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An Obvious Solution to the Current Section 101 Discord

Conrad Stumpf*

I. Introduction

In crafting the United States Constitution, the framers recognized the vital importance of innovation with respect to the success and longevity of our nation.¹ The United States remains among the top global innovators, but that does not mean our nation is free of issues related to technological innovation.² In the modern era, technology pervades nearly every aspect of society from the economy to education and even national security, as depicted by the current technological arms race between the United States and other nations.³ But apart from global threats to our nation's innovation, such as intellectual property theft and technological arms races,⁴ the last decade has introduced internal concerns that may threaten our current innovative landscape, specifically with respect to the patent process.⁵

While contemporary technology has come an incredibly long way since our nation's beginning, the constitutional goal of patent law remains the same—to promote the useful arts by

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¹ See U.S. CONST. art. I, § 8, cl. 8.

² CORNELL UNIV., WORLD INTELLECTUAL PROP. ORG. (WIPO), & INSTITUT EUROPÉEN D'ADMINISTRATION DES AFFAIRES (INSEAD), GLOBAL INNOVATION INDEX (GII) 2019 RANKINGS (2019), <https://www.wipo.int/publications/en/details.jsp?id=4434>.

³ Press Release, Tillis and Coons: What We Learned at Patent Reform Hearings [hereinafter What We Learned at Patent Reform Hearings] (Jun. 24, 2019), <https://www.tillis.senate.gov/2019/6/tillis-and-coons-what-we-learned-at-patent-reform-hearings> (“[I]nventions deemed eligible today drive tomorrow’s jobs, national competitiveness, economic prosperity, and even national security.”); See Program synopsis, Richard Nixon Found., An Emerging Technological Arms Race (Jul. 13, 2018), <https://www.nixonfoundation.org/2018/08/synopsis-emerging-technological-arms-race/>.

⁴ See GRANT CLARK, *What is Intellectual Property, and does China Steal It?*, BLOOMBERG (last updated Jan. 21, 2019), <https://www.bloomberg.com/news/articles/2018-12-05/what-s-intellectual-property-and-does-china-steal-it-quicktake>; Press Release, Senator Thom Tillis, Sens. Tillis and Reps. Collins, Johnson, and Stivers Release Draft Bill Text to Reform Section 101 of the Patent Act (May 22, 2019) [hereinafter Tillis Draft Bill], <https://www.tillis.senate.gov/2019/5/sens-tillis-and-coons-and-reps-collins-johnson-and-stivers-release-draft-bill-text-to-reform-section-101-of-the-patent-act>.

⁵ See GENE QUINN, *Did the Supreme Court Intentionally Destroy the U.S. Patent System?*, IP WATCHDOG (May 22, 2018) [hereinafter *Did the Supreme Court Destroy Patents*], <https://www.ipwatchdog.com/2018/05/22/did-the-supreme-court-intentionally-destroy-the-u-s-patent-system/id=97514/> (highlighting the current section 101 atmosphere and its negative impact on innovation); RYAN DAVIS, *Experts Look to Congress to Stem Patent-eligibility ‘Chaos,’* LAW360 (April 20, 2018, 7:14 PM EDT) (regarding innovators threatening to leave the U.S.).

balancing inventor incentives against the liberal use of increasingly accessible information.⁶ That being said, modern innovation has introduced challenges in interpreting and applying the law. One such challenge has been the application of section 101 of the Patent Act, which establishes patentable subject matter,⁷ or in other words, what *things* can be patented, to the rapidly advancing fields of medicine and computer science.⁸ The literal text of section 101 allows for the patenting of any “useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.”⁹ In addition to the statutory language, the courts created judicial exceptions to these categories which bar the patenting of laws of nature, natural phenomenon, and abstract ideas.¹⁰ In response to this hurdle, the Supreme Court developed a test, known as the “Alice/Mayo Test,”¹¹ which has led various players of the current patent-law paradigm to reach conflicting conclusions and has produced troubling results for the last decade.¹² For instance, the Court of Appeals for the Federal Circuit has rejected a majority of recent medical diagnostic because of ineligible subject matter.¹³ Even the Federal Circuit voiced its concern over the current test for subject matter eligibility, but nonetheless felt constrained by Supreme Court precedent.¹⁴ This

⁶ See U.S. CONST. art. I, § 8; *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 92 (2012) (explaining how patent rights seek to promote invention without excessively limiting the flow of information).

⁷ 35 U.S.C. § 101 (1952).

⁸ See JOHN M. GOLDEN ET AL., *PRINCIPLES OF PATENT LAW: CASES AND MATERIALS*, at 65 (Robert C. Clark et al. eds., 7th ed. 2018) (“Questions of . . . subject-matter eligibility have proven particularly significant for the patenting of . . . key subject matter for innovation in biotechnology and pharmaceuticals, information and communications technologies, and finance.”).

⁹ 35 U.S.C. § 101.

¹⁰ *Diamond v. Diehr*, 450 U.S. 175, 185 (1981).

¹¹ See *Mayo*, 566 U.S. at 72–73 (establishing a test for determining whether a process incorporates a law of nature in a manner that warrants patentability); *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 209 (2014) (extending this test to abstract ideas).

¹² Did the Supreme Court Destroy Patents, *supra* note 5.

¹³ GENE QUINN, *It May Be Time to Abolish the Federal Circuit*, IP WATCHDOG (Jul. 9, 2019), <https://www.ipwatchdog.com/2019/07/09/may-time-abolish-federal-circuit/id=111122/> (“If the Federal Circuit is going to . . . kill . . . virtually all of the medical diagnostic patents, what role does the federal circuit really play?”).

¹⁴ See *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1381 (Fed. Cir. 2015) (Linn, J., concurring) (“But for the sweeping language in the Supreme Court’s *Mayo* opinion, I see no reason, in policy or statute, why this breakthrough invention should be deemed patent ineligible.”).

uncertainty and unpredictability has reaching effects on our nation as a whole.¹⁵ Accordingly, there have been multiple proposed solutions including administrative guidance, institutional reform, and most recently, a proposed congressional reform of section 101 of the Patent Act itself.¹⁶

When evaluating the recent congressional reform in particular, it is important to analyze the potential judicial reaction to the new statutory language. Focusing on the courts posits a number of questions with respect to the future of section 101. How will the courts respond to the potential section 101 reform? Will the reform ultimately produce a change in overall patentability of software and biotechnological innovations? Do the courts have other, perhaps more appropriate options to consider in addressing their current concerns? This comment investigates these questions and ultimately concludes that the congressional reform has the potential to resolve the major section 101 issues but is unlikely to produce any dramatic shift in overall patentability.

Section II will provide a review of the current state of subject matter eligibility and its flaws. Section III will analyze the United States Patent and Trademark Office's (PTO) recent attempt to remedy the current disarray. Section IV will discuss the recent draft bill proposed to reform section 101. Section V will explore the reforms weaknesses and argue that, although the draft bill is unlikely to actually produce any sweeping changes in overall patentability, it is still a step in the right direction that the courts should embrace. Section VI will conclude.

¹⁵ See Tillis Draft Bill, *supra* note 4 (discussing the impact intellectual property has on our economy, research and development, and international intellectual property theft).

¹⁶ See, e.g., UNITED STATES PATENT AND TRADEMARK OFFICE, DOCKET NO. PTO-P-2018-0053, 2019 REVISED PATENT SUBJECT MATTER ELIGIBILITY GUIDANCE (2019) [hereinafter USPTO Guidance] (administrative approach); Tillis Draft Bill, *supra* note 4 (statutory approach); Kristen Osenga, *Article: Institutional Design for Innovation: A Radical Proposal for Addressing § 101 Patent-eligible Subject Matter*, 68 AM. U.L. REV. 1191 (2019) [hereinafter Osenga, Institutional Reform] (institutional approach).

II. The Current State of Patent Subject Matter Eligibility

The evolution of subject matter eligibility jurisprudence warrants review in order to illustrate the courts role with regard to the current chaos in the field. But before delving into the case law, it is important to recognize the statutory background and requirements of patentability. Once this foundation is established, the current state of subject matter eligibility and its issues will be explored.

A. Statutory Sources of Patent Subject Matter Eligibility

Congressional power to regulate patents derives from Article 1, Section 8, Clause 8 of the Constitution, which grants Congress the power “[t]o promote the . . . useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their respective . . . Discoveries.”¹⁷ When Congress passed the Patent Act of 1952 it not only codified existing law into the sections used today, but also responded to, and overruled, some of the Court’s case law.¹⁸ Section 101 of the Patent Act establishes statutory subject matter eligibility, as well as the utility requirement, and simply provides, “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”¹⁹ While section 101 lies at the heart of the current subject matter eligibility debacle, it is important to recognize the other requirements of patentability, namely that an invention be novel,²⁰ not obvious or “nonobviousness” to a person skilled in the relevant field,²¹ and adequately disclosed in the patent

¹⁷ U.S. CONST. art. I, § 8, Cl 8.

¹⁸ *See, e.g.*, 35 U.S.C. § 112 (2011); JOHN M. GOLDEN ET AL., PRINCIPLES OF PATENT LAW: CASES AND MATERIALS 11 (Robert C. Clark et al. eds., 7th ed. 2018) (noting, inter alia, how “section 112 overturned the invalidation of “means plus function” claims and section 103 regarding Nonobviousness supplanted “the ‘flash of genius’ test”).

¹⁹ 35 U.S.C. § 101 (1952).

²⁰ 35 U.S.C. § 102 (2012) (requiring that an invention be novel in relation to prior art).

²¹ 35 U.S.C. § 103 (2011) (requiring that an invention be non-obvious or significantly different from the prior art).

specification.²² In addition to these statutory sources, the Court has developed a great deal of section 101 doctrine in the last decade, which some refer to as the “federal common law of patents.”²³

B. Judicially Created Subject Matter Eligibility Doctrine

Given section 101’s relatively succinct guidance, the courts have used the relevant constitutional language in conjunction with section 101 to find implicit limitations on patent eligible subject matter.²⁴ For instance, in the early 1980’s the Court established what may be the most influential judicial exception to subject matter eligibility by holding that “laws of nature, natural phenomenon, and abstract ideas” cannot be patented.²⁵ Although the text of section 101 fails to mention laws of nature or abstract ideas whatsoever, the Court used the underlying constitutional goal of balancing incentives to innovate against restrictions on further innovation to reach the conclusion that laws of nature should be off limits.²⁶ But as the Court has recognized, such a rule is complicated by the fact that virtually every invention utilizes a law of nature or abstract idea to some extent.²⁷ This intrinsic conflict has come to a head in the recent decade as courts have struggled to craft a reliable test to distinguish inventions that merely apply a judicial

²² 35 U.S.C. § 112 (requiring a written description, enablement, and best mode).

²³ Eric Gutttag, *Why is SCOTUS Creating a Federal Common Law of Patents*, IP Watchdog (Dec. 10, 2018), <https://www.ipwatchdog.com/2018/12/10/scotus-federal-common-law-patents/id=103946/>.

²⁴ See *Diamond v. Diehr*, 450 U.S. 175, 185 (1981) (using judicial reasoning to establish the policy that “laws of nature, natural phenomenon, and abstract ideas” should not be patentable, despite the absence of such language in section 101, because patenting these exceptions would contravene the constitutional purpose of patent law).

²⁵ *Id.* See also *Diamond v. Chakrabarty*, 477 U.S. 303, 309 (1980) (suggesting that “[a]nything under the sun that is made by man” may be patented).

²⁶ See *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576 (2013) (“patent protection strikes a delicate balance between creating ‘incentives that lead to creation, invention, and discovery’ and ‘impeding the flow of information that might permit, indeed spur, invention.’”).

²⁷ See *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012) (“The Court has recognized, however, that too broad an interpretation of this exclusionary principle could eviscerate patent law. For all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.”).

exception, and are therefore worthy of patent rights, from those that seek to monopolize the exception itself.²⁸

The Court’s recently developed test for determining whether a process incorporates a judicial exception in a manner that warrants patentability has been the primary issue in the area of subject matter eligibility.²⁹ This test, known as the “Alice/Mayo test,” originated in *Mayo Collaborative Serv. Inc. v. Prometheus Labs. Inc.*, which involved a patented process for optimizing the dose of thiopurine drugs used in treating autoimmune diseases.³⁰ Essentially, the process involved giving the drug; drawing blood to determine metabolite levels; and then using these levels to determine whether the dosage should be maintained, increased, or decreased.³¹ The district court found the patented process invalid because it effectively claimed the natural law or phenomena that are “the correlations between thiopurine levels and the toxicity and efficacy of thiopurine drug dosages.”³² The Federal Circuit reversed, finding the patent claims valid because the steps involved transformation of the patient’s body or blood, in addition to the natural correlations.³³ The Supreme Court granted certiorari, reversed, and remanded, explaining that the “machine or transformation test” used by the Federal Circuit was not a definitive test of eligibility, but only a helpful clue.³⁴ Again, the Federal Circuit found the patent claims did not encompass a natural law and reaffirmed its earlier decision.³⁵ Once again the Court granted certiorari and

²⁸ *See id.* at 77 (“If a law of nature is not patentable, then neither is a process reciting a law of nature, unless that process has additional features that provide practical assurance that the process is more than a drafting effort designed to monopolize the law of nature itself.”).

²⁹ *See* UNITED STATES PATENT AND TRADEMARK OFFICE, DOCKET NO. PTO-P-2018-0053, 2019 REVISED PATENT SUBJECT MATTER ELIGIBILITY GUIDANCE (2019) [hereinafter USPTO Guidance] 50, 50 (“Properly applying the *Alice/Mayo* test in a consistent manner has proven to be difficult, and has caused uncertainty in this area of law.”).

³⁰ *Mayo*, 566 U.S. at 73.

³¹ *Id.* at 74–75.

³² *Id.* at 76.

³³ *Id.*

³⁴ *Id.* at 76–77.

³⁵ *Id.*

created what is now known as the Alice/Mayo test,³⁶ which is comprised of two steps and relates back to the long-held rationale for judicial exceptions in preventing broad preemption of future innovation.³⁷

Under the Alice/Mayo test a court first determines whether the claims at issue are directed to a judicial exception or patent ineligible concept.³⁸ If the answer is yes, then the court must analyze the additional claim elements individually and “as an ordered combination” to determine whether these elements “transform the nature of the claim” into something patent eligible.³⁹ The Supreme Court described the second step of this analysis as the search for an “inventive concept”—an element or combination of elements that is “sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.”⁴⁰ The Court also emphasized that additional steps must be more than “well-understood, routine, conventional steps previously engaged in by scientists in the field.”⁴¹ Applying this test to the patent in *Mayo*, the Court found the claims invalid because they were directed to natural correlations and the conventional steps failed to transform the claim in a manner that warranted patentability.⁴²

In *Alice Corp. Pty. Ltd. v. CLS Bank Int’l* the Court expanded the test established in *Mayo* by applying it to claims involving abstract ideas.⁴³ *Alice* involved patents disclosing a “computer-implemented scheme for mitigating ‘settlement risk’ by using a third-party intermediary.”⁴⁴ The Court found the claims directed “to the abstract idea of intermediated settlement” and concluded

³⁶ *Mayo*, 566 U.S. at 76–77.

³⁷ *Ariosa Diagnostics, Inc. v. Sequenom, Inc.* 788 F.3d 1371, 1379 (Fed. Cir. Jun. 12, 2015) (“The Supreme Court has made clear that the principle of preemption is the basis for the judicial exceptions to patentability.”).

³⁸ *Id.* at 1375.

³⁹ *Id.* (quoting *Mayo*, 566 U.S. at 79).

⁴⁰ *Id.* (quoting *Mayo*, 566 U.S. at 72).

⁴¹ *Mayo*, 566 U.S. at 67.

⁴² *Id.* at 78.

⁴³ *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 212 (2014).

⁴⁴ *Id.*

that requiring the use of a generic computer was insufficient to satisfy the second step of the *Mayo* analysis.⁴⁵ Having failed the *Mayo* analysis, the Court held the patented claims invalid as covering ineligible subject matter.⁴⁶ This decision’s incorporation of abstract ideas into the *Mayo* analysis brought the Alice/*Mayo* test to its current state.

C. Issues with the Current Subject Matter Eligibility Paradigm

Unfortunately, applying this test to modern innovations has proven difficult, particularly in the biotechnology and computer science fields.⁴⁷ Take *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.* for example.⁴⁸ First, a split Federal Circuit reversed the district court’s ruling that the claims to isolated DNA molecules covered ineligible subject matter, with each of the three judges analyzing the eligibility of the claims differently.⁴⁹ Judge Lourie, writing for the court, based his determination on the premise that isolated DNA is chemically separated from its native element and is therefore a distinct chemical entity with a “markedly different chemical structure compared to native DNA.”⁵⁰ Judge Lourie also gave weight to the PTO’s long-standing practice of finding isolated DNA molecules patent eligible.⁵¹ Judge Moore, concurring-in-part, agreed with Judge Lourie’s reasoning, but also asked whether the differences from natural form provided new utility that renders the new form markedly different.⁵² In contrast, Judge Bryson, dissenting with respect to these claims, concluded that the isolated DNA was structurally and functionally

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ See USPTO 2019 Guidance, *supra* note 29, at 50. (discussing how the PTO, courts, and patent stakeholders have expressed concern for the clarity and predictability of the Alice/*Mayo* test); Borella *supra* note **Error! Bookmark not defined.**

⁴⁸ *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 689 F.3d 1303 (Fed. Cir. 2012).

⁴⁹ *Ass’n for Molecular Pathology v. United States PTO*, 653 F.3d 1329, 1359 (Fed. Cir. 2011).

⁵⁰ *Id.* at 1352–53.

⁵¹ *Id.* at 1354–55 (“[O]ur decision that isolated DNA molecules are patent eligible comports with the longstanding practice of the PTO. The Supreme Court has repeatedly stated that changes from longstanding practice should come from congress, not the courts.”).

⁵² *Id.* at 1365 (Moore, J., concurring).

equivalent to the native gene, despite being chemically extracted, and therefore did not deserve patent protection.⁵³ Judge Bryson also disagreed with giving significant weight to the PTO's practices⁵⁴ and voiced preemptive concerns.⁵⁵ Upon grant of certiorari, the Supreme Court vacated the judgment and remanded the case to be considered in light of the *Alice/Mayo* test.⁵⁶

On remand, the Federal Circuit considered the claims pertaining to the isolated DNA in light of the *Mayo* decision and reaffirmed their finding of patent eligibility with each Judge reiterating their earlier reasoning.⁵⁷ Once again, the Supreme Court took the case, this time addressing the Judges' reasoning.⁵⁸ In respect to the claims covering the isolated DNA, the Court held "that genes and the information they encode are not patent eligible under § 101 simply because they have been isolated from the surrounding genetic material."⁵⁹ The Court construed the claims as focusing on the genetic information encoded in the isolated molecule, rather than the chemical composition of the molecule itself, and rejected the idea that isolating the relevant DNA sequence by severing chemical bonds produced a non-natural, patent-eligible molecule.⁶⁰

The *Myriad* case and its varying judicial conclusions make abundantly clear the complicated, subjective, and even philosophical nature of the judicial exceptions and subject matter eligibility.⁶¹ The fact that the Federal Circuit judges—who are experts in the field of patent

⁵³ *Id.* at 1378 (Bryson, J., dissenting) ("What is claimed in the BRCA genes is the genetic coding material, and that material is the same, structurally and functionally, in both the native gene and the isolated form of the gene.").

⁵⁴ *Id.* at 1380 ("[T]he PTO's practice and guidelines are not entitled to significant weight, for . . . the PTO lacks substantive rulemaking authority as to issues such as patentability.").

⁵⁵ *Ass'n for Molecular Pathology v. United States PTO*, 653 F.3d 1329, 1379 (Fed. Cir. 2011) ("Nonetheless, it is important to consider the effects of such broad patent claims on the biotechnology field.").

⁵⁶ *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 566 U.S. 902 (2012).

⁵⁷ *Ass'n for Molecular Pathology v. United States PTO*, 689 F.3d 1303 (Fed. Cir. 2012) ("The remand of this case for consideration in light of *Mayo* might suggest . . . that the composition claims are mere reflections of a law of nature. Respectfully, they are not, any more than any product of man reflects and is consistent with a law of nature.").

⁵⁸ *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 587–89 (2013).

⁵⁹ *Id.* at 596.

⁶⁰ *Id.* at 593.

⁶¹ BRIAN CASSIDY, *Analysis: Patent Subject-matter Eligibility – A Widening Gap*, BLOOMBERG LAW ANALYSIS (April 18, 2019), <https://news.bloomberglaw.com/bloomberg-law-analysis/analysis-patent-subject-matter-eligibility-a-widening-gap> ("The issue of subject matter eligibility is complex and somewhat philosophical by nature.").

law—reached identical conclusions both before and after applying the Alice/Mayo test illustrates one of the challenges, or even the futility, of the judicially crafted doctrine.⁶² The test also fails to provide effective guidance as to what constitutes an abstract idea or inventive concept that adequately incorporates a judicial exception in a manner worthy of patentability.⁶³ Furthermore, the Supreme Court’s emphasis on conventionality when searching for an inventive concept appears to conflate subject matter eligibility with other sections of the Patent Act, namely novelty and nonobviousness under sections 102 and 103 respectively, which the Court has explicitly warned against.⁶⁴ The Court’s contradiction of its own precedent, apparent misunderstanding of patent doctrine, and minimal guidance has set the stage for far reaching implications.

Most importantly, the varied applications of the Alice/Mayo test and the ensuing uncertainty and unpredictability disincentivizes innovation by weakening patent protection.⁶⁵ Not only are inventors less likely to expend the resources necessary to develop novel technology when their discoveries may ultimately be vulnerable to theft, directly impacting innovation, but investors are also less likely to finance such endeavors.⁶⁶ This can negatively impact our nation’s economy by deterring domestic investment,⁶⁷ especially with the vital role tech startups have in our modern, technologically dependent society.⁶⁸ In conjunction with the economic effects, the current discord also implicates national security, given the major role computer science innovations play in the

⁶² Compare *Ass’n for Molecular Pathology v. United States PTO*, 653 F.3d 1329, 1352–53 (Fed. Cir. 2011), with *Ass’n for Molecular Pathology v. United States PTO*, 689 F.3d 1303 (Fed. Cir. 2012).

⁶³ See USPTO 2019 Guidance, *supra* note 29, at 50.

⁶⁴ Did the Supreme Court Destroy Patents, *supra* note 5.

⁶⁵ See Press Release, Tillis and Coons: What We Learned At Patent Reform Hearings (Jun. 24, 2019), <https://www.tillis.senate.gov/2019/6/tillis-and-coons-what-we-learned-at-patent-reform-hearings> (discussing the negative impact the current lack of clarity and certainty with respect to patent eligibility has had on research and investment in areas like medical diagnostics and artificial intelligence).

⁶⁶ See Borella, *supra* note **Error! Bookmark not defined.** (“[S]tudies show[] that investors familiar with the current lack of clarity invest less in critical research and development in areas like medical diagnostics and artificial intelligence, at least in the Unites States.”).

⁶⁷ *Id.*

⁶⁸ See Did the Supreme Court Destroy Patents, *supra* note 5 (discussing the major implications of the current subject matter eligibility disarray on high-tech startups).

current technological arms race between our nation and other technologically advanced countries like China.⁶⁹

But what is perhaps the most concerning aspect of these issues is the Supreme Court's apparent satisfaction with the current state of subject matter eligibility⁷⁰ and incompetence in effectively crafting patent doctrine.⁷¹ The Patent Office's recent guidance and the recent draft bill to reform section 101, both of which will be discussed below, reflect the growing concern and destabilization surrounding the *Alice* and *Mayo* decisions.⁷² While congressional action may be a step towards fixing the current disarray, it may not have as large an impact on overall patentability as proponents of the reform may hope.

III. Recent United States Patent and Trademark Office Effort to Clarify Alice/Mayo

The Alice/Mayo test has confused those involved at nearly every step of the patent process.⁷³ As the agency responsible for issuing patents, the United States Patent and Trademark Office recently sought to clarify the analysis by revising the patent examiners application of the Alice/Mayo test in two ways.⁷⁴ First, the PTO enumerates categories of abstract ideas.⁷⁵ Second, it attempts to clarify the first step of the Alice/Mayo analysis by defining what it means for a claim

⁶⁹ See *id.* (“It is because of the Supreme Court that investors interested in artificial intelligence are taking their money to China and funding startups there.”); Clark, *supra* note 4 (discussing China's alleged theft of intellectual property and technology); Rosie Perper, *Huawei Slams Trump's 'Unreasonable' Ban, Saying That the Move Will Only Harm US Interests in Its Own 5G Rollout*, Business Insider (May 16, 2019, 12:06 AM), <https://www.businessinsider.com/huawei-responds-trump-china-tech-national-emergency-ban-2019-5?r=cold> (discussing the potential security risk with a Chinese company's 5G technology serving as a backdoor for espionage).

⁷⁰ See Press Release, Tillis and Coons: What We Learned At Patent Reform Hearing (Jun. 24, 2019), <https://www.tillis.senate.gov/2019/6/tillis-and-coons-what-we-learned-at-patent-reform-hearings> (noting “the Supreme Court's denying over 40 petitions for certiorari on this topic since its disruptive decision in the Alice case five years ago”).

⁷¹ See Did the Supreme Court Destroy Patents, *supra* note 5 (describing the Supreme Court as incapable of forming patent policy).

⁷² See USPTO 2019 Guidance, *supra* note 29, at 50; Tillis Draft Bill, *supra* note 4.

⁷³ See Press Release, Tillis and Coons: What We Learned At Patent Reform Hearings, *supra* note 37 (noting that inventors, the USPTO, and judges alike have struggled to determine what is subject matter eligible).

⁷⁴ USPTO Guidance, *supra* note 29, at 50.

⁷⁵ USPTO Guidance, *supra* note 29, at 50.

to be “directed to” a judicial exception.⁷⁶ But while the 2019 Revised Patent Subject Matter Eligibility Guidance (hereinafter “the Guidance”) reflects a valiant effort to bring stability to the current state of affairs, it has failed to meaningfully influence the courts.⁷⁷

A. Categorizing Abstract Ideas

The first way in which the Guidance seeks to promote consistent application of the Alice/Mayo test pertains to the determination of whether the claims recite a judicial exception, specifically in regards to abstract ideas.⁷⁸ Since the inception of the Alice/Mayo test the Federal Circuit has issued a growing number of decisions identifying abstract and non-abstract subject matter.⁷⁹ Many of these decisions, however, reach differing conclusions with respect to similar subject matter, which makes drawing the line between abstract and non-abstract a significant challenge.⁸⁰ The Guidance seeks to clarify what constitutes an abstract idea by explicitly enumerating three new groupings of subject matter that fall within the abstract idea exception.⁸¹ These general groupings include mathematical concepts, certain methods of organizing human activity, and mental processes or concepts carried out in the human mind.⁸² The Guidance provides specific examples of each from the case law and up to this point, provides a theoretically effective method for consistently identifying abstract ideas.⁸³ But, the determination of abstract idea does not end there.

⁷⁶ USPTO Guidance, *supra* note 29, at 50.

⁷⁷ *See, e.g.*, Cleveland Clinic Found. v. True Health Diagnostics LLC, 760 Fed. Appx. 1013, 1021 (Fed. Cir. April 1, 2019) (refusing to defer to the Guidance); ChargePoint, Inc. v. SemaConnect, Inc., No. 2018-1739, 2019 U.S. App. LEXIS 1919, at *9 (Fed. Cir. Mar. 28, 2019) (refusing to defer to the Guidance categorization of abstract ideas).

⁷⁸ USPTO Guidance, *supra* note 29, at 50.

⁷⁹ USPTO Guidance, *supra* note 29, at 52.

⁸⁰ USPTO Guidance, *supra* note 29, at 52.

⁸¹ USPTO Guidance, *supra* note 29, at 51–53.

⁸² USPTO Guidance, *supra* note 29, at 51–53.

⁸³ USPTO Guidance, *supra* note 29, at 51–53.

The Guidance also establishes a procedure for determining whether subject matter that does not fall neatly within one of these categories should nonetheless be treated as an abstract idea.⁸⁴ This procedure essentially entails treating the “tentative abstract idea” as if it were a judicial exception and proceeding with the Alice/Mayo analysis to determine whether the additional elements provide the requisite inventive concept.⁸⁵ If the answer to that question is yes, the determination of whether the subject matter is abstract is irrelevant and the subject matter is eligible.⁸⁶ If the answer is no, however, then the examiner is told to notify the Technology Center Director, who must then record and provide justification for any claim limitation they determine recites an abstract idea.⁸⁷ This is where the potential benefit of consistency comes into question. By leaving the determination of tentative abstract ideas up to the director, who can easily come to a different conclusion than a judge, this portion of the revision does little more than provide a consolidated list of abstract ideas enunciated in the case law, which examiners already consider.⁸⁸ But this is not to say that the principle underlying the procedure is unsound. The second opinion, recording, and justification procedure may very well promote consistency *within* the PTO. Rather, the issue is with the PTO’s limited authority and the inherently complicated, and to some extent, subjective flaws of the judicially created abstract idea exception.⁸⁹

B. Determining Whether A Claim Is “Directed To” A Judicial Exception

The second way in which the Guidance revises the examiners application of the Alice/Mayo test pertains to the first step of the test: determining whether a claim is “directed to” a

⁸⁴ USPTO Guidance, *supra* note 29, at 52–53.

⁸⁵ USPTO Guidance, *supra* note 29, at 57.

⁸⁶ USPTO Guidance, *supra* note 29, at 57.

⁸⁷ USPTO Guidance, *supra* note 29, at 57.

⁸⁸ USPTO Guidance, *supra* note 29, at 51 (discussing the previous practice of “describing the subject matter claimed in the patent in suit and noting whether or not certain subject matter has been identified as an abstract idea” in previous Federal Circuit decision).

⁸⁹ *See* *Diamond v. Diehr*, 450 U.S. 175, 185 (1981) (using judicial reasoning to establish the policy that “laws of nature, natural phenomenon, and abstract ideas” should not be patentable).

judicial exception.⁹⁰ The Guidance teaches that if the claim, in its entirety, integrates the recited exception into a practical application then it is not directed to that judicial exception.⁹¹ The Guidance further explains that “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.”⁹² Here, the PTO attempts to cater to the Supreme Court’s “inventive concept” principle exemplified in *Mayo*.⁹³ While the guidance does not purport to change the second “inventive concept” step of the Alice/Mayo analysis, it does explicitly note that the conventionality of additional elements should only impact analysis under this second step.⁹⁴ In theory, excluding questions of conventionality from the first step should result in fewer claims reaching the inventive concept step by lowering the bar for determining whether a claim adequately integrates a judicial exception. This interpretation, however, is misleading because sufficient integration is admittedly dependent on the inclusion of a “meaningful limit on the judicial exception” so that the claim does not monopolize the judicial exception.⁹⁵ Again, the Guidance does nothing more than cite specific examples from case law where such a “meaningful limit” was found or absent.⁹⁶ Nor does the Guidance address the question of whether conventionality should play a role in subject matter eligibility *at all*, given the role conventional or routine steps have with

⁹⁰ USPTO Guidance, *supra* note 29, at 50.

⁹¹ USPTO Guidance, *supra* note 29, at 53.

⁹² USPTO Guidance, *supra* note 29, at 53.

⁹³ See *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72–73 (2012) (“[A] process that focuses upon the use of a natural law [must] also contain other elements or a combination of elements, sometimes referred to as an “inventive concept,” sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the natural law itself.”).

⁹⁴ USPTO Guidance, *supra* note 29, at 55.

⁹⁵ USPTO Guidance, *supra* note 29, at 53.

⁹⁶ USPTO Guidance, *supra* note 29, at 55.

respect to the requirements of novelty and nonobviousness.⁹⁷ That being said, the PTO cannot be blamed for the practical limitations of the Guidance or for overlooking this flaw when taking into account their duty to follow policy, rather than craft it.

C. The Guidance’s Impact on the Courts

Ultimately, the Guidance effectively reflects the PTO’s attempts to use what little direction the judicial precedent has provided for the complicated, and somewhat subjective, application of the Alice/Mayo test. Perhaps this lack of direction is why the Guidance fails to elaborate on the inventive concept step of the analysis. Or, perhaps, guidance on the inherently subjective and flawed notion of an inventive concept is itself impossible. In fact, the inventive concept requirement can be seen as akin to the “flash of creative genius” test⁹⁸ that was used to determine obviousness until it was finally overridden by Congress.⁹⁹

While the Guidance suffers from the aforementioned limitations on its practical utility, it also bears a more fundamental flaw that indicates the need for congressional intervention in the field. Namely, the futility of the PTO’s effort to clarify the current state of subject matter eligibility is most apparent when looking at the impact, or lack thereof, the Guidance has had on the courts. The Guidance admits its lack of binding authority on the courts, given that it is not law but rather a guide for patent examiners and administrative judges at the PTO.¹⁰⁰ Recent Federal Circuit

⁹⁷ See *Did the Supreme Court Destroy Patents*, *supra* note 5 (discussing the Supreme Court’s conflation of novelty and obviousness in *Mayo*); QUINN, *It May Be Time to Abolish the Federal Circuit*, *supra* note 13 (characterizing *Mayo* as a case “with an exceptionally poor claim where the Supreme Court took a shortcut using 101 instead of using 102 or 103”).

⁹⁸ See *Cuno Engineering Corp. v. Automatic Devices Corp.*, 314 U.S. 84, 91 (1941) (“[T]he new device, however useful it may be, must reveal the flash of creative genius, not merely the skill of the calling.”). The “flash of creative genius” test was essentially a subjective analysis of whether the invention met a level of ingenuity that warranted patentability.

⁹⁹ Gene Quinn, *The Hunt for the Inventive Concept is the Flash of Creative Genius Test by Another Name*, IP Watchdog (Nov. 6, 2018), <https://www.ipwatchdog.com/2018/11/06/hunt-inventive-concept-flash-creative-genius/id=103092/>.

¹⁰⁰ USPTO Guidance, *supra* note 29, at 51.

decisions have exposed this lack of binding authority and shown the potential for different results when applying the Guidance as compared to judicial review.¹⁰¹

In *Cleveland Clinic Found. v. True Health Diagnostics LLC* (Cleveland Clinic II), the Federal Circuit addressed the subject matter eligibility of a method for identifying an elevated level of myeloperoxidase (MPO), a biomarker for increased risk of cardiovascular disease, in human plasma.¹⁰² The steps to the method involved collecting a sample, probing the sample with an antibody, detecting the biomarker levels, and comparing these with healthy reference samples.¹⁰³ In finding the patent invalid as directed to the natural correlation between MPO levels and cardiovascular disease, the court explicitly declined to defer to the Guidance.¹⁰⁴ Under the Guidance it would have been reasonable to end the Alice/Mayo analysis at step one. The method steps essentially applied well-understood techniques, such as anti-body probing and detection, to elevated biomarker levels limited in use to determining a patient’s cardiovascular risk.¹⁰⁵ In other words, the claim effectively integrated the judicial exception into a practical application while imparting the arguably meaningful limit of use in determining cardiovascular risk.¹⁰⁶

ChargePoint, Inc. v. SemaConnect, Inc. also exemplifies the Federal Circuit’s reluctance to follow the Guidance, but with respect to the enumerated abstract idea categories.¹⁰⁷ The patent at issue in *ChargePoint* was an apparatus that allowed for remote control of vehicle charging

¹⁰¹ BRIAN CASSIDY, *Analysis: Patent Subject-matter Eligibility – A Widening Gap*, BLOOMBERG LAW ANALYSIS (April 18, 2019), <https://news.bloomberglaw.com/bloomberg-law-analysis/analysis-patent-subject-matter-eligibility-a-widening-gap> (“The issue of subject matter eligibility is complex and somewhat philosophical by nature.”); see *Cleveland Clinic Found. v. True Health Diagnostics LLC*, 760 Fed. Appx. 1013, 1016 (Fed. Cir. April 1, 2019); *ChargePoint, Inc. v. SemaConnect, Inc.*, No. 2018-1739, 2019 U.S. App. LEXIS 1919 (Fed. Cir. Mar. 28, 2019).

¹⁰² *Cleveland Clinic*, 760 Fed. Appx. At 1016.

¹⁰³ *Id.* at 1016–17.

¹⁰⁴ *Id.* at 1021.

¹⁰⁵ *Id.* at 1016–17.

¹⁰⁶ *Id.*

¹⁰⁷ *ChargePoint, Inc. v. SemaConnect, Inc.*, No. 2018-1739, 2019 U.S. App. LEXIS 1919 (Fed. Cir. Mar. 28, 2019).

stations.¹⁰⁸ The court found that the claim involved “the abstract idea of communicating requests to a remote server and receiving communication from that server.”¹⁰⁹ In finding that the claim was *directed to* this abstract idea the court highlighted the fact that the invention appears to do nothing more than apply the concept of network-communication in the setting of electrical vehicle charging, despite being limited to the context of vehicle charging.¹¹⁰ The invention in ChargePoint was an apparatus, a physical object, and as such does not fit intuitively into the category of mathematical concept, an organization of human activity, or a mental process, as the Guidance would require.¹¹¹

These cases represent two of the many instances where the courts and the PTO have struggled with modern subject matter eligibility doctrine.¹¹² Ultimately, the courts’ reluctance to follow the Guidance can be seen as a result of its lack of binding authority on the courts.¹¹³ But there may be a deeper issue at play, one relating to interpretation. After all, the courts *could have* applied the Guidance’s analysis if they determined it was appropriate. Perhaps the courts simply disagree with the PTO in regard to its interpretation of the current subject matter jurisprudence. While purporting to follow judicial precedent, the Guidance could be viewed as actually expanding the bounds of the Alice/Mayo test,¹¹⁴ providing further reason for the courts’ lack of deference. Or perhaps the Federal Circuit feels straight-jacketed by Supreme Court precedent and chooses to

¹⁰⁸ *Id.* at *9–10.

¹⁰⁹ *Id.* at *10.

¹¹⁰ *Id.* at *15.

¹¹¹ *Id.* at *9.

¹¹² *See, e.g.,* Ariosa Diagnostics, Inc. v. Sequenom, Inc., 788 F.3d 1371, 1381 (Fed. Cir. 2015) (applying the Alice/Mayo test to invalidate a patent issued by the PTO on a method for prenatal diagnosis of certain fetal characteristics utilizing a newly discovered form of DNA); Ass’n for Molecular Pathology v. Myriad Genetics, Inc., 569 U.S. 576, 596 (2013) (reversing the Federal Circuit’s finding of subject matter eligibility both before and after remand of the case for consideration in light of the Alice/Mayo test.).

¹¹³ USPTO Guidance, *supra* note 29, at 51.

¹¹⁴ *See* USPTO Guidance, *supra* note 29, at 52–53 (limiting the finding of an abstract idea to enumerate categories, except in rare cases, theoretically reducing the chances of finding a claim directed to an abstract idea).

apply the Alice/Mayo test broadly out of fear of being overruled once again,¹¹⁵ despite their disagreement with the test in at least some cases.¹¹⁶ The Guidance’s failure illustrates the Alice/Mayo test’s tendency to produce inconsistent results, as well as the PTO’s inability to stifle the current subject matter eligibility chaos. In fact, the Guidance’s failure can even be viewed as a cry for help when considering the PTO’s self-recognition of their limited authority. Congress has heard this cry and now seeks to address it.¹¹⁷

IV. Congressional Reform of Section 101

While the PTO may lack the power required to influence the courts position on subject matter eligibility, Congress has the power to enact legislation that even the Supreme Court, arguably, must follow. Inventors, PTO officials, Federal Circuit Judges, investors, scholars, business leaders, trade groups, and patient advocates have voiced growing concerns about the last decade of Alice/Mayo decisions and evinced the need for congressional intervention;¹¹⁸ And Congress has answered the call.¹¹⁹ In May 2019, Senator Thom Tillis (R-N.C.), chairman of the Senate Judiciary subcommittee on intellectual property, released a draft bill that would reform section 101 of the Patent Act.¹²⁰ While still in its infancy, the draft bill makes a number of seemingly drastic modifications to section 101,¹²¹ each of which will be analyzed below.

¹¹⁵ See QUINN, *It May Be Time to Abolish the Federal Circuit*, *supra* note 13 (suggesting the Federal Circuit has expansively interpreted the Alice/Mayo precedent out of fear of being overturned).

¹¹⁶ See, e.g., *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1381 (Fed. Cir. 2015) (Linn, J., concurring) (discussing the consequences of *Mayo*’s “broad language in excluding a meritorious invention from the patent protection it deserves and should have been entitled to retain”); *id.* (“But for the sweeping language in the Supreme Court’s *Mayo* opinion, I see no reason, in policy or statute, why this breakthrough invention should be deemed patent ineligible.”).

¹¹⁷ What We Learned at Patent Reform Hearings, *supra* note 3 (“The hearings reinforced what we have been hearing for years—the U.S. patent system with regard to patent eligibility is broken and desperately needs to be repaired.”).

¹¹⁸ What We Learned at Patent Reform Hearings, *supra* note 3.

¹¹⁹ See Tillis Draft Bill, *supra* note 4.

¹²⁰ Tillis Draft Bill, *supra* note 4.

¹²¹ See Tillis Draft Bill, *supra* note 4 (abrogating and rejecting the use of any “implicit or other judicially created exceptions . . . and all cases establishing or interpreting those exceptions”).

A. Splitting Section 101

First, the draft bill splits section 101 into two sections.¹²² Draft section B states that “eligibility under this section shall be determined only while considering the claimed invention as a whole, without discounting or disregarding any claim limitation.”¹²³ This is a relatively straightforward section that simply reaffirms the importance of viewing a claim in its entirety, rather than focusing on any particular limitation, and should have minimal practical effect since step two of the Alice/Mayo analysis already considers the claim as whole.¹²⁴ Rather, this is likely to serve a supporting role for the other reform provisions.

Reformed section 101 also reflects a subtle change to the statute’s otherwise untouched language. Reformed section 101 removes the term “new” from the phrase “new and useful” employed in the current version of section 101.¹²⁵ While this may be to resolve the apparent redundancy of the term “new” in section 101, given that section 102 is dedicated entirely to novelty, it may also reflect congressional intent to do more than fix a simple drafting redundancy.¹²⁶ This intent is especially apparent, as illustrated below, when investigating the underlying rationale for the more radical changes proposed in the draft bill.

B. Abrogating the Judicial Exceptions to Subject Matter Eligibility

The first of the more substantive reform provisions states that “no implicit or other judicially created exceptions to subject matter eligibility, including ‘abstract ideas,’ ‘laws of nature,’ or ‘natural phenomena,’ shall be used to determine patent eligibility under section 101, and all cases establishing or interpreting those exceptions to eligibility are hereby abrogated.”¹²⁷

¹²² Tillis Draft Bill, *supra* note 4.

¹²³ Tillis Draft Bill, *supra* note 4.

¹²⁴ See *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1377 (Fed. Cir. 2015) (“[I]f the answer is yes, then we next consider the elements of each claim both individually and ‘as an ordered combination.’”).

¹²⁵ Compare 35 U.S.C. § 101 (1952), with Tillis Draft Bill, *supra* note 4.

¹²⁶ Compare 35 U.S.C. § 101, with 35 U.S.C. § 102 (2012).

¹²⁷ Tillis Draft Bill, *supra* note 4.

This facially radical section makes clear Congress’s disapproval of the “federal common law of patents” relating to subject matter eligibility exceptions and overrules the Alice/Mayo line of cases.¹²⁸

Initially, the Supreme Court will likely be concerned with such a drastic alteration of section 101 doctrine. After all, the judicial exceptions *appear* to play an integral role in the overall purpose of patent law by preventing monopolization of the “building blocks of human ingenuity.”¹²⁹ Given the Court’s emphasis on preemption, it would not be surprising if the Court deemed this provision unconstitutional by hindering the advancement of the useful arts.¹³⁰ This may be true even with the Court’s apparent, yet ironic recognition that it is Congress’s responsibility to create new laws.¹³¹ But, the Court’s track record of respecting congressional intent in the field of patent law¹³² and the Court’s apparent restraint with respect to recent opportunities to engage in judicial activism may suggest otherwise.¹³³ Furthermore, this modification to section 101 is less concerning when considering Congress’s potential motives for such a facially radical change.

Perhaps Congress is merely rejecting the Court’s opinion that other sections of the patent act cannot adequately supplant section 101 in preventing the patenting of natural laws, phenomena,

¹²⁸ See Gutttag, *supra* note 23 (discussing the Supreme Courts history of judicial activism in the field of patent law).

¹²⁹ See *Ariosa*, 788 F.3d at 1381 (“[P]atent claims should not prevent the use of the basic building blocks of technology—abstract ideas, naturally occurring phenomena, and laws of nature.”).

¹³⁰ *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (describing the concern justifying judicial exceptions as one of pre-emption).

¹³¹ *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 92 (2012) (recognizing Congress’ role in crafting laws when necessary, but ironically going on to establish the Alice/Mayo test despite the complete absence of any mention of abstract ideas or laws of nature in the text of section 101).

¹³² See, e.g., *Graham v. John Deer Co.*, 383 U.S. 1, 15 (1966) (“It also seems apparent that Congress intended by the last sentence of § 103 to abolish the test it believe[s] this Court announced in the controversial phrase “flash of creative genius.”).

¹³³ See *Henry Schein, Inc. v. Archer & White Sales, Inc.*, 139 S. Ct. 524, 528 (2019) (en banc) (“The act does not contain a ‘wholly groundless’ exception, and we are not at liberty to rewrite the statute passed by Congress and signed by the president.”); See also Robert Isackson, *A New Court and a New Fix for Alice and Patent Eligibility under Section 101*, IP WATCHDOG (Jan. 11, 2019), <https://www.ipwatchdog.com/2019/01/11/new-court-fix-alice-patent-eligibility-judicial-exceptions-101/id=104975/>.

and abstract ideas.¹³⁴ In *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, the Court faced this argument and rejected it solely on the grounds that it would effectively destroy the judicial exceptions and conflict with prior law.¹³⁵ In support of its rejection the Court offered only conclusory statements that the other sections are not equipped to handle this role and relying on them would increase the risk of uncertainty.¹³⁶ But this view is undermined by the Court's own conflation of sections 102 and 103 with 101 in the Alice/Mayo test, which suggests that requirements such as novelty and obviousness may already be supplanting the judicial exceptions, albeit under the guise of section 101.¹³⁷ Further evidence of Congress's disapproval of the Court's conflation of the different patentability requirements can be found in the next reform provision.

C. The Role of Conventionality

Similar to the Guidance, the next provision of the Tillis Draft Bill states that the determination of subject matter eligibility should not depend at all on the manner in which an invention is made, whether individual limitations are well-known, conventional or routine, or "any other considerations relating to sections 102, 103, or 112 of this title."¹³⁸ Aside from explicitly abrogating the use of conventionality in subject matter eligibility analysis, this provision makes explicit Congress's condemnation of the Court's conflation of sections 101, 102, 103, and 112.¹³⁹ By explicitly and broadly excluding the use of any considerations relating to novelty, obviousness,

¹³⁴ See *Mayo*, 566 U.S. at 90 (rejecting the government's contention that sections 102, 103, and 112 can perform the screening function currently achieved by judicial exceptions). But See *Parker v. Flook*, 437 U.S. 584 (1978) ("The obligation to determine what type of discovery is sought to be patented must precede the determination of whether that discovery is, in fact, new or obvious.").

¹³⁵ *Mayo*, 566 U.S. at 90.

¹³⁶ *Id.*

¹³⁷ Did the Supreme Court Destroy Patents, *supra* note 5; See QUINN, *It May Be Time to Abolish the Federal Circuit*, *supra* note 13 ("After all, Mayo dealt with an exceptionally poor claim where the Supreme Court took a shortcut using 101 instead of 102 or 103.").

¹³⁸ Compare USPTO 2019 Guidance, *supra* note 29, at 51 (teaching that conventionality should only be a factor at step two of the Alice/Mayo analysis), with Tillis Draft Bill, *supra* note 4 (stating that subject matter eligibility should never depend on conventionality).

¹³⁹ Tillis Draft Bill, *supra* note 4.

or written description, this provision further reflects Congress' view that these other sections of the Patent Act can effectively replace the judicial exceptions.¹⁴⁰

D. Reformed Section 101 Favoring Eligibility

The third and final provision of the draft bill best represents what Congress views as section 101's role in determining patentability in general and simply states that "section 101 shall be construed in favor of eligibility."¹⁴¹ This relatively straight-forward provision ties together the proposed provisions analyzed above. Supported by the other aspects of the reform, this provision clearly reflects Congress's dissatisfaction with the rampant use of section 101 as a bar to patent protection for recent advancements in the fields of computer science and biotechnology;¹⁴² accordingly, it appears Congress intends to return section 101 to its previous status as a relatively minimal hurdle to patentability.¹⁴³

On its face, the Tillis Draft Bill appears to reflect Congress's intent to promote innovation by redressing one of the Supreme Court's recent blows to eligibility and redirecting the current paradigm of patent law towards one favoring patentability.¹⁴⁴ It must be noted, however, that while many have voiced valid concerns with the current subject matter paradigm, others fear that

¹⁴⁰ *But see Mayo*, 566 U.S. at 90 ("[T]o shift the patent eligibility inquiry entirely to these later sections risks creating significantly greater legal uncertainty, while assuming that those sections can do work that they are not equipped to do.").

¹⁴¹ Tillis Draft Bill, *supra* note 4.

¹⁴² See JOHN M. GOLDEN ET AL., *PRINCIPLES OF PATENT LAW: CASES AND MATERIALS*, at 65 (Robert C. Clark et al. eds., 7th ed. 2018) ("Questions of . . . subject-matter eligibility have proven particularly significant for the patenting of biochemical substances, computer software, and business methods."); QUINN, *It May Be Time to Abolish the Federal Circuit*, *supra* note 9 (discussing the Federal Circuit's rejection of 90% or more of the software patents and nearly all of the diagnostic patents on the basis of subject matter eligibility since *Alice/Mayo*).

¹⁴³ JOHN M. GOLDEN ET AL., *PRINCIPLES OF PATENT LAW: CASES AND MATERIALS* 65 (Robert C. Clark et al. eds., 7th ed. 2018).

¹⁴⁴ Compare Samuel F. Ernst, *A Patent Reformist Supreme Court and Its Unearthed Precedent*, 29 *FORDHAM INTELLECTUAL PROPERTY, MEDIA AND ENTERTAINMENT L. J.* 1, 1 (2019) (discussing the Supreme Court's "new era of common law patent reform in favor of accused infringers), and Did the Supreme Court Destroy Patents, *supra* note 5, with Daniel T. Taskalos, *Returning to the Status Quo? – Proposed Outline for Section 101 Reform*, *THE NAT'L L. REV.* (2019), <https://www.natlawreview.com/article/returning-to-status-quo-proposed-outline-section-101-reform> (discussing the draft bill as returning section 101 to its previous status as "a low hurdle to patentability, but a hurdle nonetheless").

overhauling the current doctrine, specifically the Alice/Mayo test, will negatively impact innovation by arming “patent trolls.”¹⁴⁵ An investigation into the interplay of patent trolls and the Alice/Mayo test is beyond the scope of this comment. It is worth noting, however, that the threat of patent trolls must be weighed against the danger of disincentivizing innovation more generally, because too much restriction will upset the balance patent law seeks to promote. Even though the Alice/Mayo test has been effective in combating this issue by, for instance, barring the protection of most software claims,¹⁴⁶ it has done so in an overly inclusive manner and other methods for controlling trolls may be available. In sum, the draft bill represents a step in the right direction, but it still carries with it the inescapable, yet mitigatable, issues stemming from judicial interpretation. Congress should take this “blank slate” opportunity to prospectively bolster the predictability of section 101 by implementing further changes beyond those already proposed in the draft bill.

V. The Possible Outcome of the Section 101 Reform

While the reformed section 101 may appear to be a direct solution to the unpredictability created by the Alice/Mayo test, it is unlikely to produce as radical a change in overall patentability as the language of the reformed statute suggests. This is for two reasons, both of which will be discussed in further detail below. First, the Court may use judicial review to simply find the reform unconstitutional; however, there are ways for Congress to mitigate the risk of judicial review. The second and more complex reason involves the Court simply moving the judicial exceptions to another section of the Patent Act. In other words, even if the section 101 reform is unchallenged,

¹⁴⁵ *A Terrible Patent Bill Is On the Way*, Electronic Frontier Foundation (May 29, 2019), <https://www.eff.org/deeplinks/2019/05/terrible-patent-bill-way>; *See Patent Trolls*, Electronic Frontier Foundation (describing patent trolls as entities that purchase or possess patents for the sole monetary purpose of forcing others using their protected technology to enter into license agreements or face the risk of costly litigation).

¹⁴⁶ *See QUINN, It May Be Time to Abolish the Federal Circuit*, *supra* note 13 (noting the Federal Circuit’s invalidation of “90% or more of the software patents they see”).

the Court may formulate new doctrine serving the same purpose of the judicial exceptions under a different section of the patent act, with 103 regarding obviousness being the likely candidate for reasons discussed below.¹⁴⁷ But that does not make the reform a wasted effort; rather, the Supreme Court and Federal Circuit can and should use this fresh start as an opportunity to consider the issues evinced by the *Alice/Mayo* test when crafting future doctrine.

While congress may reform section 101 and rely on its constitutional supremacy, it would be wise for Congress to safeguard such reform efforts from the interpretive pitfalls present in the current paradigm.¹⁴⁸ In order to do so, Congress must recognize the interpretive pitfalls of the draft bill and account for the Court’s potential response to the new legislation.¹⁴⁹

A. How Congress Should Bolster the Reform

Interpretation plays a vital role in the creation of any judicially created doctrine. For example, the judicial exceptions themselves can be seen as the product of the Court’s interpretation of section 101 in light of the constitutional goal of patent law. In other words, the Court’s *contention* that abstract ideas, natural laws, and phenomena should not be patent eligible can rationally be viewed as supporting the constitutional goal of promoting the useful arts by preventing expansive restrictions on innovation.¹⁵⁰ While congress may reform section 101 and rely on its constitutional supremacy, it would be wise to safeguard such reform efforts against misinterpretation.¹⁵¹

¹⁴⁷ See discussion *infra* Section IV.B.

¹⁴⁸ See MARK MARELLO, *Urge the Drafters of the New Section 101 to Support Inventor-Friendly reform*, IP WATCHDOG (May 13, 2019), <https://www.ipwatchdog.com/2019/05/13/urge-drafters-new-section-101-support-inventor-friendly-reform/id=109206/> (discussing the need to account for the courts “damage factor” when reforming section 101 “because whatever language you think is well-written, the courts’ will interpret it in flawed or outright wrong ways”).

¹⁴⁹ See *id.*

¹⁵⁰ *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 92 (2012).

¹⁵¹ See MARK MARELLO, *Urge the Drafters of the New Section 101 to Support Inventor-Friendly reform*, IP WATCHDOG (May 13, 2019), <https://www.ipwatchdog.com/2019/05/13/urge-drafters-new-section-101-support-inventor-friendly-reform/id=109206/> (discussing the need to account for the courts “damage factor” when reforming

One obvious way in which Congress can mitigate the risk of misinterpretation involves making their intentions as clear as possible. Without such intentions the courts may find it hard to justify the facially radical proposal to completely abrogate the judicial exceptions.¹⁵² After all, logic would dictate that one of the most direct ways to address interpretive issues associated with any law or policy entails conveying the legislature’s intent in the most explicit and concrete manner. Reformed section 101 clearly rejects conflation of the various patentability requirements, but it does not directly address the valid concerns related to the complete abrogation of the judicial exceptions.¹⁵³ In other words, reformed section 101 can be plausibly read as allowing the patenting of former judicial exceptions. If Congress intends for the other patentability requirements to address the risks previously mitigated by the judicial exceptions, as reformed section 101 seems to suggest, it should explicitly state that intent as it has with the assumption in favor of eligibility.¹⁵⁴ Furthermore, this would promote consistent application of section 101 and stifle concerns associated with the complete abrogation of the judicial exceptions, regardless of whether the other patentability requirements can, in fact, replace the exceptions. This is because if Congress makes this decision, the courts might feel less responsible for making the complex and somewhat speculative determination of whether or not removal of the judicial exceptions actually promotes innovation in a manner consistent with the Constitution. But Congress may also preempt the danger of judicial review by supporting its decision with evidence, or at least a logical foundation, in addition to explicitly voicing its intentions.

section 101 “because whatever language you think is well-written, the courts’ will interpret it in flawed or outright wrong ways”).

¹⁵² Tillis Draft Bill, *supra* note 4.

¹⁵³ Tillis Draft Bill, *supra* note 4.

¹⁵⁴ *See* Tillis Draft Bill, *supra* note 4 (“section 101 shall be construed in favor of eligibility”).

Explicit congressional intent may not completely foreclose the Court from viewing reformed section 101 as conflicting with the Constitution, and thereby refusing to recognize the new provisions. Judicial review merely requires finding that “a law be in opposition with the Constitution.”¹⁵⁵ Providing explicit evidence of congressional intent may play a role in determining whether a law is contrary to the Constitution, given the Court’s alleged deference to Congress as the governmental entity best equipped for crafting law.¹⁵⁶ But intent alone may not prevent a judicial determination that reformed section 101 conflicts with the Constitution. This is because the statutes actual impact on overall innovation is difficult, if not impossible, to accurately predict.¹⁵⁷ While it may be overkill, Congress should also provide evidence, or at least a rational argument, as to why such judicial exceptions are unnecessary under section 101, or even contrary to the goal of the Constitution. If Congress explicitly voices its *belief* that abrogation of the judicial exceptions will not impede innovation, nor conflict with the Constitution, and supports this belief with a reasonable basis or, better yet, statistical evidence, it would be even more difficult for the courts to find a legitimate conflict between the statute and the Constitution.¹⁵⁸ Put another way, providing a logical foundation supporting the reformed section 101 should preempt the courts from crafting policy, based on their own opinions, under the guise of judicial review.¹⁵⁹

¹⁵⁵ See *Marbury v. Madison*, 5 U.S. 137, 178 (1803) (“So if a law be in *opposition* to the Constitution; . . . [T]he court must decide which of these *conflicting* rules governs the case.”) (emphasis added).

¹⁵⁶ See *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 92 (2012) (“We must recognize the role of Congress in crafting more finely tailored rules where necessary.”).

¹⁵⁷ See Joseph Saltiel, *In the Courts: Five years After Alice – Five Lessons Learned from the Treatment of Software Patents in Litigation*, WIPO: WIPO MAGAZINE (August 2019), https://www.wipo.int/wipo_magazine/en/2019/04/article_0006.html (“Until a new law is passed and used in litigation cases, it will be difficult to gauge the impact of that new legislation.”).

¹⁵⁸ See *Marbury*, 5 U.S. at 178 (requiring that a law conflict with the Constitution prior to engaging in judicial review).

¹⁵⁹ *Id.*

B. The Collateral Effects of the Section 101 Reform

While Congress may reform the statutory language of section 101, the courts, as interpreters of the statute, have a corresponding role in controlling the future of subject matter eligibility. If the reform is accepted, any use of judicial exceptions will be explicitly barred from the section 101 analysis, and the courts may account for this by moving the exceptions to other patentability requirements like novelty and obviousness.¹⁶⁰ But this is not a bad thing. In fact, Congress may have intended this, as reflected by explicitly barring the use of judicial exceptions in determining patent eligibility *only* under section 101.¹⁶¹ After all, the judicial exceptions serve an important purpose because broadly patenting natural laws or abstract ideas would contravene the constitutional aim of patent law.¹⁶² Furthermore, the issues with the Alice/Mayo analysis do not stem from its goal of preventing the monopolization of judicial exceptions, which is undeniably in accordance with the constitutional goal of patent law;¹⁶³ rather, the problem with the Alice/Mayo test is the interpretive difficulties and uncertainty it introduces to the historically straight-forward concept of subject matter eligibility.¹⁶⁴ Obviousness, on the other hand, is an inherently subjective concept and therefore better suited for the type of analysis the Alice/Mayo test entails.¹⁶⁵

¹⁶⁰ See Tillis Draft Bill, *supra* note 4 (abrogating the use of judicial exceptions and prohibiting the conflation of section 101 with other patentability requirements).

¹⁶¹ See Tillis Draft Bill, *supra* note 4 (“No implicit or other judicially created exceptions to subject matter eligibility . . . shall be used to determine patent eligibility under *section 101*.”) (emphasis added).

¹⁶² See *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576 (2013) (“patent protection strikes a delicate balance between creating ‘incentives that lead to creation, invention, and discovery’ and ‘impeding the flow of information that might permit, indeed spur, invention.’”).

¹⁶³ See *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (describing the concern justifying judicial exceptions and the Alice/Mayo test as one of pre-emption).

¹⁶⁴ See JOHN M. GOLDEN ET AL., *PRINCIPLES OF PATENT LAW: CASES AND MATERIALS* 65 (Robert C. Clark et al. eds., 7th ed. 2018) (discussing subject matter eligibility as a historically minimal burden to patentability).

¹⁶⁵ Compare 35 U.S.C. § 103 (2011) (requiring that the claimed invention not be “obvious” when viewed in light of the prior art, but failing to define what constitutes “obvious”) with Quinn, *The Hunt for the Inventive Concept is the Flash of Creative Genius Test by Another Name*, *supra* note 99 (relating the inventive concept step of the Alice/Mayo test to the subjective “flash of creative genius” test formerly used in the context of obviousness).

Section 103 essentially states that an invention is invalid if, in light of the prior art, it would be obvious to a person having ordinary skill in the art.¹⁶⁶ In one sense, all the Alice/Mayo test really asks is whether an invention utilizes a judicial exception in such an inventive, or in other words *nonobvious*, way that warrants patent protection. In fact, all that may really be required to re-stabilize section 101 is recognition of the judicial exceptions as “prior art” so they may be used to render an invention obvious. Section 102 of the Patent Act defines prior art for purposes of section 102 and 103, with some nuances, as anything previously disclosed in a patent or publication, or anything “in public use, on sale, or otherwise available to the public.”¹⁶⁷ It is entirely reasonable to view natural laws and phenomena as being in public use or available to the public due to their natural existence and discovery. The same goes for abstract ideas like hedging financial risk, given its history of human use.¹⁶⁸

In that case, reformed section 101 would have little practical impact on patentability in general, aside from replacing the troublesome Alice/Mayo test with the standard novelty and obviousness analyses; and that is precisely how the section 101 reform should be interpreted. For example, cases like *Mayo* would still come out the same, albeit under section 103 rather than section 101.¹⁶⁹ In *Mayo*, the patented claims were ultimately found invalid because the conventional steps of the process involved a judicial exception and did not satisfy the inventive concept requirement of 101.¹⁷⁰ The Court used the words routine and conventional, which suggests that these steps would have also been obvious to a person with ordinary skill in the art.¹⁷¹

¹⁶⁶ 35 U.S.C. § 103 (2011)

¹⁶⁷ 35 U.S.C. § 102 (2012).

¹⁶⁸ See *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (describing hedging, or protecting against risk, as “a fundamental economic practice long prevalent in our system of commerce” and deeming it an abstract idea).

¹⁶⁹ QUINN, *It May Be Time to Abolish the Federal Circuit*, *supra* note 13 (characterizing *Mayo* as a case “with an exceptionally poor claim where the Supreme Court took a shortcut using 101 instead of using 102 or 103”).

¹⁷⁰ *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 67 (2012).

¹⁷¹ *Id.*

In other words, the invention would likely have been obvious and invalid under section 103 anyways.¹⁷²

Furthermore, moving the judicial exceptions to the obviousness inquiry would likely have little effect on current section 103 doctrine. This is because the obviousness inquiry intrinsically asks whether additional claim elements integrate the exception in a manner justifying patentability, similar to the inventive concept found in the Alice/Mayo test.¹⁷³ But that does not mean that section 103 doctrine should not be modified to avoid some of the issues currently associated with the Alice/Mayo analysis. For instance, if Congress concludes that patenting diagnostic tests aligns with the constitutional goals of patent law,¹⁷⁴ the reform should include an explicit exception for these types of discoveries. But the current version of the reform does not include such language, and since the draft bill does not modify or reform section 103, the court's interpretation of the law will control the future of the section.¹⁷⁵ That being said, the courts should view the reform as an opportunity to "move" the judicial exceptions to section 103 because doing so will solve the interpretive issues associated with section 101 and the Alice/Mayo test while minimally impacting overall patentability.

VI. Conclusion

The recent confusion and discord surrounding patent subject matter eligibility threatens to undermine innovation in technological fields vital to modern society.¹⁷⁹ Widespread concern and

¹⁷² 35 U.S.C. § 103 (2011).

¹⁷³ Compare 35 U.S.C. § 103 (requiring that the claimed invention, as whole, not be "obvious" when viewed in light of the prior art) with *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1377 (Fed. Cir. 2015) ("A claim that recites [a judicial exception] must include 'additional features' to ensure 'that the [claim] is more than a drafting effort designed to monopolize the [judicial exception].').

¹⁷⁴ See *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1381 (Fed. Cir. 2015) (Linn, J., concurring) ("But for the sweeping language in the Supreme Court's *Mayo* opinion, I see no reason, in policy or statute, why this breakthrough [diagnostic test] should be deemed patent ineligible.").

¹⁷⁵ Tillis Draft Bill, *supra* note 4.

¹⁷⁹ Tillis Draft Bill, *supra* note 4.

futile attempts to quell the recent chaos have evinced the need for congressional intervention, and it appears Congress intends to address the issue.¹⁸⁰ An analysis of the proposed section 101 reform reveals that it may not produce as radical a change in overall patentability as the language may suggest, nor should it. Instead, the reform provides a much-needed reorganization of the overall patent eligibility inquiry and an opportunity for the judiciary to craft more appropriate doctrine going forward. But the hurdle of judicial interpretation is ever present.

If Congress wishes to effectively promote consistent application of section 101 it must bolster the language of its proposed reform to preemptively address the potential for misinterpretation. Doing so requires at least two things. First, Congress must explicitly state that it intends for other requirements of patentability to supplant the judicial exceptions. Second, it must explicitly voice and support its belief that the other requirements of patentability—most importantly obviousness—can effectively address the concerns currently addressed by the judicial exceptions in a manner consistent with the Constitution. Accordingly, the future stability of section 101, 103, and the field of patent law in general, lies in the hands of both Congress and the courts.

¹⁸⁰ Tillis Draft Bill, *supra* note 4.