> See *id.* at 590.

<sup>39</sup> See *id.* at 591.

<sup>40</sup> See *id.* at 591-92. “Indeed, the novelty of the mathematical algorithm is not a determining factor at all.” *Id.*

computers” were in the prior art.<sup>41</sup> The process was unpatentable under § 101 because “the application, considered as a whole, contain[ed] no patentable invention.”<sup>42</sup>

### 3. **Diamond v. Diehr**

This did not end the question of whether software was patentable. In *Diamond v. Diehr*, a patent office examiner rejected a claim for a process for molding raw rubber into products.<sup>43</sup> The process included in its steps the continuous measurement of the temperature within a molding press, and the application of a mathematical formula (the Arrhenius equation) calculated by a computer, to determine when the rubber was cured.<sup>44</sup> The examiner rejected the claims because portions of the process were carried out by a computer, and the other elements of the process were in the prior art.<sup>45</sup> The CCPA reversed, holding that “a claim drawn to subject matter otherwise statutory does not become nonstatutory because a computer is involved.”<sup>46</sup>

The Supreme Court distinguished the claims from those in *Flook* and *Benson*. Whereas in those cases the applicants sought to patent a mathematical formula, Diehr sought protection for an improved method of curing rubber.<sup>47</sup> Though granting the patent would result in the prevention of others from using that particular algorithm in a process of curing rubber, it would not entirely subsume the use of the algorithm itself, like in *Benson* and *Flook*.<sup>48</sup>

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<sup>41</sup> *See id.* at 594.

<sup>42</sup> *See id.*

<sup>43</sup> 450 U.S. 175 (1981).

<sup>44</sup> *See id.* at 179 (describing the use of the Arrhenius equation).

<sup>45</sup> *See id.* at 179-81.

<sup>46</sup> *See id.* at 181.

<sup>47</sup> *See id.* at 185-87.

<sup>48</sup> *See id.* at 187.

The Court continued with an analysis of the examiner's dissection of the claims into "old" and "new" elements, stating that this was inappropriate for an analysis of eligibility under § 101.

In determining the eligibility of respondents' claimed process for patent protection under § 101, their claims must be considered as a whole. It is inappropriate to dissect the claims into old and new elements and then to ignore the presence of the old elements in the analysis. This is particularly true in a process claim because a new combination of steps in a process may be patentable even though all the constituents of the combination were well known and in common use before the combination was made. The "novelty" of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.<sup>49</sup>

Under *Flook*, the examiner assumed that the mathematical algorithm was in the prior art and disregarded it. By excluding the algorithm and then looking to the rest of the claims, he saw no patentable invention. The Court noted that *Flook* did not call for the exclusion of algorithms from an analysis of patent eligibility.<sup>50</sup> Rather, algorithms should be considered as prior art elements that could be combined with other elements in a way that would yield, as a whole, a patentable invention.<sup>51</sup> The Court then expanded that the questions of novelty and obviousness are separate from an analysis of § 101, and that "a rejection on either of these grounds does not affect the determination that respondent's claims recited subject matter which was eligible for patent protection".<sup>52</sup>

With these cases, the Supreme Court created precedent that largely governed the patentability of abstract processes to this day. Though providing language that suggested the use

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<sup>49</sup> See *Diehr*, 450 U.S. at 188-89.

<sup>50</sup> See *id.* at 189, n. 12. "To accept the analysis proffered by the petitioner would, if carried to its extreme, make all inventions unpatentable because all inventions can be reduced to underlying principles of nature which, once known, make their implementation obvious." See *id.*

<sup>51</sup> See *id.* at 188-89

<sup>52</sup> See *id.* at 189-91.

of the machine-or-transformation test as a test for patent eligibility, the claims in *Benson* and *Flook* were dismissed because they preempted the use of an abstract idea. *Diehr* is hard to reconcile with *Flook*, and it appears that the Court felt that the claims were limited enough so as not to preempt all use of the Arrhenius equation – or at least that the activities recited were not “mere post-solution activity.” The Supreme Court did not hear another case involving the abstractness exception to § 101 until its grant of certiorari in *Bilski v. Kappos*.<sup>53</sup>

### C. The Federal Circuit Opinion in *In re Bilski*

After *Diehr*, abstract process claims still made their way to appellate courts. The Supreme Court language describing the patent-eligibility of machines and transformations became the “machine or transformation” test, and was often used as a measure to determine whether a process was patent-eligible. The CCPA’s successor court, the Court of Appeals for

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<sup>53</sup> See *Bilski*, 130 S. Ct. at 3225. *Diehr* was a 5-4 opinion. In the dissent, Justice Stevens recounted the history of older, repudiated § 101 exceptions, including the “mental steps” and “function of a machine” doctrines, as well as the interplay between the CCPA and the Supreme Court. See *Diehr*, 450 U.S. at 194-97. The application of these two older doctrines would have prevented a patent on almost any computer or software invention. See *id.* at 196-96. The “mental steps” doctrine applied to cases where the only novel element was a “mental operation or mathematical computation”, and the “function of a machine” doctrine prevented a patent that claimed a process that was nothing more than a description of the function of a machine. See *id.* at 196. Starting in 1968, the Court of Customs and Patent Appeals repudiated these doctrines and began to apply more “expansive principles formulated with computer technology in hand.” See *id.* at 200. A new “technological arts” test was applied to process claims, which was later rejected by the Supreme Court in *Benson* after the CCPA held that all computers were within the technological arts. See *id.* In the following years, the CCPA narrowly applied *Benson* by rejecting a claim only if an algorithm was recited and the claim entirely subsumed its use. See *id.* at 203. *Flook* held that the *Benson* rule was not so limited, and that the correct procedure was to treat an algorithm “as though it were a familiar part of the prior art; the claim is then examined to determine whether it discloses ‘some other inventive concept.’” See *id.* at 204 (citing *Flook*, 437 U.S. at 591-95). The CCPA then took the position that the claims were to be analyzed as a whole, and if the entire process was novel, it was “patentable subject matter even if the only novel element that the inventor claims to have discovered is a new computer program” – a position upheld by the majority in *Diehr*. See *id.* at 205. Stevens dissented because he did not read in the claims a new process for curing rubber; he read a claim that only provided an “improved method of calculating the time that the mold should remain closed during the curing process.” See *Diehr*, 450 U.S. at 205-06. Stevens pointed out that Charles Goodyear settled the matter on whether a process for curing rubber was patent eligible subject matter many years ago. *Id.* “Their method of updating the curing time calculation is strikingly reminiscent of the method of updating alarm limits that Dale Flook sought to patent.” *Id.* at 209.

the Federal Circuit (CAFC), ultimately declared that the machine-or-transformation test was the sole test for patentable subject matter in *In re Bilski* in 2008.<sup>54</sup>

Bernard L. Bilski appealed the final rejection of his patent application for a method of hedging risk in commodities trading.<sup>55</sup> Briefly, the claims recited three steps: 1) initiating a series of transaction between commodity providers and consumers; 2) identifying market participants that have a counter-risk position to those consumers; and 3) initiating a series of transactions so that the risk of consumer transactions is minimized. The examiner rejected the claims under § 101 because they were “not implemented on a specific apparatus” and “merely manipulate an abstract idea”. Bilski appealed the rejection to the CAFC.<sup>56</sup>

Allegedly guided by the holdings in *Benson*, *Flook*, and *Diehr*, the CAFC addressed the issue of whether Bilski was attempting to claim a fundamental principle or mental process.<sup>57</sup> According to the CAFC, in *Diehr* the Supreme Court distinguished between claims that entirely pre-empt the use of a fundamental principle, and those that merely seek to “foreclose others from using a particular ‘*application*’ of that fundamental principle.”<sup>58</sup> The inquiry for any claim was then to the “scope of that exclusion.”<sup>59</sup> So, in *Diehr* the patentees only foreclosed the use of the Arrhenius equation to those seeking to use it in a process for curing rubber, using the same steps as the patentee.<sup>60</sup> Whereas in *Benson*: “the algorithm had no uses other than those that would be

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<sup>54</sup> 545 F.3d 943 (2008).

<sup>55</sup> *See id.* at 949-50 (reciting procedural history).

<sup>56</sup> *See id.*

<sup>57</sup> *See id.* at 952.

<sup>58</sup> *See Bilski*, 545 F.3d. at 953.

<sup>59</sup> *See id.* (emphasis in original).

<sup>60</sup> *See id.* (illustrating how the algorithm was not preempted in *Diehr*).

covered by the claims”.<sup>61</sup> The issue as always was: where to draw the line? The CAFC then noted that the Supreme Court had already provided them with a definitive test.<sup>62</sup>

The Federal Circuit declared that “a claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.”<sup>63</sup> The machine-or-transformation test requires that the use of a machine or transformation impose meaningful limits on the claim scope, and not be the mere involvement of an insignificant post-solution machine or activity.<sup>64</sup> Further, purported transformations that only add data gathering steps are not enough to satisfy the transformation prong.<sup>65</sup>

The process in *Diehr* satisfied both prongs of the test; “[t]he process operated on a computerized rubber curing apparatus and transformed raw, uncured rubber into molded, cured rubber products.”<sup>66</sup> The process in *Flook* failed the test because there was no transformation, nor a machine or apparatus for any of its steps.<sup>67</sup> Hailing the machine-or-transformation test as the definitive test for § 101, the court attributed the test to the Supreme Court in *Benson*: “[t]ransformation and reduction of an article ‘to a different state or thing’ is *the* clue to the patentability of a process claim that does not include particular machines.”<sup>68</sup> The Supreme Court also had recognized that it had “only recognized a process as within the statutory definition when

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<sup>61</sup> See *id.* at 954 (comparing *Diehr* with *O’Reilly v. Morse*, 56 U.S. 62 (1853), where Samuel Morse attempted to claim all uses of electromagnetism).

<sup>62</sup> See *id.* “The Supreme Court . . . has enunciated a definitive test to determine whether a process claim is tailored narrowly enough to encompass only a particular application of a fundamental principle rather than to pre-empt the principle itself.” *Id.*

<sup>63</sup> See *id.* at 954 (citing *Benson*, 409 U.S. at 70; *Diehr*, 450 U.S. at 192; *Flook*, 437 U.S. at 589 n. 9).

<sup>64</sup> See Blake Reese, *Judicially Re(De)fining software patent eligibility II: A Survey of Post-Bilski Jurisprudence*, 27 SANTA CLARA COMPUTER & HIGH TECH. L.J. 673, 676 (examining the machine-or-transformation test).

<sup>65</sup> See *id.* (discussing boundaries of the test).

<sup>66</sup> See *Bilski*, 545 F.3d. at 954-55 (citing *Diehr*, 450 U.S. at 184, 187).

<sup>67</sup> See *id.* at 955. (citing *Flook*, 437 U.S. at 586). The court recognized that *Benson* appeared to satisfy the machine prong because it needed to be implemented on a computer, but the claim was still invalid as it entirely subsumed the use of the algorithm. See *id.*

<sup>68</sup> See *id.* at 955-956 (emphasis and modifications in original).

it either was tied to a particular apparatus or operated to change materials to a ‘different state or thing.’”<sup>69</sup> And though the Court warned in *Benson* that process patents may issue in the future that do not meet its precedent, the CAFC reconciled this disparity by noting that future developments may change the appropriate test, but for now the machine-or-transformation test was the “governing test for determining patent eligibility of a process under § 101.”<sup>70</sup>

In applying the rule, the Federal Circuit found that the claims for a method of hedging risk did not involve a “transformation of any physical object or substance, or an electronic signal representative of any physical object or substance.”<sup>71</sup> The rejection by the PTO was affirmed, and the claims were held to be too abstract because they failed to meet the machine-or-transformation test.<sup>72</sup>

#### **D. The Supreme Court Opinion in *Bilski v. Kappos***

In its first case involving 35 U.S.C. § 101 since *Diamond v. Chakrabarty* in 1980, the Supreme Court granted certiorari and heard *Bilski v. Kappos* in 2010.<sup>73</sup> Three arguments were advanced as to why the process was in the category of unpatentable subject matter: 1) it did not satisfy the machine-or-transformation test, the definitive test for § 101; 2) it was an unpatentable business method; and 3) it merely involved the manipulation of an abstract idea.<sup>74</sup> The Court rejected the first two arguments, but affirmed the dismissal of *Bilski*’s claims with the third.<sup>75</sup>

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<sup>69</sup> See *id.* at 956 (quoting *Flook*, 437 U.S. at 589 n. 9).

<sup>70</sup> See *id.* The court used this opportunity to clarify its previous tests for patent eligibility. See *id.* at 958-963.

<sup>71</sup> See *Bilski*, 545 F.3d at 964.

<sup>72</sup> See *id.* at 963.

<sup>73</sup> *Bilski v. Kappos*, 130 S.Ct. 3218 (2010).

<sup>74</sup> See *id.* at 3224. The concurring opinion by Justice Stevens, joined by three other Justices, forcefully argued for a business method exception to § 101. See *id.* at 3231.

<sup>75</sup> See *id.* at 3229-31.

In the majority opinion, Justice Kennedy emphasized the breadth of patentable subject matter.<sup>76</sup> In choosing such expansive terms for § 101, “Congress plainly contemplated that the patent laws would be given wide scope” and “took this permissive approach to patent eligibility to ensure that ‘ingenuity should receive a liberal encouragement.’”<sup>77</sup> The three judicial exceptions, while “not required by the statutory text, . . . are consistent with the notion that a patentable process be ‘new and useful.’”<sup>78</sup> Further, they were supported by 150 years of “statutory *stare decisis*.”<sup>79</sup> Given this legislative history and precedent, courts should not read any further limitations into § 101.<sup>80</sup> Adopting the machine-or-transformation test as the sole test for § 101 was contrary to this principle.<sup>81</sup>

Adopting the machine-or-transformation test as the sole test for § 101 patentability would restrict the definition of a process in § 100(b) to only those processes that were tied to the use of a machine, or transformed an article.<sup>82</sup> It was unacceptable to read this further limitation into § 100(b), because a “process” was already explicitly defined by the statute.<sup>83</sup> Though the machine-or-transformation test was a “useful and important clue,” it is not the sole test for determining subject matter eligibility.<sup>84</sup>

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<sup>76</sup> See *id.* at 3225-26 (cautioning courts from reading limitations and conditions that the legislature has not expressed).

<sup>77</sup> See *id.* at 3225 (quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 308).

<sup>78</sup> See *id.*

<sup>79</sup> See *Bilski*, 130 S. Ct. at 3225 (citing *LeRoy v. Tatham*, 14 How. 156 (1853)).

<sup>80</sup> See *id.*

<sup>81</sup> See *id.* The majority opinion also noted that a business method exception failed in this regard. See *id.*

<sup>82</sup> See *id.* at 3226.

<sup>83</sup> As noted in the concurring opinion, the definition of process in § 100(b) is not entirely helpful because it uses the term “process.” See *id.* at 3237 (Stevens, J., concurring).

<sup>84</sup> See *id.* at 3227.

The Court affirmed the dismissal of *Bilski*'s claims, but did so only on the grounds that they would grant a monopoly on an abstract idea.<sup>85</sup> The analysis was also guided by the holdings in *Benson*, *Flook*, and *Diehr*.<sup>86</sup> *Bilski*'s claims were not a patentable process, because they simply claimed the fundamental concept of hedging.<sup>87</sup> The Court noted that its decision did not prevent the Federal Circuit from developing "other limiting criteria that further the purposes of the Patent Act and are not inconsistent with its text."<sup>88</sup> With its message to focus § 101 process analyses on decades-old precedent, the Court appears to have rejected the notion that there is or ever will be a single 'test' for § 101.<sup>89</sup> Tests are useful for determining whether something is patent-eligible (like a machine or transformation), but there may never be a true test to determine whether something is *not* patent-eligible. The Court remanded two cases, *Prometheus* and *Classen*, to the Federal Circuit with orders to reconsider in light of this opinion.

### III. The Federal Circuit's Reaction to *Bilski*

Before *Bilski*, the Supreme Court had not ruled on patent eligibility for nearly 3 decades.<sup>90</sup> The Federal Circuit then began the task of issuing substantive opinions that applied the Supreme Court's *Bilski* decision.<sup>91</sup> Many patent practitioners, investors, and business decision-makers were eager for any new rules that the Federal Circuit would adopt.<sup>92</sup>

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<sup>85</sup> See *id.* at 3231.

<sup>86</sup> See *id.* at 3229-31.

<sup>87</sup> See *Bilski*, 130 S. Ct. at 3227.

<sup>88</sup> See *id.* at 3231.

<sup>89</sup> See *id.* at 3227. "[T]he machine-or-transformation test would create uncertainty as to the patentability of software, advanced diagnostic medicine techniques, and inventions based on linear programming, data compression, and the manipulation of digital signals." *Id.* (citing numerous *amicus* briefs). "Section 101's terms suggest that new technologies may call for new inquiries." *Id.* at 3228 (section of opinion not joined by Justice Scalia).

<sup>90</sup> See *Reese*, *supra* note 64 at 722 (remarking on Supreme Court precedent in this area of law).

<sup>91</sup> See *id.*

<sup>92</sup> See *id.*

## A. Abstract Ideas and Processes in the Computer Sciences

### 1. Research Corp.

After *Bilski*, the first § 101 case heard by the CAFC involved a purely mathematical application.<sup>93</sup> In *Research Corp. v. Microsoft*, Research Corp. (RCT) filed an action for patent infringement against Microsoft, alleging infringement of six patents based on the use of a methods of half-toning images in Microsoft software.<sup>94</sup> The inventors of the RCT patents created a new half-toning technique that produced higher quality halftone images using less processor power and memory.<sup>95</sup> Granting Microsoft’s motion for summary judgment, the district court held that several of the claimed methods were invalid under 35 U.S.C. § 101. RCT timely appealed.<sup>96</sup>

In an opinion devoid of any discussion of the machine-or-transformation test, the Federal Circuit reminded us that § 101 is only a coarse eligibility filter, and that a court could not reject subject matter just because it felt a claim was not worthy of a patent.<sup>97</sup> As the claims at issue were patents for software, claiming methods involving algorithms, the only applicable exception to 35 U.S.C. § 101 was abstractness.<sup>98</sup> The court noted that “this disqualifying characteristic should exhibit itself so manifestly as to override the broad statutory categories of eligible subject matter”.<sup>99</sup> The court determined that RCT’s patents were valid because they presented

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<sup>93</sup> See *Research Corp. Tech., Inc. v. Microsoft Corp.*, 627 F.3d 859 (Fed. Cir. 2010).

<sup>94</sup> See *id.* at 866. Digital half-toning is useful in computer software because monitors and printers can only show a limited number of colors; e.g., “CMYK” for printers, or “RGB” for monitors. See *id.* at 862-63. By spacing printed or displayed dots in a certain manner, half-toning increases the number of available shades of a color. See *id.*

<sup>95</sup> See *id.* at 864-65.

<sup>96</sup> See *Research Corp.*, 627 F.3d at 867.

<sup>97</sup> See *id.* at 868. “The ... inquiry is only a threshold test.” *Id.*

<sup>98</sup> See *id.*

<sup>99</sup> See *id.*

“functional and palpable” applications, and addressed a need in the art for a better method of rendering images on a computer.<sup>100</sup> For purposes of threshold patent eligibility under § 101, the court recognized that the purpose of the claims was not to patent an algorithm, but merely to patent “a process of halftoning in computer applications.”<sup>101</sup>

After *Research Corp.*, district courts may downplay § 101 eligibility and instead focus on the further statutory requirements of patentability. While anything under the sun made by man is potentially patentable, § 101 is only a coarse eligibility filter, with further statutory requirements for patentability. For example, the Court concluded its eligibility analysis by reminding us of the enablement requirement.<sup>102</sup> To secure a patent, an application must state the invention with sufficient clarity to put the public in possession of the invention.<sup>103</sup> Even if an invention is quite abstract, it may pass the “coarse eligibility filter [but] 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.’”<sup>104</sup> The opinion was authored by Judge Rader, who dissented in *In re Bilski*, arguing that the claims should have been dismissed only because they were an abstract idea.<sup>105</sup> In *Research Corp.*, Judge Rader explored other limiting criteria for patent eligibility without discussing the machine-or-transformation test. In this regard he stands alone, as illustrated by later CAFC opinions.

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<sup>100</sup> See *id.* at 868-69.

<sup>101</sup> See *Research Corp.*, 627 F.3d at 869.

<sup>102</sup> See *id.* at 869.

<sup>103</sup> See 35 U.S.C. § 112.

<sup>104</sup> See *Research Corp.*, 627 F.3d at 869 (citing *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1371 (Fed. Cir. 2008)).

<sup>105</sup> See *Bilski*, 545 F.3d at 1011. “This court labors for page after page, paragraph after paragraph, explanation after explanation to say what could have been said in a single sentence: ‘because *Bilski* claims merely an abstract idea, this court affirms the Board’s rejection.’” *Id.*

## 2. CyberSource

The Federal Circuit was invited to consider another software patent in *CyberSource v. Retail Decisions*.<sup>106</sup> The claimed process was a method for verifying the validity of credit transactions over the internet.<sup>107</sup> The patent claimed to solve the problem of verifying identity in internet transactions.<sup>108</sup> CyberSource brought an action against Retail Decisions for infringement, and Retail Decisions moved for summary judgment of invalidity under 35 U.S.C. § 101.<sup>109</sup> The disputed claim 3 was found invalid because it recited only mere data gathering steps; it was only “an unpatentable mental process for collecting data and weighing values.”<sup>110</sup>

On appeal, the Federal Circuit reviewed the scope of patentable subject matter as clarified after the *Bilski* opinion.<sup>111</sup> The court agreed with the district court’s ruling that the claims failed the machine-or-transformation test, as they simply required “one to ‘obtain and compare intangible data pertinent to business risks.’”<sup>112</sup> These were merely data collection steps and insufficient to constitute a transformation.<sup>113</sup> The plaintiffs argued that the method was tied to a particular machine because it required the use of the internet, but the Court noted that the internet itself could not perform the steps.<sup>114</sup>

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<sup>106</sup> See *CyberSource Corp. v. Retail Decisions, Inc.*, 99 U.S.P.Q.2d 1690 (Fed. Cir. 2011).

<sup>107</sup> See *id.* at 1693 (describing claimed method).

<sup>108</sup> See *id.* at 1692. Whereas in face-to-face purchases, a retailer can check a person’s driver’s license, signature, or picture to confirm their identity, no such method exists in faceless internet transactions. See *id.* By associating a customer with some other form of internet address information, including an IP address, email address, or MAC address, the method is able to increase the chances that an internet purchaser is an authorized person. See *id.*

<sup>109</sup> See *id.* at 1692.

<sup>110</sup> See *id.* at 1692. The claim included the steps of “obtaining information about .. transactions; ... constructing a map of credit card numbers ...; and utilizing the map of credit card numbers to determine if the credit card transaction is valid.” See *id.* at 1693.

<sup>111</sup> See *id.* at 1693. “The Court’s precedents provide three specific exceptions to § 101’s broad patent-eligibility principles: ‘laws of nature, physical phenomena, and abstract ideas.’” *Id.*

<sup>112</sup> See *id.* at 1694.

<sup>113</sup> See *CyberSource*, 99 U.S.P.Q.2d at 1694.

<sup>114</sup> See *id.*

In addition to failing the machine-or-transformation test, the Court expanded by stating that the method was “drawn to an unpatentable mental process.”<sup>115</sup> The method was invalid because each and every step could be performed by human thought alone, and therefore it was “no more than a claim to a fundamental principle” and “merely an abstract idea.”<sup>116</sup> “Computational methods which can be performed *entirely* in the human mind are the types of methods that embody the ‘basic tools of scientific and technological work’ that are free to all men and reserved exclusively to none.”<sup>117</sup>

The Court distinguished *CyberSource* from cases where software was patent eligible, such as in *SiRF Tech.*<sup>118</sup> and *Research Corp.*<sup>119</sup> The method in *SiRF Tech* required a machine (GPS receiver), and *Research Corp.* “required the manipulation of computer data structures ... [that] could not, as a practical matter, be performed entirely in a human’s mind.”<sup>120</sup> The court acknowledged that the machine-or-transformation test, while quite useful for evaluating patentable “subject matter of Industrial Age processes, . . . has far less application to the inventions of the Information Age.”<sup>121</sup> Despite this acknowledgment, the failure of claims to meet either prong of the machine-or-transformation test was cited as the primary reason for invalidation.<sup>122</sup>

### 3. Ultramercial

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<sup>115</sup> *See id.*

<sup>116</sup> *See id.* at 1695.

<sup>117</sup> *Id.* at 1696 (emphasis in original). Further, claim 2 was invalid because it was merely a repackaged version of claim 3, and *CyberSource* did not meet its burden to show that it was “truly drawn to a specific’ computer readable medium” and not the underlying process. *See id.*

<sup>118</sup> *SiRF Technology, Inc. v. International Trade Com’n*, 601 F.3d 1319 (Fed. Cir. 2010).

<sup>119</sup> *See Research Corp.*, 627 F.3d 859.

<sup>120</sup> *See Cybersource*, 99 U.S.P.Q.2d at 1331.

<sup>121</sup> *Id.* at 1143 (citing *Bilski*, 130 S.Ct. 3218, 3227-28).

<sup>122</sup> *See id.* at 1694.

The latest Federal Circuit decision regarding § 101 and the “abstractness” exception is *Ultramercial v. Hulu*.<sup>123</sup> The disputed claim was for a method of monetizing and distributing copyrighted products over the internet.<sup>124</sup> The method involved offering a copyrighted product for free over the internet in exchange for the viewing of an advertisement.<sup>125</sup> Essentially, the patent covers a now-ubiquitous method of advertising on the internet – being forced to watch a 30 second advertisement before you can watch a 20 second YouTube clip.

The district court granted the defendant’s motion for summary judgment to dismiss regarding patent-eligibility.<sup>126</sup> On appeal, the Federal Circuit began its analysis with a reminder of the broadly permissive nature of § 101, or a “coarse eligibility filter.”<sup>127</sup> As a process, the only applicable exception here would be “abstractness.”<sup>128</sup> Citing *Research Corp.*, the Federal Circuit declared that “this characteristic should exhibit itself so manifestly as to override” patent-eligible subject matter.<sup>129</sup> The abstract idea identified within the process was that advertising can be used as currency.<sup>130</sup>

Many of the factors in *Research Corp.* played a part in the Federal Circuit’s decision. The claimed process had many applications in the area of online commerce, and solved a problem involving viewing of advertising on the internet. One indication that a claimed process is not abstract is if it is an application of an abstract idea.<sup>131</sup> The claimed process did not try to claim this idea itself; rather, it claimed a particular application an abstract idea – that advertising can be

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<sup>123</sup> *Ultramercial LLC v. Hulu LLC*, 100 U.S.P.Q.2d 1140 (2011).

<sup>124</sup> *See id.* at 1141 (reciting claims of patent for distribution of copyrighted items over the internet in return for viewing an advertisement).

<sup>125</sup> *See id.*

<sup>126</sup> *See id.* at 1141-42.

<sup>127</sup> *See id.* at 1142-43.

<sup>128</sup> *See Ultramercial*, 100 U.S.P.Q.2d at 1142 (citing *Research Corp.*, 627 F.3d at 869).

<sup>129</sup> *See id.* at 1143.

<sup>130</sup> *See id.* at 1145.

<sup>131</sup> *See id.* at (citing *Diehr*, 450 U.S. at 187).

used as a form of currency.<sup>132</sup> The application involved many detailed steps “likely to require intricate and complex computer programming.”<sup>133</sup> Whereas in *Cybersource* the Court indicated that “data structures” might be sufficient structure to pass muster under § 101, here the Court was careful to state that it would not not define the level of programming required.<sup>134</sup> The claims were patent-eligible because, “[v]iewing the subject matter as a whole, the invention involves an extensive computer interface.”<sup>135</sup> The Court further distinguished the claims from those in *CyberSource* because they required, “among other things, controlled interaction with a consumer via an Internet website, something far removed from *purely* mental steps.”<sup>136</sup>

*Ultramercial* was similar to *Research Corp.* in that both opinions did not rely on the machine-or-transformation test, but rather cited other limiting criteria weighing towards patent eligibility. Both opinions were authored by Judge Rader, who appears to have taken the *Bilski* message to heart.

## **B. Abstract Ideas and Processes in Medicine**

Each of the three post-*Bilski* software patent eligibility cases above was heard by a panel of 3 judges, and the decision was unanimous. With the recent increase in patents that involve medical treatments, we often see claims that veer towards the abstract.<sup>137</sup> In these cases, where

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<sup>132</sup> See *id.* at 1144.

<sup>133</sup> See *id.* at 1144.

<sup>134</sup> See *id.* at 1144.

<sup>135</sup> See *Ultramercial*, 100 U.S.P.Q.2d at 1144.

<sup>136</sup> See *id.* at 1145 (emphasis in original).

<sup>137</sup> See Stephen Passagno, Note and Comment, *Prometheus and Bilski: Pushing the Bounds of Patentable Subject Matter in Medical Diagnostic Techniques with the Machine-or-Transformation Test*, 36 AM. J. L. & MED. 619, 622 (2010) (stating the recent debate in personalized medicine and patent law).

the process claims involve a correlation between treatments and effects, the decisions have been much more contentious.<sup>138</sup>

## 1. Prometheus

In *Bilski*, the Supreme Court vacated and remanded two recent decisions by the Federal Circuit that relied on the machine-or-transformation test.<sup>139</sup> The first was *Prometheus v. Mayo*.<sup>140</sup> Relying on the Supreme Court's recommendation to interpret § 101 in light of the *Benson*, *Flook*, and *Diehr* opinions, the Federal Circuit again found that the method claims were drawn to patentable subject matter because they cited transformative elements.<sup>141</sup>

In *Prometheus*, the disputed claims were premised on a particular application of the phenomenon of a correlation between metabolites and treatment: administration of a drug to a human being; determining the level of metabolites created by that drug; and then correlating the results with a need for treatment.<sup>142</sup> Another representative claim dispensed with the administration entirely, and claimed only the determination of the level of metabolites.<sup>143</sup> Prometheus marketed a product covered by these claims as a "PROMETHEUS Thiopourine Metabolites Test."<sup>144</sup> The Mayo Clinic purchased and uses these tests, but then in 2004 announced that they would use and sell their own version.<sup>145</sup> Prometheus sued, and Mayo moved for summary judgment that the patents were invalid for lack of patent eligibility under 35

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<sup>138</sup> See *id.* (noting that the use of correlations in diagnostic treatment claims is a contentious area of patent law).

<sup>139</sup> See *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 130 S.Ct. 3543, 3543 (2010) (granting certiorari, vacating judgment, and remanding to the U.S. Court of Appeals for the Federal Circuit for further consideration in light of *Bilski*).

<sup>140</sup> See *Prometheus Laboratories, Inc. v. Mayo Collaborative Services*, 628 F.3d 1347, 1355 (Fed. Cir. 2010).

<sup>141</sup> See Pessagno, *supra* note 137, at 631 (analyzing application of the machine-or-transformation test to the claims in *Prometheus*).

<sup>142</sup> See *id.* at 1350-51 (reciting the claims).

<sup>143</sup> See *id.*

<sup>144</sup> See *id.* at 1351.

<sup>145</sup> See *id.*

U.S.C. § 101.<sup>146</sup> Specifically, Mayo argued that the patents claimed natural phenomena, “and that the claims wholly preempt[ed]” their use.<sup>147</sup> The district court agreed, holding that the “administering” and “determining” steps were mere data-gathering, and the final step (“indicating a need”) was a mental step.<sup>148</sup> The claims, as a whole, cited no patent eligible process.

The Federal Circuit agreed that the final step was a mental step.<sup>149</sup> However, it reversed the decision of the district court, holding that both the “administering” and “determining” steps were transformative.<sup>150</sup> “The transformation is of the human body and of its components following the administration of a specific class of drugs and the various chemical and physical changes of the drugs’ metabolites that enable their concentrations to be determined.”<sup>151</sup> The administration of a drug transformed human blood into something new; the determining step required the use of a machine.<sup>152</sup> Therefore, the claims recited a patent-eligible method of treatment.<sup>153</sup> It is possible that the court was also swayed by the specificity of the claims; compared to the claims in *Classen* and *Myriad* discussed below, the claims in *Prometheus* were quite specific as to the drugs used and the levels of metabolites measured.<sup>154</sup> The Supreme Court has granted certiorari in *Prometheus*, and considering that this is a decision after a GVR order,

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<sup>146</sup> *See id.*

<sup>147</sup> *See Prometheus*, 628 F.3d at 1351.

<sup>148</sup> *See id.* at 1352.

<sup>149</sup> *See id.* at 1358.

<sup>150</sup> *See id.* at 1357-58.

<sup>151</sup> *Id.* at 1355.

<sup>152</sup> *See id.* at 1357. The court stated that some form of machine was necessary in order to carry out the “determining” step, e.g., high-pressure liquid chromatography. *See id.*

<sup>153</sup> *See Prometheus*, 628 F.3d at 1356.

<sup>154</sup> For example, the invalidated claims in *Myriad* involved only comparing two gene sequences; the claims in *Prometheus* recited a specific correlation between metabolites and a need for treatment. *See id.* at 1350-51; *Ass’n for Molecular Pathology v. U.S. Patent & Trademark Office*, 653 F.3d 1329, 1334-35 (Fed. Cir. 2011) (hereinafter *Myriad*).

the Court will likely either determine that there was no transformative element, or that the transformative elements were not sufficient to traverse the coarse eligibility filter of § 101.

## 2. Myriad

The Federal Circuit next heard a case involving gene patents.<sup>155</sup> In 1994, seven years before the human genome was fully sequenced, Myriad Genetics isolated and discovered the DNA sequences for two human genes (BRCA1 and BRCA2).<sup>156</sup> Mutated forms of these genes were shown to be highly correlated with the incidence of breast cancer in women.<sup>157</sup> Those with BRCA mutations had a 50-80% chance of developing breast cancer in their lifetime.<sup>158</sup> With the DNA sequences now known, it was possible to test patients for mutations in this gene and quickly assess the likelihood of developing breast cancer, providing opportunities for management and preemptive treatment.<sup>159</sup>

Myriad filed patent applications and was granted patents for the isolated DNA sequences, along with process claims for methods of screening and analyzing them for mutations.<sup>160</sup> Myriad soon offered clinical BRCA diagnostic and testing services.<sup>161</sup> Others followed, but they were quickly threatened with lawsuits for patent infringement and shut down.<sup>162</sup> Myriad offered

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<sup>155</sup> *See Myriad*, 653 F.3d at 1329.

<sup>156</sup> *See id.* at 1339.

<sup>157</sup> *See id.*

<sup>158</sup> *See id.*

<sup>159</sup> *See id.*

<sup>160</sup> *See id.* The claims were quite broad, including one directed to merely “analyzing” the sequence of a BRCA1 gene. *See id.* at 1334. Another claim was a method for determining whether a compound would serve as a potential treatment for breast cancer. *See id.* at 1335.

<sup>161</sup> *See id.* at 1339 (discussing history of the dispute).

<sup>162</sup> *See id.* at 1339-41.

only limited licenses to a few laboratories, effectively making it the sole provider of BRCA testing in the country.<sup>163</sup>

Nearly 13 years after Myriad's first patents issued, threatened laboratories and affected patient groups brought suit, seeking to have those patents invalidated.<sup>164</sup> The groups stated that due to Myriad's patents, they could not receive BRCA testing at a price that they could afford.<sup>165</sup> The district court granted the plaintiff's motion for summary judgment, invalidating all 15 of the disputed patents because they did not recite patentable subject matter under § 101.<sup>166</sup> The composition claims were "products of nature," as they were not "markedly different" from native DNA.<sup>167</sup> The method claims failed the machine-or-transformation test, as the claims which only recited "analyzing" were a simple mental process, and the screening method failed to cite a transformative step.<sup>168</sup>

The Federal Circuit reversed the district court's decision in part. The composition claims were valid because those DNA sequences did not exist in nature, and even though DNA was the "physical embodiment of information," patents had been issued for DNA molecules for nearly 30 years.<sup>169</sup> The claims for "comparing" and "analyzing sequences only recited mental processes, and therefore were within the abstractness exception to § 101.<sup>170</sup> There was no patentable application of the mental process; rather, it was the process itself that was claimed.<sup>171</sup> Whereas an application of "comparing" and "analyzing" sequences in a process may describe patentable

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<sup>163</sup> *See id.* at 1340.

<sup>164</sup> *See id.* at 1341 (noting response of patient and medical groups).

<sup>165</sup> *See Myriad*, 653 F.3d at 1342.

<sup>166</sup> *See id.*

<sup>167</sup> *See id.*

<sup>168</sup> *See id.*

<sup>169</sup> *Id.* at 1355.

<sup>170</sup> *See id.* at 1355-57.

<sup>171</sup> *See Myriad*, 653 F.3d at 1355-57.

subject matter, a process that contains only those two components is too broad and “recites nothing more than the abstract mental steps necessary to compare two different nucleotide sequences.”<sup>172</sup> The court distinguished its holding from that in *Prometheus*, stating that the “administering” and “determining” steps there were transformative.<sup>173</sup> In both *Prometheus* and *Myriad*, the machine-or-transformation test was dispositive.

The court saw differently for the screening claims. The steps of “growing” and “determining” were held to be transformative, as they involved the “physical manipulation of cells.”<sup>174</sup> Further, the claims were not so “manifestly abstract” as to claim only a scientific principle, because they were tied to the use of a specific gene.<sup>175</sup> Additionally, the claims presented “functional and palpable” applications in the field of biotechnology.<sup>176</sup>

What does all this mean? *Myriad* still has a 20 year monopoly on the BRCA1/2 DNA sequences and a method for screening potential cancer treatments. Patients looking for a second opinion regarding BRCA1/2 testing are out of luck, and research for therapies for mutated BRCA1/2 genes cannot proceed without *Myriad*’s consent.<sup>177</sup> *Myriad* is a clear illustration of the inherent tension between patent law and medicine; the former grants a 20 year exclusive monopoly, whereas medical ethics stresses the need to openly share discoveries and advances in the field so as to benefit and help as many people as possible.<sup>178</sup>

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<sup>172</sup> See *id.* at 1356.

<sup>173</sup> See *id.* at 1357.

<sup>174</sup> See *id.*

<sup>175</sup> See *id.* at 1358.

<sup>176</sup> See *id.*

<sup>177</sup> See *Myriad*, 653 F.3d at 1340. It is possible that the recent Supreme Court decision in *eBay* would allow other groups to use the method by paying a judicially determined licensing fee. See *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006). However, for the moment it appears that *Myriad* will be the sole provider of BRCA testing for the extent of its patent term.

<sup>178</sup> See Pessagno, *supra* note 137, at 620 (examining the place of medical diagnostic techniques in patent law).

### 3. Classen

Transformations and applications of abstract ideas are both factors that suggest a process is within a category of patentable subject matter. In a subsequent case involving medical treatments and correlations, the Federal Circuit considered patents that covered a process of choosing vaccinations for one group based on a comparison of the effects of previous vaccinations in another.<sup>179</sup> Dr. John Classen patented applications of his doctoral thesis regarding his discovery that infant immunization schedules correlated with immune-mediated disorders such as diabetes, asthma, and cancer.<sup>180</sup> The assignee of his patents, Classen Immunotherapies, Inc. brought suit against Biogen IDEC and Merck for infringement.<sup>181</sup> Three patents were identified as representative.<sup>182</sup> The defendants moved for summary judgment, arguing that the patents were drawn to ineligible subject matter under 35 U.S.C. § 101.<sup>183</sup> The district court found all three patents invalid because they only recited a mental process: “thinking about the risks of vaccination.”<sup>184</sup> On appeal, the Federal Circuit affirmed, because the methods did not satisfy either prong of the machine-or-transformation test.<sup>185</sup> The decision was vacated and remanded by the Supreme Court after its decision in *Bilski*.<sup>186</sup>

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<sup>179</sup> See *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057 (Fed. Cir. 2011).

<sup>180</sup> See *id.* at 1060. “The patents state Dr. Classen’s thesis that the schedule of infant immunization for infectious diseases can affect the later occurrence of chronic immune-mediated disorders such as diabetes, asthma, hay fever, cancer, multiple sclerosis, and schizophrenia, and that immunization should be conducted on the schedule that presents the lowest risk with respect to such disorders.” *Id.*

<sup>181</sup> See *id.* at 1059.

<sup>182</sup> See *id.* at 1060.

<sup>183</sup> See *id.* at 1062.

<sup>184</sup> See *id.* at 1059-60.

<sup>185</sup> See *Classen Immunotherapies, Inc. v. Biogen IDEC*, 304 Fed. Appx. 866 (affirming the district court’s grant of summary judgment in light of the *In re Bilski* opinion).

<sup>186</sup> See *Classen Immunotherapies, Inc. v. Biogen IDEC*, 130 S.Ct. 3541 (2010) (granting certiorari and vacating judgment after *Bilski*).

Classen's patented methods covered the screening of immunization schedules by comparing long term data that included both immunization schedules for infants and their later development of immune-mediated disorders.<sup>187</sup> Classen stated that his patent is infringed whenever a person reviews relevant information about comparing the effects of vaccination schedules on the development of later immune disorders.<sup>188</sup> Another Classen patent is infringed whenever a person is immunized after a health care provider first compares immunization schedules and their effects, and then picks the best one.<sup>189</sup>

On remand, the Federal Circuit relied heavily on its post-*Bilski* precedent. It affirmed the invalidity of the '283 patent, as it claimed a scientific principle.<sup>190</sup> The steps could all be performed in the mind, so the patent was drawn to a mental process.<sup>191</sup> However, the further physical step of "immunization" in two of the patents was sufficient to "traverse[] the coarse eligibility filter of § 101."<sup>192</sup> Noting that the presence of mental steps alone does not remove an invention from § 101 eligibility, the court listed several justifications supporting its conclusion.<sup>193</sup> Just as in *Research Corp.*, the claims were directed to a "specific, tangible application."<sup>194</sup> The invention was not an abstract idea; rather, it was an application of an abstract idea, just as the Arrhenius equation was used to cure rubber in *Diehr*.<sup>195</sup> According to

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<sup>187</sup> See *Classen*, 659 F.3d at 1060.

<sup>188</sup> See *id.* For example, Classen asserted that Merck was guilty of inducing infringement when it distributed books to physicians entitled "What Every Parent Should Know about Vaccines", as parents reviewing the information would be direct infringers. See *id.* at 1067.

<sup>189</sup> See *Classen*, 659 F.3d at 1061. In addition to the screening and comparing steps, the other two patents in suit included a further physical step of immunizing a subject according to a modified schedule. See *id.*

<sup>190</sup> See *id.* at 1067-68.

<sup>191</sup> See *id.*

<sup>192</sup> See *id.* at 1066.

<sup>193</sup> See *id.* at 1066-68.

<sup>194</sup> See *id.* at 1066.

<sup>195</sup> See *id.*

the CAFC, the lone additional step of immunization according to the schedule was not mere post-solution activity.

*Classen* was heard by Judges Rader, Newman, and Moore, with the opinion written by Newman. Similar to the earlier Rader opinions in *Research Corp.* and *Ultramercial*, other limiting criteria for patent eligibility were primarily discussed, with only a short paragraph involving the machine-or-transformation test.<sup>196</sup> Judge Rader provided additional views. Even though the claims were broad and “appear to raise cogent questions of substantive patentability, patentability of subject matter that is facially within the classes set forth in § 101 is most reliably resolved in accordance with the conditions of §§ 102, 103, and 112.”<sup>197</sup> These sections provide further safeguards against unacceptably broad claims; therefore “[this] court should decline to accept invitations to restrict subject matter eligibility.”<sup>198</sup> Rader noted that an expansive interpretation of § 101 helped promote the United States as a world leader in biotechnology innovation, and that “eligibility restrictions can send innovation investment elsewhere.”<sup>199</sup>

#### IV. Analysis

In the *Bilski* opinion, Justice Kennedy advised the Federal Circuit to develop new limiting criteria for patentable subject matter.<sup>200</sup> The machine-or-transformation test, while a useful clue, is not the sole test for patent eligibility; rather, “[s]ection 101’s terms suggest that

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<sup>196</sup> See *id.* at 1068 (holding that the use of the machine-or-transformation test in *Prometheus* had no bearing on the result in *Classen*).

<sup>197</sup> *Classen*, 659 F.3d at 1066.

<sup>198</sup> *Id.* at 1074 (Rader, J., additional views).

<sup>199</sup> *Id.* at 1075.

<sup>200</sup> See *Bilski*, 130 S.Ct. at 3231.

new technologies may call for new inquiries.”<sup>201</sup> The Federal Circuit’s response has been mixed. Despite this guidance from the Supreme Court, the Federal Circuit has continued to apply the machine-or-transformation test as a definitive test for patent eligibility. Additionally, there still appears to be some discord among the Judges themselves. The presence of Judge Rader can almost raise a presumption of patent eligibility, and his opinions lack any discussion of the machine-or-transformation test.<sup>202</sup> Despite this, the court has attempted to apply further limiting criteria, but they suffer from being vague and hard to define.

### **A. Continued Reliance on the Machine-or-Transformation Test**

What did the Supreme Court mean in *Bilski* when it declared that the machine-or-transformation test was still a ‘useful clue’? The Federal Circuit has mostly taken the line that satisfying this test is still a sufficient condition for patent eligibility. After *Bilski*, the Federal Circuit has found that any claims that successfully pass the test are patent-eligible, and those that fail are not.

The test was heavily relied on in *Prometheus*. The Federal Circuit appears to have been swayed by the transformative elements of both administering drugs and determining the levels of metabolites produced; “[t]he transformation is of the human body and of its components following the administration of a specific class of drugs”.<sup>203</sup> Similarly, in *Classen* those claims that recited the administration of a drug to a person were patent-eligible as a transformation.<sup>204</sup> In *Myriad*, the court began its analysis of the method claims by starting with the machine-or-

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<sup>201</sup> See *id.* at 3228 (citing *Benson*, 93 S.Ct. 253).

<sup>202</sup> Judge Rader authored both the *Research Corp.* and *Ultramercial* opinions.

<sup>203</sup> See *Prometheus*, 628 F.3d at 1355-56 (affirming that the claimed method satisfies the transformation prong of the machine-or-transformation test).

<sup>204</sup> See *Classen*, 659 F.3d at 1068-69 (evaluating *Classen*’s argument that his claims are transformative).

transformation test, and found that the ‘growing’ step was transformative, and therefore those claims were patent-eligible.<sup>205</sup> The claims lacking this step were not.<sup>206</sup> Additionally, the lack of a machine or transformation was the dispositive factor in ruling the claims invalid in *CyberSource*.<sup>207</sup>

Even post-*Bilski*, whenever the Federal Circuit finds a machine or transformation, it will find a patent-eligible process. Until the Federal Circuit (or Supreme Court) identifies a process that is either tied to machine or constitutes a transformation and is still not patent-eligible, the machine-or-transformation test is still the *de facto* test for § 101 eligibility. The district courts and PTO have noticed, and are following the Federal Circuit’s lead by continuing to apply the machine-or-transformation test as a “key indicator of patentability.”<sup>208</sup>

## **B. Differences in Opinion**

While the opinions cited above all based their holding of patentability on whether either prong of the machine-or-transformation test was met, the opinions written by Judges Rader and Newman (*Research Corp.*, *Ultramercial*, and *Classen*) are of a different breed. The court did not even apply the machine-or-transformation test in *Research Corp.*, instead simply held that the claims at issue were not abstract.<sup>209</sup> Only a week later, the opinion issued in *Prometheus* indicated that the machine-or-transformation test was still “the clue to the patentability of a

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<sup>205</sup> See *Myriad*, 653 F.3d at 1357-58 (applying machine-or-transformation test to a method of screening potential cancer therapeutics).

<sup>206</sup> See *id.* at 1356 (noting lack of transformative element in the claims for ‘comparing’ and ‘analyzing’).

<sup>207</sup> See *CyberSource*, 99 U.S.P.Q.2d at 1694 (finding no fault in the district court’s analysis of failure to meet either prong of the machine-or-transformation test).

<sup>208</sup> See Mark A. Lemley, Michael Risch, Ted Sichelman, and R. Polk Wagner, *Life After Bilski*, 63 STAN. L. REV. 1315, 1319 (2011) (discussing the persistence of the machine-or-transformation test).

<sup>209</sup> See *id.* at 1321-22 (noting that the machine-or-transformation test may not dominate the post-*Bilski* landscape).

process claim.”<sup>210</sup> This was followed by *CyberSource*, where the Court affirmed the lower court’s use of the test, but provided additional reasons for removing the contested claims from patent eligibility.<sup>211</sup> In *Classen*, the claims were found to traverse the “coarse eligibility filter of § 101” because they recited a specific application of an abstract scientific principle, and the opinion distinguished itself from *Prometheus*’ use of the machine-or-transformation test.<sup>212</sup> *Myriad* then held the transformation prong as determinative, while *Ultramercial* (like *Research Corp.*) ignored the test entirely. The contradictory statements in these opinions suggest that the role of the machine-or-transformation test will continue to be up for debate.<sup>213</sup>

### **C. Further Limiting Criteria**

In each of these opinions, the Federal Circuit supplemented any analysis based on the machine-or-transformation test with other rationales. In addition to the machine-or-transformation test, the criteria that the Federal Circuit has developed can be used to support a conclusion of whether an invention is really just an abstract idea. Ideally, once the tests are applied, abstractness is determined considering the invention, “as a whole, including the scope asserted by the patentee.”<sup>214</sup>

#### **1. Functional and Palpable Applications**

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<sup>210</sup> See *id.* at 1322.

<sup>211</sup> See *CyberSource*, 99 U.S.P.Q.2d at 1695 (providing further analysis beyond the use of the machine-or-transformation test).

<sup>212</sup> See *Classen*, 659 F.3d at 1068-69 (

<sup>213</sup> See *id.*

<sup>214</sup> See *id.* at 1068.

One new limiting criterion that the Federal Circuit has used is whether a process has “functional and palpable applications.”<sup>215</sup> In *Research Corp.*, the process for half-toning images, while existing only in software, addressed a need in the computer technology market.<sup>216</sup> The process improved on technologies already in the marketplace, suggesting that it is “not likely to be so abstract.”<sup>217</sup> Similarly, in *Classen* the Federal Circuit supported its conclusion of validity by stating that the new process of immunization had a “specific and tangible application,”<sup>218</sup> and in *Myriad*, claims for growing cells in the presence of a drug presented “functional and palpable” applications in the field of biotechnology.<sup>219</sup> In these cases, the Federal Circuit supported its conclusion of patentability for a process by using corporeal terms to describe them.<sup>220</sup> The problem with this criterion is that it is vague; what exactly makes a patent claim functional or palpable? The court has yet to use the ‘functional and palpable’ analysis for a claim that was not patent eligible, so there are no clear examples.

## 2. Abstract Ideas

Abstract ideas, by themselves, are not patentable subject matter; however, an application of an abstract idea is.<sup>221</sup> This simple maxim has been discussed in case law since the first patent act.<sup>222</sup> The Federal Circuit continues to apply this doctrine in each applicable § 101 case.<sup>223</sup> For example, in *Research Corp.*, the patentees did “not seek to patent a mathematical formula.

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<sup>215</sup> See e.g., *Research Corp.*, 627 F.3d at 868.

<sup>216</sup> See *id.* at 868-69.

<sup>217</sup> See *id.* Market success was also listed as a factor in this regard. See *id.*

<sup>218</sup> See *Classen*, 659 F.3d at 1066.

<sup>219</sup> See *Myriad*, 653 F.3d at 1358.

<sup>220</sup> See *Research Corp.*, 627 F.3d at 868; *Classen*, 659 F.3d at 1066; *Myriad*, 653 F.3d at 1358.

<sup>221</sup> See *Diehr*, 450 U.S. at 187-88.

<sup>222</sup> See e.g., *Tatham*, 55 U.S. at 174-75; *Fuller*, 94 U.S. 288; *Burr*, 1 Wall. at 570.

<sup>223</sup> See e.g., *Research Corp.*, 627 F.3d at 859; *Classen*, 649 F.3d at 1057.

Instead, they seek patent protection for a process of halftoning in computer applications.”<sup>224</sup> This contrast was highlighted in *Classen*, where the claim for “collecting” and “comparing” was abstract.<sup>225</sup> However, a similar claim that included the further element of immunization was held to be patent eligible as a practical application.<sup>226</sup> As long as a claim is for an application of an abstract idea, and does not merely recite post-solution uses, it will likely be upheld as patentable subject matter by the Federal Circuit.<sup>227</sup>

The issue here is to identify the difference between a valid application and an insignificant post-solution activity. The analysis is still troublesome, as the distinction between *Flook* and *Diehr* is not clear. The presumption at the Federal Circuit appears to be in the favor of an application. In order for the “abstract idea” exception to apply, it should “exhibit itself so manifestly as to override the broad statutory categories of eligible subject matter.”<sup>228</sup> The court seems to indicate that abstractness should be something that is so overwhelmingly obvious that no reasonable examiner should have allowed the claim in the first place. The result is the allowance of claims that toe the line, or subsume an abstract idea - depending on your point of view. For example, in *Classen*, Judge Moore lamented that *Classen* was essentially given a monopoly over the scientific method.<sup>229</sup> Even though the claims included a further physical step of vaccination, this limitation was so minimal that anyone who compared two immunized groups

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<sup>224</sup> See *Research Corp.*, 627 F.3d at 869 (citing *Diehr*, 450 U.S. at 187).

<sup>225</sup> See *Classen*, 659 F.3d at 1064.

<sup>226</sup> See *id.*

<sup>227</sup> See *Benson*, 409 U.S. at 191-92. “Similarly, insignificant post-solution activity will not transform an unpatentable principle into a patentable process.” *Id.*

<sup>228</sup> See *Classen*, 659 F.3d at 1065 (citing *Research Corp.*, 627 F.3d at 868); *Myriad*, 99 U.S.P.Q.2d at \*23.

<sup>229</sup> See *Classen*, 659 F.3d at 1076.

and then picked one would infringe.<sup>230</sup> “These are exactly the type of ‘abstract intellectual concepts’ that are the ‘basic tools of scientific and technological work.’”<sup>231</sup> Moore would have been satisfied if Classen instead claimed “using a new and specific immunization schedule”, not the use of all of them.<sup>232</sup> The majority’s test was not understandable; the claims in both *Bilski* and *Flook* had specific applications in the marketplace, and there has been no guidance in determining whether something is “functional” or “palpable.”<sup>233</sup> Classen claimed the scientific method, a fundamental tool “for all scientific inquiry,” and “[t]ying an abstract idea to a tangible result or a specific field of endeavor does not make the idea any less abstract.”<sup>234</sup>

### 3. Mental Processes

Another reason for excluding a process from patentable subject matter is the mental processes doctrine, as used in both *Benson* and *Flook*.<sup>235</sup> A claim that covers simple mental processes is not patentable, because it would subsume the “basic tools of scientific and technological work”<sup>236</sup> and the “application of [only] human intelligence to the solution of practical problems is no more than a claim to a fundamental principle.”<sup>237</sup> For example, in *CyberSource*, the Federal Circuit applied the holdings from *Benson* and *Flook* to find the claims at issue invalid.<sup>238</sup> The method only required one to “obtain and compare intangible data pertinent to business risks,” so it recited only mental steps that could also be done with pencil

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<sup>230</sup> See *id.* at 1078. “Compare two substances to determine which tastes sweeter. Compare two cups of coffee to determine which is stronger. . . . [T]hese examples are more concrete than the Classen claims in that I tell you what to look for – sweetness or strength.” *Id.*

<sup>231</sup> *Id.* (quoting *Gottschalk*, 409 U.S. at 67).

<sup>232</sup> See *id.* at 1080.

<sup>233</sup> See *id.* at 1081.

<sup>234</sup> *Id.* at 1081. “To hold otherwise would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection.” *Id.* (quoting *Diehr*, 450 U.S. at 192).

<sup>235</sup> See *Benson*, 409 U.S. at 67 (holding that mental processes are not patentable).

<sup>236</sup> See *id.*

<sup>237</sup> See *Bilski*, 545 F.3d at 965.

<sup>238</sup> See *CyberSource*, 99 U.S.P.Q.2d at 1695.

and paper.<sup>239</sup> So, even when processes are performed by a machine, if the processes therein could also be performed with just a pencil and a pad of paper, they may be held invalid under the mental steps doctrine. This would seem to preclude software from patentability, because as a set of instructions or algorithms, it can also be performed in this manner - though it will take much longer to complete! The Federal Circuit resolves this quandary by holding that process patents for software should be sufficiently complex such that a computer is required to perform them, though some other physical element should also be recited in the claim.<sup>240</sup> This approach was exemplified by the holding in *Ultramercial*. By embodying software claims in a manner that required “intricate and complex computer programming” and the exchange of information, the process claims were not merely mental steps, but rather a patentable application of an abstract idea.<sup>241</sup> Though quite broad, the claims as written did not “render the claimed subject matter impermissibly abstract.”<sup>242</sup>

Mental steps may also be applied in an analysis of non-software related methods. Many of the claims in the medical treatment cases above involved mental steps of “comparing,” “analyzing,” and “determining.”<sup>243</sup> In *Classen*, the Federal Circuit initially voided all of the plaintiff’s claims as they did not pass the machine-or-transformation test.<sup>244</sup> On remand from the Supreme Court, some of the claims were reconsidered valid as an application of an abstract idea.<sup>245</sup> Though the methods in all of the claims involved mental steps, their presence alone was not sufficient to negate patent eligibility; the addition of a physical step of immunization was

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<sup>239</sup> See *id.* at 1695.

<sup>240</sup> See *id.* at 1698-99 (distinguishing the holding from *Research Corp.*)

<sup>241</sup> See *Ultramercial*, 100 U.S.P.Q.2d at \*5.

<sup>242</sup> See *id.* at \*6.

<sup>243</sup> See *e.g.*, *Classen*, 659 F.3d at 1060-61; *Myriad* 653 F.3d at 1334-35; *Prometheus*, 628 F.3d at 1350.

<sup>244</sup> See *Classen*, 659 F.3d at 1062-63.

<sup>245</sup> See *id.* at 1064-65.

sufficient to pass the coarse eligibility filter of § 101.<sup>246</sup> Similarly, in *Myriad*, claims of mental steps that included a physical, transformative element (“growing host cells transformed with an altered BRCA1 gene”) were patentable subject matter, whereas claims comprising only “comparing” and “analyzing” were unpatentable, abstract mental processes.<sup>247</sup>

#### 4. A Coarse Eligibility Filter? – or Changing the Subject

One approach to dealing with § 101 issues and the application of the machine-or-transformation test is to ignore them. Each of the opinions above that were heard by Judge Rader speak of a “coarse eligibility filter,” one that is easily met by any claim that is either a process, machine, manufacture, or composition of matter, as long as it is not subject to the three judicially created exceptions.<sup>248</sup> This is consistent with the breadth of patentable subject matter emphasized by the Supreme Court.<sup>249</sup> While anything under the sun made by man is potentially patentable, § 101 is only a coarse eligibility filter, with the further statutory requirements of §§ 102, 103, and 112 for patentability.<sup>250</sup> There is no need to consider whether a process is tied to a machine or transforms an article; it is presumed patent eligible unless it clearly falls within one of the exceptions. For example, in *Research Corp.*, the Court concluded its eligibility analysis by reminding us of the enablement requirement.<sup>251</sup> To secure a patent, an application must state the invention with sufficient clarity to put the public in possession of the invention.<sup>252</sup> An invention that passes the “coarse eligibility filter may nonetheless be invalid as indefinite

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<sup>246</sup> See *id.* at 1065.

<sup>247</sup> See *Myriad*, 99 U.S.P.Q.2d at \*23.

<sup>248</sup> See *Ultramercial*, 100 U.S.P.Q.2d at \*2 (elaborating on the permissive nature of § 101).

<sup>249</sup> See 35 U.S.C. §§ 102, 103, 112.

<sup>250</sup> See *Ultramercial*, 100 U.S.P.Q.2d at \*2 (citing *Research Corp.*, 627 F.3d at 869).

<sup>251</sup> See *Research Corp.*, 627 F.3d at 869.

<sup>252</sup> See 35 U.S.C. § 112.

because the invention would ‘not provide sufficient particularity and clarity to inform skilled artisans of the bounds of the claim.’”<sup>253</sup>

Another approach is to delay or avoid § 101 issues by analyzing the other criteria of patentability first.<sup>254</sup> Patent validity can be thought of as a chain or a circuit.<sup>255</sup> If any elements of the chain are not satisfied, it breaks and the patent is not valid.<sup>256</sup> In the interests of avoiding the § 101 issue, an examiner or court does not need to follow the statutes by lexical priority.<sup>257</sup> If a claim is questionable under § 101 but clearly invalid by § 102, then it should be resolved on the § 102 ground.<sup>258</sup> § 101 can present complex and difficult issues that often involve policy concerns.<sup>259</sup> Though not a constitutional question, the doctrine of avoidance often used by the Supreme Court to help courts conserve legitimacy can also be used for § 101.<sup>260</sup> Often patent claims that suffer from § 101 issues will have other issues with the further restrictions of §§ 102, 103, and 112. In what may be a sign of change, the Board of Patent Appeals and Interferences recently invalidated a claim by first considering whether it was indefinite under § 112, and then considering subject matter eligibility.<sup>261</sup> If the current controversy over § 101 continues for the foreseeable future, this may be the best option for resolving disputes.

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<sup>253</sup> See *Research Corp.*, 627 F.3d at 869 (citing *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1371 (Fed. Cir. 2008)).

<sup>254</sup> See Dennis Crouch and Robert P. Merges, *Operating Efficiently Post-Bilski by Ordering Patent Doctrine Decision-Making*, 25 Berkeley Tech. L.J. 1673, 1681-8.

<sup>255</sup> See *id.* at 1680-81.

<sup>256</sup> See *id.*

<sup>257</sup> See *id.*

<sup>258</sup> See *id.*

<sup>259</sup> See *id.* at 1683.

<sup>260</sup> See *id.*

<sup>261</sup> See *BPAI: First Decide Indefiniteness, then Subject Matter Eligibility*, PATENTLYO.COM, March 12, 2012, archived at <http://www.webcitation.org/66d1RuNhm> (discussing BPAI approach in *Ex parte Adelman*). The avoidance approach is attractive for several reasons, including that the machine-or-transformation test itself is problematic; the test “contains a number of ambiguities, leads to some bizarre results, and poorly tracks the stated goal of preventing the patenting of abstract ideas.” See Lemley, *supra* note 208 at 1323-24.

## **V. Conclusion**

There is no bright line test for determining whether a given process is patentable subject matter. The Federal Circuit attempted to create one, but was quickly rebuked by the Supreme Court. However, the tests discussed are all still useful in a multi-factored analysis. While it is established that an abstract idea is an exception to the broad array of patent eligible subject matter, applications of that abstract idea may be sufficient. Processes that have functional and palpable applications in the marketplace suggest patentability; however, a process that is composed of mental steps alone is not. Sometimes it is easier to ignore the issue and invalidate a patent on other grounds. Ultimately, the decision for patentability for any process rests in the minds of the judiciary, who need to be convinced that the invention as a whole is not so manifestly abstract as to remove itself from patent eligibility.