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Testimony of Joshua D. Sarnoff
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Hearing: *The State of Patent Eligibility in America: Part I*
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Chairman Tillis, Ranking Minority Member Coons, and Committee Members. Thank you for the opportunity to appear before you today. I am honored to share my insights. I am a law professor at DePaul University, currently teaching patent law, administrative law, and other subjects. I have taught, written about, and spoken on the history and theory of utility patent subject matter eligibility doctrine, in both the U.S. and abroad. I have been a practicing patent lawyer since the early 1990s, and later a consultant and expert witness on patent law matters. From 2014 to 2015, I served as a Thomas A. Edison Distinguished Scholar at the U.S. Patent and Trademark Office, in which capacity I provided advice to the agency to develop guidance for examiners in applying eligibility doctrine. I have previously organized academics to submit legislative recommendations to Congress regarding pending patent reform legislation that ultimately resulted in the passage of the current patent law, the Leahy-Smith America Invents Act ("AIA"), and recently organized academics to volunteer legislative language analysis and drafting assistance should the current efforts to revise utility patent subject matter eligibility doctrine proceed. I have represented pro bono law professors, public interest organizations, and medical associations (including AARP and the American Medical Association) in drafting and filing amicus briefs in the U.S. District Court, the U.S. Court of Appeals for the Federal Circuit ("Federal Circuit"), and the U.S. Supreme Court in important cases addressing patentable subject matter eligibility doctrine, including the *LabCorp, Bilski, Myriad,* and *Mayo* cases.

I will make nine basic points in my testimony.

First, the current uncertainty in eligibility doctrine does not justify the pending legislative efforts to eliminate existing protection for the public domain of scientific, natural, and fundamental discoveries ("science, nature, and ideas"). Propertizing this public domain with utility patents is: (a) bad utilitarian innovation policy; (b) likely unconstitutional; (c) contrary to the human right of access to science and its applications; (d) immoral, by taking away the public's rights and requiring the public to unjustly enrich patent applicants; and (e) a religious sin against God.

Second, the pending legislative revision proposals do not address the root causes of the doctrinal uncertainty. Those causes are the lack of sufficient legislative specificity in defining the legal standard, and the inadequate and inconsistent adjudications in interpreting and applying that standard, to decide the kinds of human creativity that do or do not warrant granting utility patents. The pending legislative proposals thus would only displace uncertainty from existing eligibility doctrine to other patent law doctrines.

Third, the pending proposals, by eliminating or displacing the required line-drawing creativity judgments, would not harmonize U.S. patent law with that of other countries. Rather, such legislation would make U.S. patent law even more exceptional, and not in a good way.

Fourth, the current, judicially interpreted requirement of Section 101 to treat ineligible *novel* discoveries of science, nature, and ideas as prior art against applicants claiming practical applications thereof is good innovation and moral policy. It protects the public domain from unwarranted encroachment by utility patents better than would other jurisdictions' and the pending proposals' line-drawing approaches, by preventing patents on uncreative (and thus obvious) applications of such ineligible discoveries. Such patents disclose nothing of public benefit beyond the ineligible discoveries themselves, which the public should remain free to use.

Fifth, by minimizing reliance on eligibility doctrine to determine patent validity, the pending proposals would increase uncertainty in and costs of the patent system. Eligibility doctrine is less subject to evidentiary disputes than patentability doctrines. Relying on eligibility doctrine to make line-drawing creativity judgments thus facilitates earlier, easier, and less costly gatekeeping assessments and adjudications of validity, reducing systemic uncertainty and costs.

Sixth, the pending proposals would expand the utility patent system to aesthetic and other forms of non-technological creativity, by removing consideration of the kind of novel creativity from eligibility determinations, They would thereby restore the patent system to the same disrepute that resulted from expansive judicial interpretations of eligibility by the Federal Circuit in the 1990s, which explicitly authorized patents on software and business methods and resulted in low-quality patents. These new patents will not be excluded either by the utility doctrine of Section 101 or by the non-obviousness doctrine of Section 103, without further revisions to those doctrines that would recreate similar line-drawing complexities and uncertainties.

Seventh, expanding the patent system to eliminate the exclusions for science, nature, and ideas and to authorize as eligible claims to most or all practical, technological applications of non-technological creativity likely will be held unconstitutional, facially and as applied respectively, generating further legal uncertainty. Patents on discoveries of science, nature, and ideas and on other forms of non-technological creativity likely exceed the Article I, Section 8, Clause 8 patent granting power, and many such patents will restrict thought and speech and thereby violate the First Amendment, as patent law lacks the speech-protecting safeguards of copyright law.

Eighth, trying to avoid those results by more clearly defining "specific," "practical" and "technological" utility will prove at least as difficult as addressing directly the requisite kind of eligible creativity through Section 101's eligibile novelty doctrine. Without such definitional clarity, the pending proposals will reproduce in other doctrines the current uncertainties of interpretation and application of eligibility doctrine, without providing any appreciable benefits.

Ninth, in light of the above, if Congress proceeds to revise eligibility doctrine or to displace such utility patent-system line-drawing judgments to other patent law doctrines by eliminating "newness" from Section 101, it should at least: (a) provide as much clarity as humanly possible in any legislative language actually adopted; (b) protect the public domain of science, nature, and ideas by explicitly requiring prior art treatment of such ineligible discoveries either for eligibility or for novelty and non-obviousness; (c) expressly prohibit any consideration of "preemption" concerns in eligibility or other doctrines, as they are more appropriately addressed by Section 112's claim scope doctrines; and (d) explicitly abrogate judicial precedents inconsistent with the new language This will minimize uncertainty, litigation, and the need for further legislative revisions.

1. The Pending Proposals Should Not Seek To Reduce Doctrinal Uncertainty By Removing Existing Protections for the Public Domain of Science, Nature, and Ideas.

Section 101 of the Patent Act provides the "eligibility" criteria for the *types* of things generated by the *kinds* of creativity that can be patented as a utility patent "invention," as well as requiring that such creative things be "useful."[1] Other sections of the Patent Act, impose "patentability" restrictions on the grant of utility patent rights, as the "quid pro quo" for granting exclusive rights to such nonobvious inventions. In particular, Section 102's novelty doctrine defines what is to be considered "prior art," *i.e.,* public knowledge to assess whether a claimed invention is not new and thus whether its disclosure provides no public benefit.[2] Section 103's nonobviousness doctrine requires a sufficient *amount* of the required kind of creativity in light of that prior art, as otherwise the invention is already constructively (or within a reasonable time will be) within the public's grasp, and thus the public again receives an insufficient benefit in exchange for the granted rights.[3] Section 112 requires, among other things: clear and distinct language claiming the invention for which exclusive rights are sought at a particular level of generality; a disclosed written description of the invention that objectively reflects to skilled persons in the relevant technological field whether the applicant subjectively possessed the full scope of that claimed invention as of the date of filing the application; and additional details sufficient to enable skilled persons to make and use the full scope of that claimed invention, to assure that the grant of rights is commensurate with the disclosed, creative advance.[4]

At the most basic level, the purpose of Section 101's subject matter eligibility doctrine is therefore to distinguish the *kinds* of mental creativity (invention) that (subject to patentability requirements) warrant granting utility patent rights in products or processes from the kinds that do not. The AIA did not significantly change subject matter eligibility doctrine under the 1952 Patent Act. Eligibility doctrine thus remains subject to: (a) the current provisions of Sections 100 and 101 of the 1952 Patent Act, as interpreted to preserve interpreted meanings of key terms from earlier legislation that date back to the 1790 Patent Act[5]; and (b) constitutional limitations on the patent granting power. The language of Section 101 continues to require an applicant for a utility patent to "*invent[] or discover[]*" a "*new* and useful" "process, machine, manufacture, or composition of matter" that the applicant claims as a utility patent-eligible invention.[6] It is

[1] 35 U.S.C. § 101; *see also* 35 U.S.C. § 100(b) (defining "process").
[2] 35 U.S.C. § 102.
[3] 35 U.S.C. § 103.
[4] 35 U.S.C. § 112(a), (b).
[5] To immediately correct a common misperception, the 1952 Act did *not* eliminate any and all consideration of the *kind* of inventive creativity from eligibility analysis under Section 101, displacing all such considerations to the patentability non-obviousness doctrine of Section 103. Rather, the Act incorporated in Section 101 the Section 100(b) definition of "process," with the intent to require a *non-analogous* new use of an old thing or process to establish eligibility, and Congress was unable to pass draft language that would have overturned the decision in Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127 (1948), requiring creative applications of nature for eligibility of product claims. Courts in the decades following the 1952 Act continued to require inventive application under Section 101. *See, e.g.,* Application of Ducci, 225 F.2d 683, 688 (C.C.P.A. 1955) (*citing* Ansonia Brass & Copper Co. v. Electric Supply Co., 144 U.S. 11 (1892)); Jeffrey A. Lefstin, *Inventive Application: A History,* 67 Fla. L. Rev. 565, 632-40 (2015). *Cf. id.* at 628, 631 ("the [Supreme] Court's analysis makes it impossible to characterize *Funk Brothers* as an obviousness case in the modern sense…. Contemporaneous commentators recognized that *Funk Brothers* demanded inventive application as a condition of patentability.").
[6] 35 U.S.C. § 101 (emphasis added).

therefore necessary to determine whether any claim of invention constitutes an eligible, *novel invention or discovery* within the meaning of the legislation *and* of the Constitutional grant of patent authority: "Congress shall have the Power …. to *promote the Progress* … of *useful Arts* by securing … to … *Inventors* the exclusive Right to their … *Discoveries*").[7]

It is important to acknowledge that there *is* a serious problem of the degree of uncertainty regarding the perceived purposes and the interpretation and application of current eligibility doctrine, beyond the normal legal uncertainty of applying general legislation to specific cases. Although the language of the eligibility provision has remained essentially unchanged since the 1793 Patent Act, the doctrine has been inconsistently interpreted and applied by the courts over the entire time frame, and particularly since the 1970s.

This problem, however, does not warrant the legislative changes currently being proposed that purport to provide greater legal certainty. Those proposals either would treat almost all practical applications of discoveries of science, nature, and fundamental information as patentable eligible inventions, or would displace such uncertainty to the other patent law doctrines (particularly utility or non-obviousness) that are less suited to the task of making the complex, line-drawing distinctions of the requisite kind of human creativity that warrants a utility patent. These proposed cures, if enacted, would be worse than the current eligibility-doctrine uncertainty disease. Further, they would not address the root causes of the legal uncertainty, and therefore would instead reproduce excessive uncertainty in other ways.

Specifically, some of the proposals would intentionally subject to utility patent rights the public domain of *newly discovered* scientific principles, natural phenomena, and fundamental ("abstract") information and ideas.[8] Other proposals would provide for patenting an unspecified set of

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[7] U.S. Const. Art. I, § 8, cl. 8 (emphasis added). *See, e.g.,* In re Kemper, 14 F.Cas. 286, 287 (C.C.D. D.C. 1841) (No. 7,687) ("'Invention differs from discovery.'... A discovery, in this sense, is not the subject of a patent; and it will be found, by a careful perusal of the constitution and laws of the United States upon the subject of patents for useful arts, &c., that it is not there used in this sense, but always as synonymous with invention.") (citation omitted); ALBERT H. WALKER, TEXT-BOOK OF THE PATENT LAWS OF THE UNITED STATES OF AMERICA 2 (2d ed. 1889) ("The word 'discovery' does not have either in the Constitution or the statute, its broadest signification. It means invention, in those documents, and in them it means nothing else.").

[8] *See, e.g.,* Legislative Draft of May 22, 2019 (proposed Section 101(a): "Whoever invents or discovers any useful process, machine, manufacture, or composition of matter, or any useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title," thereby eliminating the term "new" and any consideration of the *nature* of the creative novelty of a claimed of invention from existing Section 101); *id.* (proposed "Additional Legislative Provisions": "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."). It is unclear whether the draft intends to permit patents on scientific discoveries "as such," given that the proposal also would create a new definition of "useful" in proposed Section 100(k) that "means any invention or discovery that provides specific and practical utility in any field of technology through human intervention." *Id.* Scientific discoveries may be highly specific and practical (in the sense that they may find particular and useful applications in research and beyond), and the proposed legislative draft does not distinguish between scientific and technological utility, or exclude from the definition of "useful" scientific discoveries having use in fields of technology. *See also* Intellectual Property Organization-American Intellectual Property Law Association Proposal of May 3, 2018 ("IPO-AIPLA Proposal") (proposed Section 101(a), "Whoever invents or discovers, and claims as an invention, any useful process, machine, manufacture, composition of matter, or any useful improvement thereof, shall be entitled to a patent therefor, subject only to the conditions and requirements set forth in this title," but

uncreative (i.e., uninventive), but "practical" and "technological," applications of those novel or previously known discoveries, even if those proposals do not permit claiming the discoveries alone or solely as found in nature (*i.e.,* "as such").[9] Not only are these approaches contrary to centuries of Anglo-American patent law history and property law theory, as I have documented previously.[10] But also (as discussed further below) such discoveries claimed as such have always been and currently remain "off limits" from every patent system in the world.[11]

There are numerous reasons to exclude novel discoveries of science, nature, and ideas from utility patent eligibility, and thereby preserve such discoveries within the public domain. Subjecting such discoveries to patent eligibility is:

(a) **bad utilitarian innovation policy,**[12] which perhaps is of greatest interest to you, because:

(i) **patent rights are not needed to incentivize** many such discoveries in different fields of science and technology, and may actually impede investment in and development of practical, technological applications thereof[13];

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subject to proposed Section 101(b) "Sole Exceptions" "if and only if the claimed invention as a whole (i) exists in nature independently of and prior to any human activity or (ii) is performed solely in the human mind."). Note that from a modern, atheistic perspective, discovered scientific principles are the result of human activity, even if many "natural" phenomena are not, and (except for purely conceptual, mental research) virtually all scientific discoveries require some form of physical embodiment (including computer computations) to be practically useful. *Cf.* American Bar Association Proposal of March 28, 2017 ("ABA Proposal") ("proposed Section 101(a) eliminating novelty, "Whoever invents or discovers any useful process, machine, manufacture, or composition of matter, or any useful improvement thereof, shall be entitled to obtain a patent on such invention or discovery, absent a finding that one or more conditions or requirements under this title have not been met.").

[9] *See, e.g.,* ABA Proposal (proposed Section 100(b) "Exception": "Patent eligibility under this section shall not be negated when a *practical application* of a law of nature, natural phenomenon, or abstract idea is the subject matter of the claims ….") (emphasis added). Note that all of the pending legislative proposals would eliminate from Section 101 the requirement that the "invent[ion] or discover[y]" be "*new*." This change appears to be expressly intended to exclude *any* consideration of the *nature* of the creative advance that underlies the claimed novel (and potentially nonobvious) product or process. Thus, all of the pending proposals would appear to permit claiming of even *uncreative* applications of scientific, natural, and abstract discoveries, effectively obtaining patent rights based on the creativity involved in making the discoveries themselves.

[10] *See, e.g.,* Joshua D. Sarnoff, Patent Eligible Inventions After Bilski: History and Theory, 63 HASTINGS L.J. 53 (2011); *Brief of 15 Law Professors as Amici Curiae in Support of Petitioner,* Association for Molecular Pathology et al. v. Myriad, Inc., 569 U.S. 576 (2013); *Brief of Nine Law Professors as Amici Curiae in Support of Petitioner,* Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66 (2012) ("Law Professors *Mayo* Brief"); Counsel of Record, *Brief of Eleven Law Professors and AARP as Amici Curiae in Support of Respondent,* Bilski v. Kappos, 561 U.S. 593 (2010) ("Law Professors/AARP *Bilski* Brief").

[11] *Cf.* Hector M. Holmes, Book Review, 45 HARV. L. REV. 1431, 1432 (1932) ("[A]ll the proponents [of rights in scientific discoveries] recognize that the scientific discoverer should not have any monopoly of his discovery."). *See generally* C.J. HAMSON, PATENT RIGHTS FOR SCIENTIFIC DISCOVERIES 20–29 (1930) (describing failed efforts in France to create patent rights for scientific discoveries as such).

[12] Note that the utilitarian policy of protecting the public domain of science, nature, and ideas from patent rights also corresponds to religious views of the moral duty of scientists to freely disseminate their scientific discoveries for public benefit. *See, e.g.,* 1 WILLIAM C. ROBINSON, THE LAW OF PATENTS FOR USEFUL INVENTIONS § 25, at 39 (1890) ("To benefit by the discoveries of his fellow-men is thus not only a natural right, it is also the natural duty which every man owes to himself and to society; and the mutual, universal progress thence resulting is the fulfillment of the earthly destiny of the human race.").

[13] *See, e.g.,* Sridhar Srinivasan, *Do Weaker Patents Induce Greater Research Investments* (Dec. 22, 2018), https://ssrn.com/abstract=3185148 (providing causal evidence "that innovation, measured by R&D, responds

(ii) **patent rights restrict access to inventions and may impose undue costs** on the public, and impose substantial **additional harms to both investment and sequential innovation**[14]; and
(iii) **better alternatives to patent rights** may exist to fund and incentivize such discoveries and subsequent efforts to develop practical, technological, and commercial applications[15];

(b) **likely unconstitutional,** exceeding Article I power (as well as violating the First Amendment), given the "constitutional standard'" that originally animated the Supreme Court to hold that "no one can patent 'laws of nature, natural phenomena, and abstract ideas'"[16] (as discussed further below);

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positively to *weakened* patent protection," following the decision in *Alice Corp. v. CLS Bank, Int'l,* 573 U.S. 208 (2014)) (emphasis added); *id.* at 3 ("On the empirical front, Sakakibara and Branstetter (2001) did not find a positive response of R&D spending or innovative output as a result of the 1988 Japanese Patent Law reforms which strengthened patent protection."). Bhaven Sampat & Heidi L. Williams, How Do Patents Affect Follow-On Innovation? Evidence from the Human Genome, NBER Working Paper No. 21666 (Oct. 2015), at 29 ("Second, dating back at least to the academic work of Kitch (1977), many have argued that patents on basic discoveries play an important role in facilitating subsequent investment and commercialization. Our empirical estimates do *not* provide support for patents spurring follow-on innovation in the context of human genes.") (emphasis added). *See generally* Mark Schankerman, *How Valuable Is Patent Protection? Estimates by Technological Field,* 29 RAND J. ECON. 77 (1998). Wesley M. Cohen et al, *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not),* NBER Working Paper 7552.

[14] *See, e.g.,* World Trade Organization, Declaration on the TRIPS Agreement and Public Health, ¶ 3 WT/MIN(01)/DEC/2 (Doha 4th Ministerial Nov. 14, 2001) ("We recognize that intellectual property protection is important for the development of new medicines. We also recognize the concerns about its effects on prices."); *id.* ¶4 ("We agree that the TRIPS Agreement does not and should not prevent members from taking measures to protect public health. Accordingly, while reiterating our commitment to the TRIPS Agreement, we affirm that the Agreement can and should be interpreted and implemented in a manner supportive of WTO members' right to protect public health and, in particular, to promote access to medicines for all."); Tania Bubela, et al., *The mouse that trolled: The long and tortuous history of a gene mutation patent that became an expensive impediment to Alzheimer's research,* 2 J.L. & BIOSCI. 213, 214 (2016) (former Chief Judge "Randall Rader, in his dissent … in Momenta Pharma. v Amphastar Pharma, concluded that 'patents on research tools and biomedical innovations do not significantly slow the pace of research and do not deter researchers from pursuing promising projects'…. Our case study is a counterexample … [that] suggests that without a clear research exemption, or other mechanisms to enable access to research tools, biomedical researchers can face patent infringement litigation that imposes significant costs and slows down both academic and commercial scientific inquiry.") (citation omitted); Andrew Chin, *Research in the Shadow of DNA Patents,* 87 J. PAT. & TRADEMARK OFF. SOC'Y 846, 848 (2005) ("To the extent that the granting of DNA patents is said to promote 'Progress' in the field of oligonucleotide research, this Article provides evidence that any such 'Progress' will be inherently self-defeating."); James Bessen & Eric Maskin, *Sequential Innovation, Patents, and Imitation,* 40 RAND J. ECON. 611, 611 (2009) ("when innovation is 'sequential' … and 'complementary'… patent protection is not as useful for encouraging innovation…. Indeed, society and even inventors … may be better off without such protection… [and] an inventor's prospective profit may actually be enhanced by competition and imitation … [This] appears to explain evidence from a natural experiment in the software industry."). *See generally* Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law,* 5 J. ECON. PERSP. 29 (1991).

[15] *See generally* Joshua D. Sarnoff, *Government Choices in Innovation Funding (with Reference to Climate Change),* 62 EMORY L.J. 1087 (2013).

[16] Bilski v. Kappos 561 U.S. 593, 650 (2010) (Stevens., J., concurring). *See generally, e.g.,* Law Professors/AARP *Bilski* Brief, at 26-35; *Brief of the American Civil Liberties Union as Amicus Curiae in Support of Petitioners,* Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66 (2012) ("ACLU *Mayo* Brief), at 17-23.

(c) **violative of human rights,** given international (if not U.S.) treaty recognition of the public's right of access to scientific discoveries and their applications[17];

(d) **immoral,** by taking away rights that the public inherently possesses without adequate compensation,[18] and by forcing the public to unjustly enrich patent claimants beyond the scope of human creativity *added to* such pre-existing or fundamental things that the public has the natural right to freely use (even if newly and creatively discovered and disclosed by others)[19]; and

(e) **religiously sinful against God,** according to historic Christian theology, by treating God's work that should be free for all to use as if it were a human invention, and by making property of and trafficking in the sacred world of nature given by God to all for human benefit.[20]

The critical importance of preserving the public domain free from patent rights was amply illustrated by the widely publicized breast and ovarian cancer gene patent litigation, *Association for Molecular Pathology v. Myriad Genetics, Inc.*[21] The plaintiffs and many medical associations

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[17] *See* United Nations General Assembly, International Convenant on Economic, Social, and Political Rights, art. 15.1.(b), United Nations, Treaty Series, vol. 993 (entered into force Jan. 3, 1976) ("recogniz[ing] the right of everyone … to enjoy the benefits of scientific progress and its applications."). *See also, e.g.,* S. Porsdam Mann, et al., *Advocating for Science as a Human Right,* 115 PNAS. 10820, 10821 (Oct. 23, 2018) ("Many scientific innovations are protected by IP rights, a tension [with the human right of access to science] noted by 42 of the 52 studies surveyed. Copyright and patents may complicate access to knowledge by taking useful information and innovations out of the public domain. A balance must, therefore, be struck among the interests of authors, inventors, and everyone else."). *See generally* Aurora Plomer, T*he Human Rights Paradox: Intellectual Property Rights and Rights of Access to Science,* 35 HUM. RIGHTS Q. 143 (2013).

[18] It was a commonly understood premise in the 17th and 18th centuries that patent rights did not exist at natural law, and that any restriction on the public's use of disclosed inventions (much less of science, nature, and ideas) could only arise by a positive grant of the government. *See, e.g.,* WALTERSCHEID, NATURE OF THE IP CLAUSE, at 203–04 (citing The Federalist No. 43 (James Madison)). *Cf.* Millar v. Taylor, (1769) 98 Eng. Rep. at 201, 218 (K.B.) (Willes, J.); id. at 222 (Aston, J.); id. at 230– 35 (Yates, J.).

[19] *See Funk Bros. Seed Co.,* 333 U.S. at 130 ("The qualities of these bacteria, like the heat of the sun, electricity, or the qualities of metals, are part of the storehouse of knowledge of all men. They are manifestations of laws of nature, *free to all men and reserved exclusively to none.* He who discovers a hitherto unknown phenomenon of nature *has no claim to a monopoly of it which the law recognizes*. If there is to be invention from such a discovery, it must come from the application of the law of nature to a *new* and useful end.") (emphasis added). *See also* Gottschalk v. Benson, 409 U.S. 63, 67 (1972) ("Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.").

[20] *See, e.g.,* CHRISTINE MACLEOD, INVENTING THE INDUSTRIAL REVOLUTION: THE ENGLISH PATENT SYSTEM 1660-1800, at 198 (Cambridge U. Press 2002) (1998) ("If the inventor was no more than God's instrument in bringing His gifts to the community, then [the inventor] could at most claim user's rights over them."); LEWIS HYDE, FRAMES FROM THE FRAMERS: HOW AMERICA'S REVOLUTIONARIES IMAGINED INTELLECTUAL PROPERTY 4-5 (Dec. 13, 2005), http://ssrn.com/abstract=870073 (as knowledge was a gift from God, "[t]o sell knowledge was to traffic in the sacred… Reformation Protestants were particularly sensitive to the sin of simony."); EDWARD C. WALTERSCHEID, THE NATURE OF THE INTELLECTUAL PROPERTY CLAUSE: A STUDY IN HISTORICAL PERSPECTIVE 39 (2002) ("WALTERSCHEID, NATURE OF THE IP CLAUSE") (the medieval belief that "genius was a gift of God . . . largely precluded an earlier development of the concept of intellectual property. For how could one properly seek to obtain commercial value from that which was perceived to have been granted by the grace of God?").

[21] 569 U.S. 576 (2013) ("*Myriad*"). Additional discussion of the innovation and social harms caused by, and the lack of need for patent protection in regard to, gene patents and patents on other discoveries leading to claimed inventions can be found in the testimony of Charles Duan of the R Street Institute submitted for this Hearing.

documented numerous harms to patients and to medical innovation resulting from those patents.[22] Others have since explained how those patents gave Myriad Genetics an unjustified monopoly in associated genetic sequence data that continues to increase costs and decrease access and sequential discovery and innovation.[23] Such harms from failing to protect the public domain of science, nature, and ideas must be multiplied across all of the other previously issued, expired and unexpired but invalid patents granted on isolated genetic sequences and similar claimed "inventions" in all fields of technologies, which should never have received such exclusive rights.[24]

2. The Pending Proposals Would Displace to Other Legal Doctrines, Rather Than Address, the Root Causes of Eligibility Doctrine Uncertainty.

The pending proposals will not achieve their presumed goal of reducing legal uncertainty. This is because they do not address the root causes of the current eligibility doctrine uncertainty. These causes are: (a) the lack of a sufficiently clear and highly specific, comprehensive policy and framework for making eligibility determinations contained in the legislative text itself; and (b) the inadequacy and inconsistency of adjudicative reasoning in interpreting and applying highly general legislative language. Rather, the pending proposals will just displace such unclear policies and uncertain interpretations and applications to other patent law doctrines.

Specifically, the proposals lack the necessary clarity and specificity to distinguish utility patent-eligible, inventive creativity from other forms of human creativity entitled to different or to no intellectual property rights. Such legislative specificity is unlikely to be obtained through negotiated compromises over new eligibility language in Section 101 (as reflected by the lack of progress to date in achieving consensus in the roundtables previously held by the Chair and Ranking Minority Member). Nor is it likely to be achieved by resorting to the Section 101 utility

[22] *See, e.g.,* Association for Molecular Pathology v. Myriad Genetics, Inc., 702 F. Supp. 2d 181, 206-07 (S.D.N.Y. 2010) (summarizing the alleged harms, such as "Myriad's patents and its position as the sole provider of *BRCA1/2* testing has hindered the ability of patients to receive the highest-quality breast cancer genetic testing and has impeded the development of improvements to *BRCA1/2* genetic testing.… the lack of independent *BRCA1/2* analysis also undermines the ability of the scientific community to determine the meaning of VUS results, which are reported disproportionately for members of minority groups, and whose significance would be more extensively analyzed by other labs.… as a result of the patents-in-suit, *BRCA1/2* genetic testing is one of the very few tests performed as part of breast cancer care and prevention for which a doctor or patient cannot get a second confirmatory test done through another laboratory"); Brief for Amici Curiae American Medical Association et al., in Support of Plaintiffs' Opposition to Defendants' Motion to Dismiss and In Support of Plaintiffs' Motion for Summary Judgment, Association for Molecular Pathology v. Myriad Genetics, Inc., 702 F. Supp. 2d 181 (S.D.N.Y. 2010), at 9-14 (discussing various ways that Myriad's and other companies' gene patents "hamper medical discovery and innovation, interfere with the practice of medicine, and harm patients," including incorrect diagnoses, lack of access to confirmatory testing, prohibitively high costs of testing, and deterring medical innovation).

[23] *See, e.g.,* Brenda M. Simon & Ted Sichelman, *Data-Generating Patents,* 111 NW. U. L. REV. 377 (2017). Note that granting such patents also is bad antitrust policy, in that government grants of exclusive franchises encompassing lines of business and essential natural resources were precluded by the British Statute of Monopolies, the historical precursor to American patent law. *See* Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577, 585 (1999).

[24] Although these opportunity costs may be immense, quantifying them is impossible. This is because many potentially observable harms are not normally documented and discovering them is costly, and because other harms require counter-factual speculation about events that did not occur as a result of the grant of invalid patents.

doctrine (as in the recently introduced legislative proposal) or to patentability doctrines (such as the Section 103 non-obviousness doctrine) to distinguish utility-patent creativity from other forms of creativity.

Even if such a compromise to adopt much more specific legislative language were somehow achieved, however, it would not sufficiently constrain the kind of inadequate judicial and administrative reasoning that has generated confusion over, rather than has clarified, the interpreted meaning and application of existing eligibility standards.[25] Nor would greater legislative specificity prevent judicial and administrative failures to acknowledge (much less to resolve) inconsistent precedents when interpreting and applying that legislative language.

For example, the U.S. Patent and Trademark Office ("PTO") recently issued a guidance document politely but implicitly recognizing such inconsistencies of interpretation and application in the recent precedents of the Federal Circuit.[26] Note that those inconsistencies exist because panels of Federal Circuit judges have failed to follow earlier panel precedents, without sufficient factual differences to analogically justify those different judgments. The Federal Circuit has not gone en banc to resolve those inconsistencies, and even after those inconsistencies have become apparent subsequent panels do not follow the court's own rule that the earlier panel precedents control unless and until reversed en banc.[27] Similarly, in its effort to provide examiners with desired greater clarity (given the Federal Circuit's inconsistent rulings), the PTO has either failed to recognize or has consciously ignored inconsistencies of its new examination guidance with both

[25] For one prominent example, in *Myriad,* the Supreme Court apparently failed to recognize: (a) a contradiction on the most basic fact of the case; and (b) that the Court had adopted and applied different legal standards to different facts in the case. The Court first held that isolated DNA was a "naturally occurring phenomena" and that "Myriad's principal contribution was uncovering the precise location and genetic sequence of the BRCA1 and BRCA2 genes within chromosomes 17 and 13. The question is whether this renders the genes patentable…. Myriad did not create anything. To be sure, it found an important and useful gene, but separating that gene from its surrounding genetic material is not an act of invention." *Id.* at 590-91. But three paragraphs later the Court acknowledged that "isolating DNA from the human genome severs chemical bonds and thereby creates a nonnaturally occurring molecule." *Id.* at 592. And when holding isolated DNA to be ineligible, the Court applied the "'markedly different'" from nature standard (adopted from an earlier case). *Id.* at 591 (*quoting* Diamond v. Charkarbarty, 303, 305-310 (1980)). Another three paragraphs later, however, the Court applied a different legal standard to determine eligibility -- simple "novelty," without considering "marked differences" – when holding that complementary DNA (cDNA) was patent eligible: "the lab technician unquestionably creates something new when cDNA is made. cDNA retains the naturally occurring exons of DNA, but it is distinct from the DNA from which it was derived. As a result, cDNA is not a 'product of nature' and is patent eligible under § 101." *Id.* at 592. The Court did not explain when and why one or the other of these very different eligibility standards is to be employed in future cases for product claims derived from ineligible products of nature. Nor is the simple novelty standard consistent with the Court's approach to process claims applying ineligible discoveries of scientific principles, natural phenomena, or ideas, as articulated in *Mayo Collaborative Services* (which preceded the *Myriad* decision) and as further explained in *Alice Corp.* (which followed the *Myriad* decision).

[26] PTO, 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 50 (Jan. 7, 2019) ("Revised Eligibility Guidance") ("Many stakeholders, judges, inventors, and practitioners across the spectrum have argued that something needs to be done to increase clarity and consistency in how Section 101 is currently applied."); *id.* at 52 ("The Federal Circuit has now issued numerous decisions identifying subject matter as abstract or non-abstract in the context of specific cases, and that number is continuously growing. In addition, similar subject matter has been described both as abstract and not abstract in different cases.").

[27] *See, e.g.,* Robert Bosch, LLC v. Pylon Mfg. Corp., 719 F.3d 1305, 1316 (Fed. Cir. 2013) (en banc).

Supreme Court precedents and with many of those inconsistent, earlier Federal Circuit panel precedents.[28]

Nevertheless, Congress *can* help to reduce current doctrinal uncertainty, by adopting much clearer policies and explicit frameworks for adjudication, by providing substantially greater specificity to further explain in legislative language the existing terms "invent[] or discover[]" and "new" of Section 101. It remains to be seen if such a legislative compromise ultimately can be achieved and enacted into law.

But Congress cannot provide the needed clarity and consistency by legislative language revisions to Section 101 alone. Nor can it do so merely by displacing to other patent law doctrines the difficult but required judgments of the kinds of creativity that do or do not warrant utility patent rights.[29] Adequately addressing the root causes of the failures of judicial and administrative interpretative and adjudicative decisional processes would require changes that go well beyond the scope of any contemplated legislative revisions. Enacting some such measures into law may pose serious separation-of-powers concerns, rendering them constitutional suspect.[30]

3. <u>The Pending Proposals Would Not Harmonize U.S. Law With Other Jurisdictions, But Rather Would Make It Even More (But Not Beneficially) Exceptional.</u>

The current legislative proposals will not achieve greater harmonization with other countries' patent laws, but rather will achieve the opposite effect. In order to achieve such harmonization, Congress would have to transfer the difficult line-drawing judgments currently performed under Section 101's eligibility doctrine to Section 103's non-obviousness standard, known around the world as the "inventive step" requirement. Congress would have to do so while: (a) retaining the

[28] For example, the PTO's Revised Eligibility Guidance instructs examiners to terminate eligibility evaluations and to hold a claim eligible whenever the claim is found "not [to] recite a judicial exception" and therefore not to be "directed" to such an exception. 84 Fed. Reg. at 53-54. But the Supreme Court decision in Alice Corp. Pty. Ltd. v. CLS Bank, Intern., 573 U.S. 208, 217, 221 (2014), held the claims at issue ineligible, describing them as "directed to" an abstract idea ("intermediated settlement") that was nowhere explicitly recited in the claim language, but rather reflected the ineligible discovery that the language of the claim elements practically applied. The PTO Guidance also has failed to follow the Federal Circuit's rule that the earlier-in-time precedent governs in the case of a conflict, preferring to rely on more recent precedents that would permit eligibility. *See, e.g.,* 84 Fed. Reg. at 53-55 (citing recent Federal Circuit cases finding eligibility such as Vanda Pharm. Inc. v. West-Ward Pharm. Int'l Ltd., 887 F.3d 1117 (Fed. Cir. 2018), and Rapid Litig. Mgmt. Ltd. v. CellzDirect, Inc., 827 F.3d 1042 (Fed. Cir. 2016), but failing to cite – much less provide examiners with analogical distinctions from – earlier, and thus controlling, cases denying eligibility such as Ariosa Diagnostics, Inc. v. Sequenom, Inc., 788 F.3d 1371 (Fed. Cir. 2015), *en banc reh'g denied by a divided court,* 809 F.3d 1282 (Fed. Cir. 2015), and In re Roslin Inst. (Edinburgh), 750 F.3d. 1333 (Fed. Cir. 2014)).

[29] Should Congress adopt any such provisions, moreover, it should also consider carefully the effect of any amendments to Section 101 on other patent law doctrines that take eligibility as the baseline for and rely on the linguistic terminology of "invention," such as the doctrines of joint inventorship, written description of the invention, and non-obviousness of the invention. If such provisions are enacted, Congress should make corresponding changes to those dependent doctrines if it is to avoid generating further uncertainty in those doctrines.

[30] For example, Congress may wish to consider: specifying directly in legislation the required judicial methodologies for interpreting legislation; improving the quality of judicial reasoning through more vigorous exercises of the Senate's power to refuse its consent under the Appointments Clause; and mandating non-discretionary judicial subject matter jurisdiction to resolve inconsistent precedents interpreting legislation.

eligibility exclusions from the meaning of "invention" for science, nature, and ideas; and (b) preventing the creativity of those ineligible discoveries from contributing to the technological character of the claim evaluated for non-obviousness. None of the pending proposals would do so; most seek both to eliminate these historic, world-wide exclusions and to avoid having to make those line-drawing judgments.

All countries continue to exclude from being considered utility patent eligible "inventions" scientific, natural, and abstract discoveries "as such," as well as business methods, aesthetics, and other forms of non-technological creativity that can be practically applied for human benefit.[31] Most countries also refuse to permit the creativity involved in making such ineligible discoveries contribute to the assessment of any "technical effect" for determining whether a claimed practical application actually is inventive (or nonobvious) in the patent law sense when assessing whether a claimed invention reflects an inventive step.[32] Further, such jurisdictions have numerous other doctrines that effectively exclude various forms of creative, practical applications from utility patent eligibility. For one example, European countries have very different rules for what constitutes "industrial application"[33] than exist under the Section 101's "utility" doctrine. Such

[31] *See, e.g.,* European Patent Convention, Art. 52(2)(a)-(d) ("discoveries, scientific theories, and mathematical methods"; "aesthetic creations"; "schemes, rules, and methods for performing mental acts, playing games or doing business, and programs for computers"; "presentations of information"); *id.* Art. 52(3) (such ineligible discoveries are excluded only to the extent that the patent "relates to such subject-matter or activities as such"). Note that these are *definitional restrictions* on the meaning of the term "inventions" (and thus the set of things embodying such inventive creativity) that are included within the patent system, and are not "exceptions" to or "exemptions" from patent eligibility of the definition of "invention" that is otherwise provided. *Cf. id.* Art. 53 (providing "exceptions" to granting such rights for things defined as inventions).

[32] *See, e.g.,* Opinion of the Enlarged Board of Appeal of 12 May 2010 in relation to a point of law referred by the President of the European Patent Office pursuant to Article 112(1)(b) of the EPC, Case G 003/08 ¶¶ 10.3-10.13. At an earlier time, the EPO, like current Section 101 law, refused to permit the creativity of the ineligible discovery contribute to consideration of whether a claimed practical application was an "invention." *See id.*

[33] *See, e.g.,* European Patent Convention, Art. 57; SIGRID STERCKX & JULIAN COCKBAIN, EXCLUSIONS FROM PATENTABILITY 32, 135 (Cambridge U. Press 2012) (discussing the drafting history of the EPC; "'On the definition of industrial applicability, the warning sounded that: 'it should be noted that the concept of "industrial application" is apparently interpreted differently in the individual countries of the Common Market and that, in particular, purely agricultural processes are not regarded as patentable in all countries'…. In its previous incarnation, the exclusion [for methods of medical treatment and diagnosis] relied on the legal fiction that medical methods were not susceptible of industrial application."). *Cf.* Directive 98/44/EC of the European Parliament and of the Council, on the Legal Protection of Biotechnology Inventions, ¶ 24 (July 6, 1998) ("in order to comply with the industrial application criterion it is necessary in cases where a sequence or partial sequence of a gene is used to produce a protein or part of a protein, to specify which protein or part of a protein is produced or what function it performs"); R.S. CRESPI, PATENTING IN THE BIOLOGICAL SCIENCES 101-02 (John Wiley & Sons 1982) ("A category of 'invention' which patent laws everywhere continue to exclude, including US law, is the mere discovery of a natural phenomenon. The reasons here are more primarily derived from considerations of novelty and the basic philosophy that the laws and handiwork of nature must be free and open to all to utilize, but the absence of a utilitarian context in the act of invention itself is also involved in the negation…. The European Patent Office Guidelines explain the EPO view of discoveries and inventions considered to be susceptible of industrial application. The mere discovery of a new property of a known material is said to be unpatentable although we are told … how the first medical use of a known substance can be patented…. The term 'industry' is given a broad interpretation as covering the useful or practical arts as distinct from the aesthetic…. In excluding patents for methods of therapeutic, surgical or diagnostic treatment of the human or animal body Article 52(4) of the EPC defines such methods as not susceptible of industrial application. This stand-point is unwelcome to some commentators but is consistent with the widespread prejudice on the part of law makers the world over against bringing the procedural steps of the physician and surgeon within the control of patent protection.").

jurisdictions also exclude various types of practically useful and eligible "inventions" from patentability on "ordre publique or morality" grounds,[34] whereas the U.S. has largely abandoned the "moral utility" doctrine.[35]

Expanding the U.S. patent eligibility to include such things as business methods and aesthetics, much less scientific, natural, and abstract discoveries, would place U.S. law in greater, not lesser, tension with the patent law of other jurisdictions. This would further complicate international prosecution and enforcement efforts. No such changes are required in order to comply with the World Trade Organization's TRIPS Agreement.[36]

In summary, similar problems of legal uncertainty and line-drawing judgment over what kind of creativity can be patented also exist in other jurisdictions, under eligibility doctrines as well as patentability doctrines. In many of those jurisdictions, most of the required line-drawing legal judgments and uncertainties have simply been partially displaced from eligibility doctrine to patentability (specifically inventive step) doctrines. In contrast, the U.S. more appropriately addresses the kind of creativity that should receive patent rights (almost) entirely under its Section 101 "invents or discovers" "new" products and processes eligibility doctrine.[37] Nevertheless, those jurisdictions' eligibility doctrines still prevent (definitionally) scientific, natural, and abstract discoveries "as such" from being considered utility-patent eligible "inventions."

The apparent goal of all but one of the pending proposals, however, is to avoid precisely such line-drawing in regard to ineligible scientific, natural, and abstract discoveries as such and as uncreatively but practically applied. These proposals would eliminate the exclusion from eligibility of discoveries of science, nature, and ideas as such, and would permit the creativity involved in making such discoveries either contribute to the non-obvious, technical effect assessment (unlike in other jurisdictions) or to the "practical" and "technological" utility assessment of the claimed applications of the discoveries (unlike in other jurisdictions). Both approaches would depart even further from the law of eligibility and of industrial application in other jurisdictions, and they would not harmonize U.S. non-obviousness law with other jurisdictions' inventive step doctrines. This will only further exacerbate tensions in the international patent system.

Moreover, the recently introduced legislative proposal would not avoid generating substantial uncertainty when determining the kinds of creativity that warrant patent rights. This is because it would still require line-drawing to decide what is and is not patent eligible under the utility doctrine, by reference to what is "practical" and "technological." And it would do so without

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[34] *See, e.g.,* European Patent Convention, Art. 53(a) ("inventions the commercial exploitation of which would be contrary to 'ordre public' or morality"); STERCKX & COCKBAIN, at 297-98 (discussing explanations of these concepts in regard to the EPC).

[35] *See, e.g.,* Juicy Whip, Inc. v. Orange Bang, Inc., 185 F.3d 1364, 136-68 (Fed. Cir. 1999).

[36] *See* World Trade Organization, Agreement on Trade-Related Aspects of Intellectual Property Rights, art. 27, Dec. 15, 1993, 33 I.L.M. 81.

[37] As discussed below, the U.S. expressly or effectively excludes from eligibility some forms of creativity, under uncodified provisions of the AIA. *See, e.g.,* AIA §§ 14 (tax liability methods), 33 (human organisms). Further, while other countries make exceptions from patent rights for human and animal surgical and medical methods treated as inventions, the U.S. only prevents such patents from being asserted against some (but not all) potential infringers. *See, e.g.,* European Patent Convention, Art. 53(c); 35 U.S.C. § 287(c).

providing any clear legislative definitions thereof. Providing such legislative specificity will be at least as difficult and controversial under the utility doctrine as under the eligibility doctrine (as discussed further below). That is, unless Congress were to allow every kind of human creativity (including aesthetics) to receive a utility patent and be considered a practical technology when claimed as a product or process. Not only would that be a very bad idea, it would also make the U.S. truly (but not beneficially) exceptional in the history of the world's patent laws. Without substantial revision, the recent legislative draft and the bar association proposals would have precisely that effect. These proposals are therefore fundamentally misguided.

4. The Current Approach of Treating Ineligible Discoveries as Prior Art is Good Innovation Policy, As It Better Protects the Public Domain From Unwarranted Encroachment.

Since the seminal, mid-19th Century *Morse* telegraph case,[38] U.S. courts have construed Section 101 and its predecessors to treat even novel ineligible discoveries of science, nature, and ideas *as if they were prior art* when disclosed in a patent applications by discoverers who claim practical applications thereof.[39] Accordingly, the patent eligibility of any claimed practical application applying an ineligible discovery requires *another,* and a *creative,* "inventive concept" *in applying* that public-domain discovery for practical benefit as a physically embodied product or process.[40] In contrast, the other U.S. patentability doctrines to which the legislative proposals would displace such creativity judgments do *not* treat ineligible discoveries as prior art against the applicant discoverer. They therefore would not adequately protect the public domain when making the necessary line-drawing judgments of the kinds of creativity required for utility patents, unless those doctrines were also revised to incorporate Section 101's current treatment of ineligible discoveries as prior art.[41]

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[38] O'Reilly v. Morse, 56 U.S. (15 How.) 62 (1853).

[39] *Id.* at 115-16 ("[T]he court [in Neilson v. Harford, (1841) 151 Eng. Rep. 1266, 1267–68] at first doubted, whether [Neilson's claim] was a patent for any thing more than the discovery that hot air would promote the ignition of fuel better than cold. And if this had been the construction, the court, it appears, would have held his patent to be void; because the discovery of a principle in natural philosophy or physical science, is not patentable. But after much consideration, it was finally decided that this principle *must be regarded as well known,* and that the plaintiff had invented a mechanical mode of applying it to furnaces…. If the Court of Exchequer had said that Neilson's patent was for the [scientific] discovery, that hot air would promote ignition better than cold, and that he had an exclusive right to use it for that purpose, there might, perhaps, have been some reason to rely upon it. *But the court emphatically denied this right to such a patent.*") (emphasis added). Note that such prior art treatment enforces what was considered scientists' religious and moral duty to freely disseminate their discoveries of science and nature. *See, e.g.,* 17 THE PARLIAMENTARY HISTORY OF ENGLAND col. 999 (T.C. Hansard 1813) (1774) (Lord Camden) (scientists were "entrusted by Providence with the delegated power of imparting to their fellow creatures that instruction which heaven meant for universal benefit; they must not … hoard up for themselves the common stock.").

[40] *See, e.g.,* Parker v. Flook, 437 U.S. 584, 594 (1978) ("the discovery of such a phenomenon cannot support a patent unless there is some *other* inventive concept *in its application*") (emphasis added); Alice Corp. Pty. Ltd. v. CLS Bank, Intern., 573 U.S. 208, 217-28 (2014) ("We have described … this [eligibility] analysis as a search for an 'inventive concept' —*i.e.,* 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.'") (citation omitted).

[41] It is precisely because U.S. law continues to treat the ineligible discovery as if it were prior art, and therefore requires a different inventive concept to underlie any claimed invention, that U.S. law remains superior moral and innovation policy to other jurisdictions' patent eligibility and inventive step requirements. Those jurisdictions only

Without such revision, the pending proposals would allow applicants to claim the public domain of ineligible discoveries in small bites of practical but uncreative applications, rather than by swallowing those public domain discoveries whole and "as such." They would do so by authorizing patents on uncreative and narrow (but practical and technological) applications of the ineligible discoveries. They would do so, moreover, without requiring applicants to disclose anything of public benefit beyond the disclosed, discovered scientific, natural, and abstract discoveries that are supposed to be "'free to all men and reserved exclusively to none.'"[42]

This is why the lack of "preemption" of an *entire* ineligible discovery should not (without some requisite level of *additional* technological creativity in the claimed application thereof) entitle the discover to a utility patent.[43] And it is also why the word "new" should not be eliminated from Section 101's eligibility provisions, as it provides the textual basiss for requiring consideration of the novel creativity that the claim "as a whole" embodies. If Congress adopts any legislative revisions to Section 101, it should make clear that "preemption" has nothing to do with judgments regarding the required type of utility patent creativity, should retain the word "new" in Section 101, and should assure that any concerns regarding the overbreadth of claims relative to the applicant's knowledge and disclosure are to be considered *only* under the various claim scope patentability doctrines of Section 112.

5. Because Eligibility Doctrine Facilitates Earlier, Easier, and Less Costly Assessments and Adjudications of Patent Valdity, The Pending Proposals Would Increase Uncertainty and Costs of the Patent System.

By reducing reliance on the eligibility doctrine as the primary gatekeeper of the utility patent system, the pending legislative proposals would shift the focus of patent validity determinations to doctrines that are more sensitive than eligibility doctrine to evidentiary disputes. Those doctrines are therefore less amenable than eligibility doctrine to easy, early, and less costly evaluations and adjudications of validity.

In part, the reduced sensitivity of eligibility doctrine to evidentiary disputes results from its focus on determining the presence or absence of the requisite *kind* of creativity when applying a new but ineligible discovery. That determination depends much more on legal conceptual line-drawing than on evidentiary concerns. Further, the *kind* of creativity embodied by a claimed product or process is more likely to be clear from the face of the patent applicant's own disclosure than is compliance with other patentability requirements, such as the *amount* of such creativity

prohibit the novel but ineligible discovery from contributing any technical effect to the claimed invention. This permits patenting of applications that are only obvious in the novel discoveries, even if they have a technical effect.

[42] Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 70 (2012) (quoting Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980) (quoting Funk Brothers Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 130 (1948)).

[43] *Cf. id.* at 72 (prior cases "warn us against upholding patents that claim processes that too broadly preempt the use of a natural law…. *And* they insist that a process that focuses upon the use of a natural law also contain … an 'inventive concept'") (citation omitted and emphasis added). *See generally* Katherine J. Strandburg, *Much Ado About Preemption,* 50 HOUS. L. REV. 563 (2012).

relative to the prior art under the novelty and non-obviousness doctrines.[44] This is particularly true when the claimed invention applies a novel but ineligible discovery disclosed by the applicant (absent similar prior art treatment of such ineligible discoveries under other patentability doctrines).[45]

Patentability determinations, moreover, require more extensive and more varied evidentiary considerations than do eligibility determinations.[46] Such patentability determinations require (inter alia) assessing: whether the claimed application is new or is non-obvious in light of prior art (that excludes any *novel,* ineligible discovery made by the applicant), under Section 102 novelty and Section 103 non-obviousness doctrines,[47] particularly given the need to consider so-called secondary consideration evidence[48]; and whether the scope of the claim for exclusive rights corresponds to the full extent of the invention recognizably disclosed as subjectively, mentally possessed by and as objectively enabled for public use by the applicant, under Section 112(a)'s claim scope and commensurability doctrines.[49]

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[44] In contrast, when claimed practical applications are not based on new but ineligible discoveries, or when the nature of creativity of the claimed invention is not apparent on the face of the patent, eligibility determinations will require the same kinds of searching of the prior art as for novelty and non-obviousness determinations. Eligibility doctrine evaluations thus should not add significant additional costs to evaluating validity under novelty and non-obviousness doctrines, so long as the legal standards are made sufficiently clear.

[45] *See, e.g.,* In re Alappat, 33 F.3d 1526, 1553 (Fed. Cir. 1994) (en banc) (Archer, C.J., concurring-in-part and dissenting-in-part) (Section 101 eligibility doctrine "lays the predicate for the other provisions of the patent law" and thereby obviates inapposite inquiries under patentability provisions). *See generally* Comments of Professor Andrew Chin Regarding Prong Two of Revised Step 2A, Request for Comments Related to 2019 Revised Patent Subject Matter Eligibility Guidance, Docket No. PTO-P-2018-0053, 3-7 (Mar. 8, 2019) (discussing various ways that "gatekeeping" eligibility evaluations preclude the need for more complex, time-consuming, and inapposite doctrinal evaluations).

[46] *Cf. Berkheimer v. HP Inc.,* 881F.3d1360, 1366-71 (Fed. Cir. 2018); Memorandum of Robert W. Bahr, Deputy Commissioner for Patent Examination Policy, Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision *(Berkheimer v. HP, Inc.)* (Apr. 19, 2018).

[47] 35 U.S.C. §§ 102, 103. Significantly, novelty determinations entail substantial costs of (exhaustively) searching all of the prior art defined by Section 102 around the world, to be sure that a claimed invention is novel. Similarly, the non-obviousness assessment methodology articulated in Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966), requires extensive, fact-intensive determinations that must inform the ultimate legal conclusion of whether a claim is obvious or not in light of that prior art at the time of the application. Such determinations require weighing of competing inferences regarding the current state of the art and of the knowledge, motivations, and abilities of those hypothetical persons skilled in that art, who are to be determined through yet further evidentiary weighing determinations. *See, e.g.,* KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398, 400-26 (2007); Environmental Designs, Ltd. v. Union Oil Co. of California, 713 F.2d 693, 696-97 (Fed. Cir. 1983).

[48] The need to consider "secondary consideration" evidence of non-obviousness often precludes granting motions to dismiss and summary judgments of obviousness. Further, the degree to which such evidence should be considered with or may alter prima-facie evidentiary inferences of obviousness under Section 103 based on technological evidence alone remains an issue of substantial, current doctrinal dispute and protracted litigation. *See, e.g.,* Petition for Certiorari, Senju Pharm. Co. Ltd. v. Akorn, Inc., 18-1418 (May 10, 2019); Dennis Crouch, *Does a "Blocking Patent" also Block Objective Indicia of Nonobviousness?,* Patently-O Blog (Apr. 9, 2019), https://patentlyo.com/patent/2019/04/blocking-objective-nonobviousness.html; Dennis Crouch, *What is the Role of the Objective Indicia of Nonobviousness,* Patently-O Blog (Jan. 2, 2019), https://patentlyo.com/patent/2019/01/objective-indicia-nonobviousness.html. *But cf. KSR Int'l Co.,* 550 U.S. at 426 (summarily noting its agreement with the District Court that the secondary consideration evidence proffered was insufficient to outweigh the prima facie technological evidence of obviousness).

[49] 35 U.S.C. §112(a). Under the current written description doctrine, the applicant must "reasonably convey [in the specification's disclosure] to those skilled in the art that the inventor had possession of the claimed subject matter as

The greater evidentiary sensitivity of patentability doctrines also results in part (for no apparently logical reasons) either from historically entrenched practices of: (a) treating some of those patentability doctrines as questions of fact, rather than as questions of law based on subsidiary factual evaluations, which shifts the primary actors who decide the required issues in dispute from judges to juries[50]; or (b) perversely continuing to have juries determine both the underlying facts and the ultimate legal conclusions even when the issue is considered to be a questions of law.[51]

Accordingly, the pending proposals would decrease certainty in and increase the systemic costs of the patent system. The will make evaluations, licensing, prosecution, post-grant adjudication, and litigation of the validity of each and every claim of every patent more complex and more expensive. And it will take longer to resolve uncertainties regarding the validity of those claims in adjudications and litigation.

6. <u>The Pending Proposals Would Improperly Expand Utility Patents to Cover All Forms of Non-Technological Creativity, Lowering Patent Quality and Returning the Patent System To Disrepute.</u>

Without substantial revision, the pending proposals would effectively eliminate all line-drawing creativity judgments and authorize utility patents for essentially *all* forms of human

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of the filing date…. the specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed…. [I]t is the specification itself that must demonstrate possession." Ariad Pharm., Inc. v. Eli Lilly & Co., 598 F.3d 1336, 1351 -52 (Fed. Cir. 2010) (en banc) (quoting Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563 (Fed. Cir. 1991)). Under the current enablement doctrine, the disclosure must enable skilled persons to make and use the full scope of the claimed invention without "undue experimentation," considering eight evidentiary factors that must be weighed and balanced. *See, e.g.,* In re Wands, 858 F.2d 731, 736-37 (Fed. Cir. 1988).

[50] *Compare, e.g.,* Ariad Pharm., 598 F.3d at 1355 (written description is a question of fact, and thus is submitted to juries, whose decisions are reviewed for "substantial evidence" support), *with, e.g.,* MagSil Corp. v. Hitachi Global Storage Techs., Inc., 687 F.3d 1377, 1380 (Fed. Cir. 2012) ("Enablement is a question of law based on underlying factual findings," and thus is decided by judges) (citing *Wands,* 858 F.2d at 735); Trustees of Boston University v. Everlight Elect. Co., 896 F.3d 1357, 1361 (Fed. Cir. 2018) ("Whether a claim satisfies § 112's enablement requirement is a question of law we review de novo; however, in the context of a jury trial, we review the factual underpinnings of enablement for substantial evidence.").

[51] Obviousness is a question of law. *See Graham,* 383 U.S. at 17; *KSR Int'l.,* 550 U.S. at 424-25. Nevertheless, courts continue to give both the ultimate question as well as subsidiary factual determinations to juries to decide. *See, e.g.,* TEK Global, S.R.L. v. Sealant Sys., Int'l, Inc., 920 F.3d 777, 784 (Fed. Cir. 2019) (reversing jury verdict and remanding for a new jury trial on obviousness); *Polycom, Inc. v. Fullview, Inc.,* No. 2018-1829, 2019 WL 1894445, at *7 (Fed. Cir. Apr. 29, 2019) ("The ultimate determination of obviousness is a question of law, but that determination is based on underlying factual findings."). *But cf. ABS Global, Inc. v. Inguran, LLC,* 914 F.3d 1054, 1066-67 (7th Cir. 2019) ("the jury does not have the last word on obviousness; … it is the court that must resolve the ultimate legal issue."). In contrast, anticipation (or novelty) is treated as a question of fact, and thus is given solely to juries to decide, absent judgment as a matter of law. *See, e.g., Polycom,* 2019 WL 1894445, at *7 ("Anticipation, on the other hand, is strictly a question of fact").

creativity embodied in products or processes. This proposed cure for eligibility doctrine uncertainty would be *much* worse than the disease.[52]

For example, the newly introduced legislative proposal is likely to reinstate in different words (and under the utility doctrine of Section 101 rather than the eligibility doctrine thereof) the same "useful, concrete, and tangible" result test adopted by the Federal Circuit en banc in the 1994 *Alappat* case[53] (which encouraged widespread patenting of software-implemented inventions) and in the 1998 *State Street Bank* case[54] (which encouraged patenting of business methods as such or as implemented with new technologies). That over-extension of eligibility doctrine brought the utility patent system into serious disrepute, while also departing from international norms.[55] For example, it authorized patents on sports moves[56] and on many other fields of human endeavor (including aesthetics) that were not previously subject to utility patent rights.[57]

That over-extension of eligibility by judicial interpretation also led to legislative changes to the Patent Act, precisely to cabin eligibility so as to keep the patent system from extending to particular fields of endeavor. Although the concerns for the patent system were endemic, such legislation was adopted for only one particular, well-funded industry with substantial lobbying

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[52] It would also require non-obviousness doctrine to develop assessments of the amount of such non-technological creativity. As is evident from existing design-patent law, Section 103 doctrine not well suited to determining non-technological obviousness. *See, e.g.,* MRC Innovations, Inc. v. Hunter Mfg., LLP, 747 F.3d 1326, 1331-32 (Fed. Cir. 2014). *Cf.* Egyptian Goddess, Inc. v. Swisa, Inc., 543 F.3d 665, 679 n.1 (Fed. Cir. 2008) (en banc) (requiring verbal translation of design patent picture claims when determining obviousness). *See generally* Janice M. Mueller & Daniel H. Brean, *Overcoming the "Impossible Issue" of Nonobviousness in Design Patents,* 99 KY. L.J. 419 (2010-11).

[53] In re Alappat, 33 F.3d 1526 (Fed. Cir. 1994) (en banc).

[54] State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d 1368 (Fed. Cir. 1998).

[55] *See, e.g.,* Amicus Curiae Brief of Internet Retailers in Support of Respondent, Bilski v. Kappos, 561 U.S. 593 (2010) at, 8-9, 12-14 ("The exponential growth in Internet usage has been accompanied by an equally enormous growth in business method patents following the Federal Circuit's approval of such patents in [*State Street Bank*] ... Over 40,000 business method patent applications have been filed since *State Street* opened the floodgates, and over 15,000 such patents have been issued…. If the aperture is opened wider to include software patents, it is estimated that there currently are over 200,000 such patents.... In other words, literally thousands of people can claim partial invention of the Internet, and thus, potentially can file suit to claim a share of the $178 billion in annual Internet sales…. Notwithstanding '[t]he potential vagueness and suspect validity of some of these patents,' … it is highly unlikely that any court will ever evaluate the validity of most such patents because of the nature and inherent cost of patent litigation.… The increase in the number of business method patents has been accompanied by a corresponding eruption in the number of patent lawsuits filed…. An admixture of legal and practical reasons renders patent litigation as presently practiced unsuited to weeding out improvidently issued business method claims.") (citations omitted; quoting eBay, Inc. v. MercExchange, L.L.C., 547 U.S. 388, 397 (2006) (Kennedy, J., concurring)). *See generally* John R. Thomas, *The Patenting of the Liberal Professions,* 40 B.C. L. REV. 1139, 1140 (1999) ("Thomas, *Liberal Professions*") ("Keenly aware of the *State Street* holding, applicants have besieged the Patent Office with applications ranging from financial software to Internet-based business models.").

[56] *See, e.g.,* U.S. Patent No. 5,616,089 (method of golf putting).

[57] *See, e.g., Bilski,* 561 U.S. at 624 (Stevens, J., concurring) (noting that absent further, interpreted technological limits on the meaning of "process" in Section 101, the majority's approach of excluding only science, nature, and ideas will authorize patents on "[a] process for training a dog, a series of dance steps, a method of shooting a basketball, maybe even words, stories, or songs if framed as the steps of typing letters or uttering sounds….. I am confident that the term 'process' in § 101 is not nearly so capacious."). *Cf.* Thomas, *Liberal Professions,* 1163-64 ("Under increasingly permissive Federal Circuit case law, techniques within such far-flung disciplines as language, the fine arts and theology also now appear to be within the realm of patentability.").

power.[58] The over-extension of patent eligibility, moreover, led to dramatically increased patent filings and perceived substantial decreases in patent quality.[59] In turn, this led Congress to enact special provisions for administrative adjudication of the validity of business method patents in the AIA.[60] It also likely led to the Supreme Court's decisions restricting both eligibility doctrine through interpretation and patent rights generally,[61] Such reactive, interpretations adversely affected other participants in the utility patent system, who might be thought to have better cause to rely on the exclusive rights that the system should provide.

Of particular concern, the recently proposed legislative draft would likely permit (without further revisions) the granting of utility patents for aesthetic (or for aesthetically functional) creativity, rather than for technological creativity. It would thereby create a new form of design (and other aesthetic) patents on steroids. It would do so by implicitly authorizing (by removing considerations of the nature of the novel creativity from eligibility doctrine and by relying only on usefulness determinations) the claiming of aesthetically novel but structurally claimed inventions, embodying the aesthetic advance in a "practical" and "technological" product or process. Such authorization by removing eligibility determinations of the kind of creativity will make utility patent rights depend more on legal claim drafting practices than on any technological merit or social benefit. And as recognized much earlier by Federal Circuit Chief Judge Archer and Judge Nies when the Federal Circuit adopted its "useful, concrete, and tangible" results eligibility standard (that the "practical" and "technological" utility standard will mimic), this approach will authorize utility patents for the *wrong* kinds of creativity, including new music.[62]

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[58] In response to the developments caused by *Alappat* and *State Street*, the financial services and tax preparation industries were able to get Congress to *effectively* reinstate eligibility exclusions without amending Section 101, for patents claiming "any strategy for reducing, avoiding, or deferring tax liability," making that strategy insufficient to differentiate a claimed invention from the prior art, whether or not the discovered strategy was itself part of the prior art. AIA § 14(a) (uncodified). This precluded the abstract, tax-liability strategy discovery from contributing to the novelty or nonobviousness of any claimed application of that discovery. This example further reinforces why prior art treatment is so critical. However, such decisions to adopt beneficial, legislative differentiations in patent law doctrines should not depend on the political power of a specific industry, and should not be adopted through secretive lobbying efforts, but rather should be based on public assessments of the merits of or reasons to oppose differentiation.

[59] *See, e.g.,* Scott R. Boalick, *Patent Quality and the Dedication Rule,* 11 J. INTELL. PROP. L. 215, 242 (2004) ("Several factors have contributed to the increased concern over bad patents. Chief among the concerns are the opening of business methods and software to patent protection. Patent application filings have increased dramatically due in part to the availability of this new protection. At the same time, PTO resources are being strained, and funding for the PTO continues to be diverted by Congress. Assuming that the PTO does not improve its 'error rate,' more bad patents than ever are likely be issued").

[60] *See* AIA § 18 ("Transitional program for covered business methods").

[61] *See, e.g., eBay,* 547 U.S. at 391-94 (restricting the Federal Circuit's permissive standard for patent injunctions, subjecting such injunctive relief grants to general equitable principles).

[62] *See, e.g., Alappat,* 33 F.3d at 1554 (Archer, C.J., concurring in part and dissenting in part) ("Through the expedient of putting his music on known structure, can a composer now claim as his invention the structure of a compact disc or player piano roll containing the melody he discovered and obtain a patent therefor? The answer must be no. The composer admittedly has invented or discovered nothing but music. The discovery of music does not become patentable subject matter simply because there is an arbitrary claim to some structure. And if a claim to a compact disc or piano roll containing a newly discovered song were regarded as a 'manufacture' and within § 101 simply because of the specific physical structure of the compact disc, the 'practical effect' would be the granting of a patent for a discovery in music. Where the music is new, the precise structure of the disc or roll would be novel under § 102. Because the patent law cannot examine music for 'nonobviousness,' the Patent and Trademark Office could not make a showing of obviousness under § 103. The result would well be the award of a patent for the discovery of

Similarly, the proposals of the various bar associations would consider only the non-obviousness and not the eligibility of the claimed application (considered "as a whole"[63]) over the prior art. This will permit aesthetic creativity to be claimed as a utility patent whenever the aesthetic element functionally interacts with the substrate to achieve an aesthetic (or an aesthetically functional) effect. This is because the novelty of those claim elements provided by the aesthetic (or aesthetically functional creativity) is not excluded from receiving "patentable weight" under the "printed-matter" doctrine when such functional interaction is present.[64]

7. The Pending Proposals Would Likely Be Found Unconstitutional, By Authorizing Patents on Currently Ineligible Discoveries and on Non-Technological Creativity.

The pending proposals will result in an overextension of the patent system that will lead to serious constitutional challenges. In *Bilski,* Justice Stevens and three other Justices concurred separately in finding the claims ineligible, so as to avoid interpreting Section 101 as treating practical claims for business methods as eligible inventions. In doing so, they clearly stated that such a broad extension of the patent system would be unconstitutional (but without clearly specifying whether that was because such claims (a) fail to promote "Progress," (b) exceed the scope of the "useful Arts," or (c) are not "Discoveries" of "Inventors"[65]).

> I would restore patent law to its historical *and constitutional* moorings…. But the Court is quite wrong, in my view, to suggest that any series of steps that is not itself an abstract idea or law of nature may constitute a "process" within the meaning of § 101. The language in the Court's opinion to this effect can only cause mischief. The wiser course would have been to hold that petitioners' method is not a "process" because it describes only a general method of engaging in business

music. The majority's simplistic approach of looking *only* to whether the claim reads on structure and *ignoring* the claimed invention or discovery for which a patent is sought *will result in the awarding of patents for discoveries well beyond the scope of the patent law*.") (last emphasis added).

[63] *See, e.g.,* IPO-AIPLA Proposal (proposed Section 101(b): " A claimed invention is ineligible under subsection (a) if and only if the claimed invention *as a whole,* as understood by a person having ordinary skill in the art to which the claimed invention pertains, exists in nature independently of and prior to any human activity, or exists solely in the human mind.") (emphasis added). *See also* Legislative Draft of May 22, 2019 (proposed Section 101(b): "Eligibility under this section shall be determined only while considering the claimed invention as a whole, without discounting or disregarding any claim limitation."). As recognized in *Flook,* however, requiring for eligible invention *another* inventive concept (that is more than just a practical application of an ineligible discovery) is not inconsistent with assessing the claim as a whole nor with providing each claimed element with its full patentable weight. *See* 437 U.S. at 594 ("Our approach to respondent's application is, however, not at all inconsistent with the view that a patent claim must be considered as a whole."). Rather, it requires assessing the kind of creativity that the claim as a whole embodies. Thus, the legislative language of the bar association proposals and the recent legislative draft in this regard is both superfluous and will not achieve the (inappropriate) purpose of avoiding consideration of the nature of the creativity embodied by the claimed elements and their practical application.

[64] *See, e.g.,* In re Ngai, 367 F.3d 1336, 1339 (Fed. Cir. 2004); In re Lowry, 32 F.3d 1579, 1583 (Fed. Cir. 1994); In re Gulack, 703 F.3d 1381, 1386 (Fed. Cir. 1983).

[65] U.S. CONST. Art. I, § 8, Cl. 8. For a discussion of the different constitutional theories of limitation, see, e.g., Law Professors *Mayo* Brief at 16-20 (discussing different potential constitutional limits); Law Professors/AARP *Bilski* Brief, at 32-34; Oskar Liivak, *The Forgotten Originality Requirement: A Constitutional Hurdle for Gene Patents,* 87 J. PAT. & TRADEMARK OFF. SOC'Y 261, 273-75 (2005). *See generally* WALTERSCHEID, NATURE OF THE IP CLAUSE.

> transactions—and business methods are not patentable. More precisely, although a process is not patent ineligible simply because it is useful for conducting business, a claim that merely describes a method of doing business does not qualify as a "process" under § 101.
> …
> It is not evident from the face of the statutes *or the Constitution* whether the objects of the patent system were "arts" that are also useful, or rather a more specific category, the class of arts known as "useful arts."
> …
> The Constitution allows Congress to issue patents "[t]o promote the Progress of ... useful Arts," Art. I, § 8, cl. 8. This clause "is both a grant of power and a limitation."… *This is the standard expressed in the Constitution and it may not be ignored.* And it is in this light that patent validity 'requires reference to [the] standard written into the Constitution.'"
> …
> The Court has kept this "*constitutional standard*" in mind when deciding what is patentable subject matter under § 101. For example, we have held that *no one can patent "laws of nature, natural phenomena, and abstract ideas."*[66]

Additional constitutional challenges are likely should Congress expressly legislate broadening of patent eligibility, particularly if utility patents become subject only to a requirement of practical, technological utility. The pending proposals appear expressly intended to overturn the "constitutional standard" referred to by Justice Stevens established in prior cases that prevents patents on science, nature, and ideas.

These proposals, moreover, would authorize such utility patents without clearly specifying how such patents must be "specific," "practical" and "technological," thereby authorizing *aesthetic* (or aesthetically functional) creativity, without limitation to designs for articles of manufacture.[67] This will raising even more starkly than for design patents the constitutional grounds for such patent rights.[68] The utility patent system thus will extend to music, scents, and all of the other expressive creativity currently covered by the copyright system and the design patent system. But

[66] Bilski v. Kappos 561 U.S. 593, 613-14, 632, 648, 650 (2010) (Stevens., J., concurring) (quoting *Graham,* 383 U.S. at 5-6) (emphasis added).

[67] *See, e.g.,* 35 U.S.C. §171. For example, the chevrons at issue in the *StarAthletica* copyright case, might be claimed in a utility patent by reciting the location and sizes of those chevrons on cheerleading outfits, where the only inventive creativity is the aesthetic advance of looking good or the aesthetically functional advance of appearing slimming. Star Athletica, LLC v. Varsity Brands, Inc., 80 U.S. __, 137 S.Ct. 1002 (2017). By specifying the size and location without reciting the function performed by the aesthetic creativity and embodied by the claim elements, such claims will avoid being held indefinite. *See* 35 U.S.C. § 112(b) (applicants must "particularly point[] out and distinctly claim[] the subject matter … regard[ed] as the invention"); Nautilus, Inc. v. Biosig Instruments, Inc., 572 U.S. 898, 910 (2014) (requiring claim language to "inform those skilled in the art about the scope of the invention with reasonable certainty"). The creative, aesthetic advance also will be provided "patentable weight" for non-obviousness determinations, precisely because the chevrons interact with the cheerleading outfit substrate to achieve their novel and creative aesthetic effect.

[68] *See generally, e.g.,* Ralph D. Clifford & Richard J. Peltz-Steele, *The Constitutionality of Design Patents,* 14 CHI.-KENT J. INTELL. PROP. L. 553 (2015).

it will do so by creating such exclusive rights on steroids, without the copyright system's doctrinal limitations (including the requirement for copying as the predicate of infringing conduct).[69]

Even if such patents were limited to claimed, practical applications making a "technological" contribution in their novel and creative advance sufficient to survive Article I, Section 8, Clause 8 scrutiny, such extensions of the patent system may violate the First Amendment by creating patents on physically embodied information[70] or by restricting (directly or through secondary liability) various forms of thought or communication (such as the medical correlation patents that were at issue in the *LabCorp.* case that the Supreme Court ultimately dismissed as improvidently granted).[71] Patent law lacks the idea/expression, merger, and fair use doctrines that act as speech-protecting safeguards within copyright law's "traditional contours."[72] To address these constitutional problems, Congress would then have to make dramatic changes to counteract the effects of unjustifiably expanding eligible subject matter.

8. Efforts to Restrict The Pending Proposals By Further Defining "Technology" Will Be Difficult to Achieve, and If Achieved Will Reproduce Similar Doctrinal Uncertainty.

Efforts to further define technology and technological character (or, as in Europe, "technical effect") are likely to prove extremely difficult and highly controversial. Even if a legislative compromise can be obtained, it is unlikely to generate greater certainty than current eligibility doctrine when adjudicators subsequently interpret and apply the new legislative language. As succinctly stated by Professor John Thomas shortly after *State Street,* the approach of displacing the required judgments of the appropriate kind of inventive creativity that warrants utility patent rights to determinations of what constitute "technologies" within the "useful Arts" is destined for failure.

> The Patent Office's willingness to consider business method applications means that fewer constraints bar the grant of patents on other utilitarian processes. Disconnected from any physical apparatus, such patents will set forth not so much technical artifacts, but a broad category of proprietary modes of analysis, techniques and protocols from disciplines ranging from the social sciences to the law. Yet surely the constitutional directive that patents apply to the "useful Arts,"

[69] *See, e.g.,* 17 U.S.C. § 106, et seq.
[70] *See, e.g.,* Jorge R. Roig, *Can DNA Be Speech?,* 34 CARDOZO ARTS & ENT. L. REV. 163, 166-81(2016).
[71] Laboratory Corp. of Am. Holdings v. Metabolite Labs., 548 U.S. 124 (2006). *See, e.g.,* Brief Amicus Curiae of AARP in Support of Petitioner, Laboratory Corp. of Am. Holdings v. Metabolite Labs., 548 U.S. 124 (2006), at 11 & n.7 (discussing inducement liability potentially based on communications and citing Washington Legal Foundation v. Henney, 202 F.3d 331,332-36 (D.C. Cir. 2000), as raising First Amendment concerns by prohibiting dissemination of certain "off-label" medical information)); Brief of the Public Patent Foundation as Amicus Curiae in Support of Petitioner, Laboratory Corp. of Am. Holdings v. Metabolite Labs., 548 U.S. 124 (2006), at 17-19 (discussing how copyright law moderates First Amendment concerns through the idea/expression, fair use, and merger doctrines and comparing those doctrines to the exclusions for science, nature, and ideas); ALCU *Mayo* Brief, at 17-23 (similarly comparing the exclusion of abstract ideas to the idea/expression dichotomy, and discussing First Amendment prohibition of patents that prohibit particular manners of thinking even if the claimed invention is not directed to abstract ideas).
[72] *See, e.g.,* Eldred v. Ashcroft, 537 U.S. 186, 218-21 (2003); Golan v. Holder, 565 U.S. 302, 327-30 (2012). *Cf.* Matal v. Tam, 137 S.Ct. 1744, 1760 (2017).

> as well as our long-held sense of the reach of the patent system, must somehow cabin the extent of patentable subject matter. We have come to this place … because of our near-total engagement with the artificial. Identifying the ontic dimension of technology has perplexed not only the courts, but epistemologists and the most accomplished of technological observers as well.[73]

Nevertheless, if Congress were to continue down this path, it should be as clear as possible to define what "useful," "practical" and "technological" mean, drawing from the existing academic literature.[74]

9. If Congress Proceeds to Revise Eligiblity Doctrine, It Should Continue to Protect the Public Domain of Science, Nature, and Ideas and Should Provide As Much Clarity In Legislative Language As Possible.

In summary, the pending efforts to provide greater doctrinal certainty in eligibility law by *expanding* the scope of the patent system are misguided. Further, rather than seeking to define technology to determine the kinds of creativity that can be embodied in practical applications that should fall within the patent system, Congress should continue to require the more direct evaluation under eligibility doctrine of the kinds of novel creativity that constitutes utility-patent *inventive* creativity. Such judgments of the kinds of creativity that warrant patent rights should not be displaced to other eligibility doctrines (such as utility) or to patentability doctrines (such as nonobviousness), which doctrines that are less well suited to that task and will generate even greater uncertainty and systemic costs. Of greatest importance, in making any revisions to eligibility doctrine Congress should continue to protect the public domain of ineligible science, nature, and ideas from contributing to the creativity that must be measured in such eligibility and patentability assessments.

If Congress is to play a constructive role in further clarifying the law of eligibility (without addressing problems of the quality of adjudication more generally), it (a) should provide in legislative language, not just in legislative history, and as clearly and specifically as possible, the requirements for adjudication and the considerations and policies that such adjudication should be based on. In particular, Congress (b) should explicitly preserve the public domain of science, nature, and ideas by requiring in clear legislative language that such ineligible discoveries must be treated as prior art against the applicant once those discoveries are disclosed for public benefit in a patent specification. Congress also (c) should explicitly abrogate further consideration of or reliance on "preemption" concerns, which can be and are better managed by Section 112's claim

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[73] Thomas, *Liberal Professions,* 40 B.C. L. REV. at 1142.

[74] *See generally, e.g.,* Thomas, *Liberal Professions,* 40 B.C. L. REV. at 1167-75 (discussing development of understandings of technology and useful arts); Sean M. O'Connor, *The Overlooked French Influence on the Intellectual Property Clause,* 82 U. CHI. L. REV. 733, 743-49, 773-803 (2015) (discussing historical meanings of science, technology, useful arts, liberal arts, and other relevant terminology); Michael Risch,*A Suprisingly Useful Requirement,* 19 GEO. MASON L. REV. 57, 63-111 (2011) (discussing different meanings to "useful" that can be better articulated and specified to provide somewhat similar, required line drawing criteria that would restrict eligible subject matter); Michael Risch, *Reinventing Usefulness,* 2010 B.Y.U. L. Rev. 1195, 1198-1254 (discussing commercial (including moral), practical, and operable concepts of usefulness and discussing tradeoffs in assessing the different kinds of usefulness).

scope doctrines. Finally, Congress (d) should expressly abrogate prior inconsistent judicial precedents under Section 101 that conflict with the new legislative language[75] These conflicting precedents have continued to induce the PTO to grant and the courts to uphold countless patents for uncreative but practical applications of ineligible discoveries of science, nature and ideas that should not be part of the patent system. To simplify matters, Congress might simply abrogate *all* precedents under Section 101 and its predecessor provisions, requiring the PTO and judges to start from a clean slate when interpreting and applying such new legislative language.

[75] The proposed draft language would explicitly "abrogate[]" "all cases establishing or interpreting" prior law contrary to the proposed prohibition of exclusions from eligibility for science, nature, and ideas. The general approach is correct, but the premise of such abrogation should be reversed. Congress should expressly abrogate *Diamond v. Diehr,* 450 U.S. 175 (1981), *LeRoy v. Tatham,* 55 U.S. (14 How.) 156 (1852) and all other cases (at all jurisdictional levels) that conflict with *Flook*, *Funk Brothers,* and *Morse,* by permitting patents for practical applications (rather than requiring inventive applications) of excluded science, nature, and ideas.