

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

---

Request for Comments Related to  
2019 Revised Patent Subject Matter Eligibility Guidance

---

Docket No. PTO-P-2018-0053

---

**COMMENTS OF PROFESSOR ANDREW CHIN  
REGARDING PRONG TWO OF REVISED STEP 2A**

---

PROFESSOR ANDREW CHIN\*  
University of North Carolina School of Law†  
160 Ridge Road, CB #3380  
Chapel Hill, NC 27599-3380  
Reg. No. 47,486  
chin@unc.edu

March 8, 2019

---

\* The views expressed in these comments are solely those of the author, whose only interest is in the development of coherent patent examination procedures that conform to the Supreme Court's patent-eligible subject matter jurisprudence.

† Institutional affiliation is provided for identification purposes only.

## RECOMMENDATION

**Analysis of whether a claim “integrates a judicial exception into a *practical* application” under Prong Two of Revised Step 2A should incorporate an explicit determination as to whether the claimed invention’s result or effect (1) follows necessarily as a logical consequence of the judicial exception or (2) is a matter of *a posteriori* (i.e., experiential) knowledge that can best be verified empirically by practicing the claimed invention.**

## STATEMENT

**I. The revised guidance for Prong Two of Revised Step 2A focuses on preemption concerns while neglecting the gatekeeping function of subject matter eligibility that has also perennially informed the Supreme Court’s § 101 jurisprudence. The proposed test would address this gatekeeping function while also equipping examiners with a clear and precise criterion for the “practical application” requirement.**

As incorporated into the current MPEP,<sup>1</sup> the USPTO’s Subject Matter Eligibility Guidance<sup>2</sup> describes for examiners the two-part subject matter eligibility test laid out in the Supreme Court’s *Mayo* and *Alice* decisions: first, “to determine whether the claims are directed to an abstract idea, a law of nature, or a natural phenomenon (i.e., a judicial exception),”<sup>3</sup> and second, if so, “to determine whether the claim recites additional elements that amount to significantly more than the judicial exception.”<sup>4</sup> The Guidance instructs that this “is the only test that should be used to evaluate the eligibility of claims under examination,”<sup>5</sup> and reframes the analysis as a flowchart that examiners should use to sequence the necessary inquiries. In this analysis, the first *Alice/Mayo* inquiry is framed as Step 2A, in which examiners should find “[a] claim is directed to a judicial exception when a law of nature, a natural phenomenon, or an abstract idea is recited (i.e., set forth or described) in the claim.”<sup>6</sup>

---

<sup>1</sup> U.S. Patent & Trademark Office, MANUAL OF PATENT EXAMINING PROCEDURE (R-08.2017, Jan. 2018) [hereinafter “MPEP”].

<sup>2</sup> *Id.* at § 2106.

<sup>3</sup> *Id.*

<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> *Id.* at § 2106.04(II).

The 2019 Revised Patent Subject Matter Eligibility Guidance<sup>7</sup> expressly supersedes the MPEP’s description of Step 2A “to the extent it equates claims ‘reciting’ a judicial exception with claims ‘directed to’ a judicial exception.”<sup>8</sup> Under the revised guidance, an examiner should still determine whether the claim recites a judicial exception (Prong One).<sup>9</sup> If it does, the examiner should “evaluate whether the claim as a whole integrates the recited judicial exception into a practical application of the exception” (Prong Two).<sup>10</sup>

According to the revised guidance, the Prong Two inquiry functions as a check against preemption of the judicially excluded subject matter through artful claim drafting:

A claim that integrates a judicial exception into a practical application will apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception.<sup>11</sup>

In this regard, the “integrat[ion] ... into a practical application” requirement is a formulation of the longstanding principle that a claim for the use of a judicial exception in “a certain specified condition suited to” a practical application does not preempt all uses of the judicial exception.<sup>12</sup> But this requirement, even on its face, calls for more than a check against preemption. It also requires a patent-eligible application of a judicial exception to be of a *practical* kind.

As the Supreme Court has proclaimed through the centuries, “It is for the discovery or invention of some *practical* method or means of producing a beneficial result or effect, that a patent is granted, and not for the result or effect itself.”<sup>13</sup> To ensure that a claim has integrated a recited judicial

---

<sup>7</sup> U.S. Patent & Trademark Office, *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) [hereinafter “2019 Revised Guidance”].

<sup>8</sup> *Id.* at 51.

<sup>9</sup> *Id.* at 54.

<sup>10</sup> *Id.*

<sup>11</sup> *Id.* at 53.

<sup>12</sup> *See* *Dolbear v. American Bell Tel. Co.*, 126 U.S. 1, 534-35 (1888) (“In the present case the claim is not for the use of a current of electricity in its natural state as it comes from the battery, but for putting a continuous current in a closed circuit into a certain specified condition suited to the transmission of vocal and other sounds, and using it in that condition for that purpose.”); *Gottschalk v. Benson*, 409 U.S. 63, 69 (1972) (citing *Dolbear*, 126 U.S. at 535) (“Bell’s claim, in other words, was not one for all telephonic use of electricity”).

<sup>13</sup> *Diamond v. Diehr*, 450 U.S. 175, 182 n.7 (1981) (quoting *Corning v. Burden*, 56 U.S. 252, 268 (1853)) (emphasis added).

exception into a *practical* method or means that applies the exception to produce a beneficial result, the Prong Two inquiry should incorporate a determination as to whether the claimed invention's result or effect (1) follows necessarily as a logical consequence of the judicial exception or (2) is a matter of *a posteriori* (i.e., experiential) knowledge that can best be verified empirically by *practicing* the claimed invention.<sup>14</sup> The proposed test would provide a clear and precise criterion to aid examiners in applying the instruction to "evaluate whether the claim as a whole integrates the recited judicial exception into a *practical* application of the exception."<sup>15</sup>

The proposed test would also address the *gatekeeping* function of § 101's subject matter requirement; i.e., in obviating inapposite analyses under the other statutory tests for patentability. The Supreme Court in *Parker v. Flook*<sup>16</sup> stated this gatekeeping function as the "obligation to determine what type of discovery is sought to be patented," which "must precede the determination of whether that discovery is, in fact, new or obvious."<sup>17</sup> Soon thereafter, in *In re Bergy*,<sup>18</sup> Judge Giles Rich formulated his famous "three doors" account of patentability, in which the § 101 eligibility inquiry is the first door whose threshold requirements precede all other patentability considerations.<sup>19</sup> As Chief Judge Glenn Archer explained this doctrinal precedence in *In re Alappat*,<sup>20</sup> subject matter eligibility "lays the predicate for the other provisions of the patent law"<sup>21</sup> and thereby obviates inapposite inquiries under those provisions:

If Einstein could have obtained a patent for his discovery that the energy of an object at rest equals its mass times the speed of light squared, how would his discovery be meaningfully judged for nonobviousness, the *sine qua non* of patentable invention [under § 103]? When is the abstract idea "reduced to practice" as opposed to being "conceived" [under § 102(g)]? What conduct amounts to the "infringement" of another's idea [under § 271]?<sup>22</sup>

As Part II will explain, this decade's Supreme Court jurisprudence on the patent-eligible subject matter requirement that occasioned the 2014 Interim

---

<sup>14</sup> The doctrine of constructive reduction to practice allows the filed patent disclosure to stand in for empirical observations of the claimed invention in actual practice. See generally John F. Duffy, *Reviving the Paper Patent Doctrine*, 98 CORNELL L. REV. 1359, 1368-71 (2013) (describing the doctrine's emergence).

<sup>15</sup> 84 Fed. Reg. at 54 (emphasis added).

<sup>16</sup> 437 U.S. 584 (1978).

<sup>17</sup> See *id.* at 593.

<sup>18</sup> 596 F.2d 952 (C.C.P.A. 1979) (Rich, J.).

<sup>19</sup> See *id.* at 960.

<sup>20</sup> *In re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994) (citing *Parker v. Flook*, 437 U.S. at 593) (Archer, C.J., concurring in part and dissenting in part).

<sup>21</sup> *Id.* at 1553.

<sup>22</sup> *Id.*

Guidance<sup>23</sup> and the 2019 Revised Guidance exemplifies not only continuing concerns about the preemption of judicial exceptions through artful claim drafting, but the requirement's perennial, unique, and crucial role in obviating inapposite inquiries under the other statutory tests for patentability.

**II. The Supreme Court used § 101's subject matter requirement in *Bilski*, *Alice*, and *Mayo* to obviate inapposite analyses under the other statutory tests for patentability where the claimed invention's result or effect followed necessarily as a logical consequence of the judicial exception.**

In the only part of the Federal Circuit's splintered *In re Bilski* opinion that the Supreme Court cited with approval, then-Chief Judge Randall Rader advocated a straightforward articulation of the abstract-ideas exception's gatekeeping function over the Federal Circuit majority's "page after page" devoted to developing the machine-or-transformation test. Judge Rader explained that "an abstract claim would appear in a form that is not even susceptible to examination against prior art under the traditional tests for patentability."<sup>24</sup> Thus Judge Rader's conclusion that *Bilski*'s method was "either a vague economic concept or obvious on its face"<sup>25</sup> was not based on an examination for nonobviousness under § 103 against prior art references, but on the more basic observation that "[h]edging is a fundamental economic practice long prevalent in our system of commerce and taught in any introductory finance class."<sup>26</sup>

The Supreme Court majority in *Bilski v. Kappos*<sup>27</sup> cited Judge Rader's criticism of the machine-or-transformation test,<sup>28</sup> quoted his characterization of hedging as "a fundamental economic practice" in support of its abstract-idea analysis,<sup>29</sup> and ultimately adopted his approach. Using the § 101 subject matter requirement to obviate any § 102 and § 103 analysis, the Court declined to subject *Bilski*'s claims "to examination against prior art under the traditional tests for patentability."<sup>30</sup> Instead of reviewing prior art, the Court consulted several then-recent textbooks, none of which predated *Bilski*'s April

---

<sup>23</sup> U.S. Patent & Trademark Office, *2014 Interim Guidance on Patent Subject Matter Eligibility*, 79 Fed. Reg. 74,618 (Dec. 16, 2014).

<sup>24</sup> *In re Bilski*, 545 F.3d 943, 1013 (Fed. Cir. 2008) (Rader, C.J., dissenting).

<sup>25</sup> *Id.*

<sup>26</sup> *See id.*

<sup>27</sup> 561 U.S. 593 (2010).

<sup>28</sup> *See id.* at 606 (citing *In re Bilski*, 545 F.3d at 1015 (Rader, J., dissenting)).

<sup>29</sup> *See id.* at 611 (quoting *In re Bilski*, 545 F.3d at 1013 (Rader, J., dissenting)).

<sup>30</sup> 545 F.3d at 1013 (Rader, J., dissenting).

16, 1996 priority date,<sup>31</sup> but all of which supported the Court’s characterization of “the basic concept of hedging” as an abstract financial idea “taught in any introductory finance class.”

Prefiguring the *Alice/Mayo* test, the *Bilski* majority’s claim-specific analysis amounted to a determination that the elements of representative claims 1 and 4 did not add “significantly more”<sup>32</sup> to the judicially excluded abstract “concept of hedging.”<sup>33</sup> In claim 1, the concept of hedging is “described”; in claim 4, the concept of hedging is “reduced to a mathematical formula.”<sup>34</sup> The Court thus determined that any results or effects produced by the inventions of claims 1 and 4 follow necessarily as logical or mathematical consequences of “the basic concept of hedging,” wherein claims 1 and 4 (and their supporting disclosures) serve merely to “explain” these consequences.<sup>35</sup> In this way, both Judge Rader and the Supreme Court majority used § 101’s subject matter eligibility requirement as a gatekeeper to obviate an inapposite § 102 or § 103 examination against prior art where the claimed invention’s result or effect followed necessarily as a logical consequence of a judicial exception.<sup>36</sup>

In *Alice*, the Court held that “a wholly generic computer implementation” of the judicially excluded abstract idea of “intermediated settlement” was as patent-ineligible as the abstract idea itself.<sup>37</sup> In characterizing the method claims at issue as “simply recit[ing] the concept of intermediated settlement as performed by a generic computer,” the Court pointed to Federal Circuit Judge Alan Lourie’s observation that the representative claim “lacks *any* express language to define the computer’s participation.”<sup>38</sup> *Alice*’s claims to computational processes whose efficacy in producing the effect of “intermediated settlement” were not contingent on the empirical causal behavior of a “computer’s participation” — i.e., a recited practical “method or means”<sup>39</sup> — but followed necessarily as logical and mathematical consequences of the stipulated behavior of idealized and generic system components (“data processing units” that process data, “mass data storage

---

<sup>31</sup> Compare *Bilski v. Kappos*, 561 U.S. at 611 (citing textbooks published in 2008 and 2010) with U.S. Pat. App. No. 08/833,892 (filed Apr. 10, 1997) (claiming priority to Provisional U.S. Pat. App. No. 60/015,756, filed Apr. 16, 1996).

<sup>32</sup> *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 218 (2014); *Mayo Collaborative Svcs. v. Prometheus Labs., Inc.* 566 U.S. 66, 77 (2012).

<sup>33</sup> *Bilski*, 561 U.S. at 611.

<sup>34</sup> *Id.*

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

<sup>36</sup> *See id.; cf.* In re Alappat, 33 F.3d at 1553.

<sup>37</sup> 573 U.S. at 223-24.

<sup>38</sup> *Id.* at 225 (quoting *CLS Bank Int’l v. Alice Corp. Pty. Ltd.*, 717 F.3d 1269, 1286 (Fed. Cir. 2013) (Lourie, J., concurring))

<sup>39</sup> *Diamond v. Diehr*, 450 U.S. 175, 182 n.7 (1981) (quoting *Corning v. Burden*, 56 U.S. 252, 268 (1853)).

units” that store data, “communications controllers” that control communications, etc.<sup>40</sup>) and the social interpretation of the data elements being processed by the system within the community of stakeholders involved in the simultaneous exchange of obligations through an intermediary to minimize risk (“credit record,” “debit record,” “shadow credit record,” “shadow debit record,” “start-of-day balance,” “transaction,” “adjustment,” “credits” and “debits”<sup>41</sup>) and were therefore amenable to mathematical verification and proof. In finding that the recitation of these elements added “nothing significantly more” to the abstract idea of intermediated settlement,<sup>42</sup> the Court obviated, *inter alia*, inapposite § 103 inquiries into the level of ordinary *mathematical* skill — an inquiry featured in a problematic analysis fifty years ago involving a similarly generic computer system<sup>43</sup> that almost surely does not survive *Alice*.<sup>44</sup>

In *Mayo*,<sup>45</sup> the Court analyzed the subject matter eligibility of a claim for a method of administering a thiopurine drug reciting, *inter alia*, statements that metabolite levels of “less than 230 pmol 8x10<sup>8</sup> red blood cells” or “greater than 400 pmol per 8x10<sup>8</sup> red blood cells” indicated a need to adjust the dosage.<sup>46</sup> After characterizing the recited “relationships between concentrations of certain metabolites in the blood and the likelihood that a dosage of a thiopurine drug will prove ineffective or cause harm” as unpatentable laws of nature,<sup>47</sup> the Court turned to the question of “whether the claims do significantly more than simply describe these natural relations.”<sup>48</sup> It concluded that the claim’s steps amounted to nothing

---

<sup>40</sup> The disclosed software solution was designed to run on a “generic ‘system’” comprising a collection of “data processing units,” “mass data storage units,” “communications controllers,” “communications hardware products,” and “information recordal devices,” all of which may occur in “many varied configurations, relating not only to the number and types of stakeholders, but also the ‘architectures’ realisable [sic] by the system hardware and software in combination.” U.S. Patent No. 5,970,479 cols. 7-8 (filed May 28, 1993); U.S. Patent No. 6,912,510 cols. 6-8 (filed May 9, 2000); U.S. Patent No. 7,149,720 cols. 7-8 (filed Dec. 31, 2002); U.S. Patent No. 7,725,375 cols. 6-8 (filed June 27, 2005).

<sup>41</sup> *See, e.g.*, U.S. Patent No. 5,970,479 col. 33 (filed May 28, 1993).

<sup>42</sup> *Alice*, 573 U.S. at 225-26.

<sup>43</sup> *See In re Bernhart*, 417 F.2d 1395, 1402 (C.C.P.A. 1969) (reasoning in a § 103 analysis that “[t]here is nothing to suggest that, within the context of automated drawing, one of ordinary mathematical skill armed with the Taylor reference would be able to discover the simpler equations which are the basis of the claimed programming.”).

<sup>44</sup> *See Andrew Chin, Ghost in the “New Machine”: How Alice Exposed Software Patenting’s Category Mistake*, 16 N.C. J.L. & TECH. 623 (2015).

<sup>45</sup> *Mayo Collaborative v. Prometheus Labs.*, 566 U.S. 66 (2012).

<sup>46</sup> 566 U.S. at 75.

<sup>47</sup> *Id.* at 77.

<sup>48</sup> *Id.* at 77.

significantly more than “an instruction to doctors to apply the applicable laws when treating their patients” and “to gather data from which they may draw an inference in light of the correlations,” and were therefore “not sufficient to transform unpatentable natural correlations into patentable applications of those regularities.”<sup>49</sup>

In holding Prometheus’s dosing methods patent-ineligible, the Court obviated an inapposite § 112 inquiry into whether Prometheus’s patent disclosure was sufficient to suit “teach those skilled in the art how to make and use the full scope of the claimed invention without ‘undue experimentation.’”<sup>50</sup> The claim’s “instruction to doctors” is a teaching, but it is not the kind of teaching that obviates experimentation.<sup>51</sup> Nor is it the kind of teaching that is amenable to examination for sufficiency of disclosure to those of ordinary skill, if “skill” in deductive logic and mathematics are correctly excluded as inapposite.<sup>52</sup>

The claimed result and effect when a doctor measures the metabolite concentration in a patient’s blood and adjusts the drug’s dosage necessarily follows from the natural law as the logical consequence of the stipulated effects of the doctor’s behavior, and is not a matter for empirical verification or falsification.<sup>53</sup> Like the generically recited system components in *Alice*,<sup>54</sup> the step of “determining” the metabolite level is stipulated to determine the metabolite level, and the step of “administering” the thiopurine drug is stipulated to establish the baseline drug dosage to be increased or decreased according to the natural law.

## CONCLUSION

While patent-eligibility doctrine treats abstract ideas and natural phenomena as forms of *a priori* knowledge, their integration into practical applications is signified by the *a posteriori* nature of their ensuing results and effects. Where the result or effect of a claimed invention follows necessarily

---

<sup>49</sup> *Id.* at 79.

<sup>50</sup> *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993) (quoting *In re Vaeck*, 847 F.2d 488, 495 (Fed. Cir. 1991)).

<sup>51</sup> See *supra* note 14.

<sup>52</sup> See *supra* text accompanying notes 43-44.

<sup>53</sup> The fact that the correlation between metabolite levels in the blood and the safety and effectiveness of thiopurine drug treatments was discovered through clinical experiments does not alter the Court’s characterization of the claim’s “instruction to doctors” as a teaching of *a priori* rather than empirical knowledge. See *Mayo*, 566 U.S. at 71 (quoting *Gottchalk v. Benson*, 409 U.S. 63, 67 (1972) (explaining that “[p]henomena of nature, though just discovered, ... are not patentable, as they are the basic tools of scientific and technological work.”).

<sup>54</sup> See *supra* text accompanying note 40.

as a logical consequence of the judicial exception, the Supreme Court's decisions in *Bilski*, *Alice* and *Mayo* demonstrate that the gatekeeping function of the § 101 patent-eligible subject matter requirement can and should be used to avoid inapposite analyses under the traditional tests for patentability.