

ESSAY

A Burkean Perspective on Patent Eligibility, Part II: Reflections on the (Counter) Revolution in Patent Law

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In 2007, I published an essay in the Berkeley Technology Law Journal, titled *A Burkean Perspective on Patent Eligibility*, in which I discussed how the United States Court of Appeals for the Federal Circuit and the United States Patent and Trademark Office had discarded various doctrines relating to patent eligibility—among them, rules that all patentable inventions must pertain to the technological arts, that they may not read on mental steps, and that patentable processes must effect a physical transformation—in favor of an approach that asked only whether an invention had practical utility and was predictable in its effects. Taking a cue from the (admittedly non-patent related) writings of the Anglo-Irish statesmen and political theorist Edmund Burke, I argued that some aspects of the older approach to patentable subject matter may have embodied an underappreciated wisdom, to the extent these older doctrines prevented patent law from intruding upon both laws of nature and human liberty interests, including freedom of speech and personal autonomy. At the same time, I

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recognized that, as times change, the law too must change, and I contended that it would be inadvisable to exclude computer and business-related art from the scope of patentable subject matter altogether. I nevertheless argued that, properly reformed and refined, the older doctrines could still play a useful role in preventing patent law from unduly extending its reach into every nook and cranny of human endeavor.

Three years later, as we await the United States Supreme Court's decision in *Bilski v. Kappos*, the legal landscape appears to have changed substantially. From a time just prior to the publication of my *Burkean* paper and continuing to the present day, the Court has actively scaled back some of the Federal Circuit's more expansive readings of patent doctrine in cases such as *eBay Inc.*, *MedImmune*, *KSR*, *Microsoft*, and *Quanta*. Both the Federal Circuit and the Patent Office have applied more restrictive standards for patent eligibility as well, and the Supreme Court may go farther yet. Perhaps the greater risk now is that courts and other policymakers will settle on a formalistic approach that blindly adheres to the form of traditional doctrines while ignoring those doctrines' underlying rationales. I will argue that a workable standard for patent eligibility should reflect the wisdom embodied in tradition, while being flexible enough to accommodate advances in relatively new useful arts such as information technology and biotechnology. In particular, I will argue that three screens derived from traditional patent doctrine—a “technological arts” screen, a “minimal physicality” screen, and a “noninvasiveness” screen, as I will define them—should suffice to ensure that patent law continues to encourage technological progress, without precluding access to the public domain building blocks from which such progress arises.

I. INTRODUCTION

Just a few years ago, it appeared to most observers that the United States Court of Appeals for the Federal Circuit¹ and the United States Patent and Trademark Office (USPTO) had discarded several limiting doctrines relating to patent eligibility—including the technological arts doctrine, the mental steps doctrine, and the requirement that patentable

1. Since 1982, the Federal Circuit is the court that hears (almost) all appeals in patent infringement litigation in the United States.

processes effect a physical transformation—in favor of an approach that asked only whether an invention had practical utility and was predictable in its effects.² In a paper I wrote in 2006 and published in 2007, I argued that some aspects of these discarded doctrines nevertheless may have reflected an underappreciated wisdom insofar as they helped to prevent patent law from privatizing laws of nature and other naturally occurring phenomena, and from unduly encroaching upon important human liberty and autonomy interests.³ At the same time, I argued, as times change, the law too must change; in particular, I expressed doubt that altogether excluding computer and business-related art from the scope of patentable subject matter would be advisable.⁴ Nevertheless, I concluded that, properly reformed and refined, the older doctrines referenced above could still play a useful role in preventing patent law from potentially extending into every nook and cranny of human behavior.⁵

2. For an overview of these developments, see Thomas F. Cotter, *A Burkean Perspective on Patent Eligibility*, 22 BERKELEY TECH. L.J. 855, 859–74 (2007). See generally *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373–76 (Fed. Cir. 1998) (holding that a system that involved the transformation of data by a machine constituted patentable subject matter, because it was a “practical application of a mathematical algorithm, formula, or calculation, because it produce[d] a ‘useful, concrete, and tangible result’”; and laying to rest the exclusion of business methods from the scope of patent eligibility), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (en banc), *cert. granted sub nom. Bilski v. Doll*, 129 S. Ct. 2735 (2009); *AT&T Corp. v. Excel Commc’ns, Inc.*, 172 F.3d 1352, 1361 (Fed. Cir. 1999) (holding that a process that did not involve a physical transformation of matter was patentable because it produced “a tangible, useful, result”), *abrogated by In re Bilski*, 545 F.3d 943; *Ex parte Lundgren*, 76 U.S.P.Q. 2d (BNA) 1385, 1385–86 (B.P.A.I. 2005) (per curiam) (rejecting the technological arts doctrine); U.S. PATENT & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, INTERIM GUIDELINES FOR EXAMINATION OF PATENT APPLICATIONS FOR PATENT SUBJECT MATTER ELIGIBILITY, MANUAL OF PATENT EXAMINING AND PROCEDURE § 2106, at 2100-11 (8th ed., rev. Aug. 2006) (conforming with *Lundgren*, and not imposing a technological arts requirement). At present, patent examiners are advised to continue following the guidelines as set forth in *Manual of Patent Examining and Procedure* § 2106 (8th ed., rev. July 2008), with certain modifications in light of the Federal Circuit’s decision in *In re Bilski*, 545 F.3d at 953–54, 957. See Memorandum from John J. Love, Deputy Commissioner for Patent Examination Policy, to Tech. Ctr. Dirs., Patent Examining Corps (Jan. 7, 2009), *available at* http://www.uspto.gov/patents/resources/methods/bilski_guidance_memo.pdf.

3. See Cotter, *supra* note 2, at 879–95.

4. See *id.*

5. See *id.*

In the four years since I authored that earlier paper, the legal landscape has changed dramatically. In a much-discussed series of cases, the United States Supreme Court has scaled back some of the Federal Circuit's more expansive readings of patent doctrine.⁶ In addition, both the Federal Circuit and the USPTO have applied more restrictive standards for patent eligibility, as evidenced in cases including (most famously) *In re Bilski*⁷ as well as some administrative decisions from the Board of Patent Appeals and Interferences.⁸ As of this writing,

6. See *Quanta Computer, Inc. v. LG Elecs., Inc.*, 128 S. Ct. 2109, 2119 (2008) (holding that patent exhaustion is triggered by the sale of products the "only reasonable and intended use" of which is "to practice the patent" and which embody "essential features" of the patented invention); *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 441–42 (2007) (holding that Patent Act § 271(f) did not apply, where defendant sent "computer software . . . from the United States to a foreign manufacturer on a master disk, or by electronic transmission," and the foreign recipient then engaged in conduct that, had it occurred within the United States, would have infringed the U.S. patent); *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007) (rejecting the "rigid and mandatory" application of the teaching-suggestion-motivation test for determining nonobviousness); *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118, 137 (2007) (holding that a patent licensee is "not required . . . to break or terminate its . . . license . . . before seeking a declaratory judgment . . . that the underlying patent was invalid, unenforceable, or not infringed"); *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 393–94 (2006) (rejecting the Federal Circuit's rule that the prevailing plaintiff in a patent infringement action was automatically entitled to permanent injunctive relief absent exceptional circumstances, and holding that the propriety of injunctive relief is a matter for a court to determine in accordance with "traditional equitable principles").

7. 545 F.3d at 953–57 (holding that "[a] claimed process is surely patent-eligible . . . if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing"; that patentable methods do not preempt all practical uses of a fundamental principle; and that "the recited machine or transformation must not constitute mere 'insignificant postsolution activity'"). See also *In re Ferguson*, 558 F.3d 1359, 1364 (Fed. Cir. 2009) (holding that claimed method failed the machine-or-transformation test); *In re Comiskey*, 554 F.3d 967, 980–81 (Fed. Cir. 2009) (similar); *Classen Immunotherapies, Inc. v. Biogen Idec*, 304 F. App'x 866 (Fed. Cir. Dec. 19, 2008) (affirming judgment that method of treatment claims constituted nonpatentable subject matter); *In re Nuijten*, 500 F.3d 1346, 1348 (Fed. Cir. 2007) (holding that signals are not patentable subject matter). *But see Prometheus Labs., Inc. v. Mayo Collaborative Servs.*, 581 F.3d 1336, 1345 (Fed. Cir. 2009) (holding that methods of treatment constituted patentable subject matter, because they "'transform[ed] an article into a different state or thing,' and this transformation is 'central to the purpose of the claimed process'"), *pet'n for cert. filed*, 78 U.S.L.W. 3254 (U.S. Oct. 22, 2009) (No. 09-490).

8. Compare, e.g., *Ex parte Dickerson*, Appeal 2009-001172, at 16 (B.P.A.I. July 9, 2009), available at <http://des.uspto.gov/Foia/ReterivePdf?system=BPAI&fNm=fd2009001172-07->

however, the ultimate resolution of the patent eligibility debate remains uncertain while the *Bilski* case remains pending before the United States Supreme Court.⁹ With respect to patentable subject matter in particular, the risk now is that courts and other policymakers will settle on formalistic approaches which blindly adhere to the form of traditional doctrines while ignoring those doctrines' underlying rationales. As I have contended previously, patent eligibility should reflect the wisdom embodied in tradition while being flexible enough to accommodate advances in information technology, biotechnology, and other emerging fields.¹⁰

In this brief Essay, I will argue that three overlapping criteria or screens should suffice to ensure that patent law continues to encourage technological progress without precluding access to the public domain building blocks from which such progress arises. Part II restates the framework I proposed in my 2006 article. Part III briefly recounts the "counterrevolution" in patent law as initiated by the Supreme Court during the intervening years. Part IV sets forth my proposed three screens; Part V concludes by discussing their application to some current issues, and some potential

09-2009-1 (holding that claims including "a step of outputting information from a computer" were tied to a particular machine), *with Ex parte Cornea-Hasegan*, 89 U.S.P.Q. 2d (BNA) 1557, 1560 (B.P.A.I. 2009) (holding that recitation of a series of steps to be performed on a processor did not recite patentable subject matter, because not tied to a particular machine); *Ex parte Halligan*, 89 U.S.P.Q. 2d (BNA) 1355, 1364–65 (B.P.A.I. 2008) (similar); *Ex parte Langemyr*, 89 U.S.P.Q. 2d (BNA) 1988, 1996–98 (B.P.A.I. 2008) (holding, in an informative opinion, that a method executed in a computer apparatus was not patentable subject matter, because it was not tied to a "particular machine"); *Ex parte Wasynczuk*, 87 U.S.P.Q. 2d (BNA) 1826, 1833–35 (B.P.A.I. 2008) (informative opinion similar to *Langemyr*, but also holding that a combination of two computing devices operating together was a particular apparatus). *See also, e.g.*, *CyberSource Corp. v. Retail Decisions, Inc.*, 620 F. Supp. 2d 1068, 1077–78 (N.D. Cal. 2009) (holding that a method for detecting fraud over the Internet was not patentable subject matter). Opinions differ also as to whether *Beauregard* claims (software on a disk) remain patentable post-*Bilski*. Compare *Ex parte Li*, 88 U.S.P.Q. 2d (BNA) 1695, 1698–99 (B.P.A.I. 2008) (holding that they are), *with Cybersource*, 620 F. Supp. 2d at 1078–81 (holding that the *Bilski* analysis applies to such claims, and that the claims at issue were not patentable subject matter); *Cornea-Hasegan*, 89 U.S.P.Q. 2d at 1561–62 (similar to *Cybersource*).

9. The Court heard oral argument on November 9, 2009. *See* Transcript of Oral Argument, *Bilski v. Kappos*, No. 08-964 (Nov. 9, 2009), available at http://www.supremecourt.us/oral_arguments/argument_transcripts/08-964.pdf.

10. *See* Cotter, *supra* note 2, at 878–79.

counterarguments.

II. BURKE AND PATENTS: THE PERSPECTIVE AS OF 2006

To put my argument in context, my 2006 paper attempted to ground the patent eligibility debate in the political thought of the Anglo-Irish statesman and political philosopher Edmund Burke.¹¹ To be sure, Burke himself left few if any clues regarding his views on the patent system. My argument therefore drew on two more general, and related, aspects of Burkean thought as reflected in Burke's landmark work *Reflections on the Revolution in France*.¹² The first, more widely noted, strand emphasizes the role of tradition and custom as embodying practices that incorporate the collective insights of many people and that have proven successful over time: in short, the notion that the many are, in some meaningful sense, smarter than the few.¹³ A second aspect, however, recognizes that tradition and custom are not sacrosanct.¹⁴ Some traditions, after all—slavery and the subjugation of women, among others—are repellent.¹⁵ Moreover, as Cass Sunstein has noted, Burkeanism fails when custom is based on collective action (or other related) problems and thus fails to embody latent wisdom.¹⁶ Indeed, Burke himself famously recognized that change is sometimes both necessary and inevitable.¹⁷ Nevertheless, I argued, a Burkean-inspired approach (to matters generally, or to patent law in particular) would tend to prefer gradual or incremental change whenever possible; would be wary of the unintended consequences of radical reform; and would be receptive to the possibility that tradition may embody practical wisdom that, in the words of the twentieth century Burkean Michael Oakeshott, cannot be reduced to mere technique.¹⁸

Applying this framework to the patent eligibility debate as

11. See generally Cotter, *supra* note 2.

12. See EDMUND BURKE, REFLECTIONS ON THE REVOLUTION IN FRANCE (Frank M. Turner ed., Yale Univ. Press 2003) (1790).

13. See *id.* at 74; Cotter, *supra* note 2, at 856–57.

14. See BURKE, *supra* note 12, at 19; Cotter, *supra* note 2, at 857.

15. See Cotter, *supra* note 2, at 857.

16. See Cass R. Sunstein, *Burkean Minimalism*, 105 MICH. L. REV. 353, 371 (2006).

17. See BURKE, *supra* note 12, at 51–52, 133, 143.

18. See Cotter, *supra* note 2, at 878 (citing MICHAEL OAKESHOTT, RATIONALISM IN POLITICS AND OTHER ESSAYS 26 (1991)).

it existed in 2006, I argued that some of the then-disfavored eligibility doctrines may have embodied a measure of underappreciated wisdom. Focusing on three doctrines in particular (technological arts, mental steps, and physical transformation), I attempted both to distill the rationales that underlay these doctrines and to reformulate them in a manner that would preserve that kernel of wisdom without unduly interfering with the ability of the patent system to promote the progress of the useful arts.¹⁹ Properly reformulated, I argued, these doctrines would serve the purpose of ensuring that laws of nature and other naturally occurring phenomena would remain in the public domain; of serving as a backup when other doctrines fail to attain this goal; and of ensuring that the patent system avoid intruding into the domains of human thought processes and other protected areas of human liberty and autonomy.²⁰ At the same time, I argued, there may no good reason to exclude software and business-related art from the domain of patents altogether; times do indeed change.²¹ Properly revised, I concluded, the three above-mentioned doctrines would introduce modest but non-negligible restraints on what I perceived to be an ever-expanding patent system.²²

III. REFLECTIONS ON THE COUNTERREVOLUTION

In many respects the Supreme Court's jurisprudence from the past four years has (in my view) provided a necessary corrective to that ever-expanding system. In *eBay*, the Court laid to rest the Federal Circuit rule under which the prevailing patent owner was almost automatically entitled to injunctive relief.²³ In *KSR*, the Court rejected the "rigid" application of the

19. See Cotter, *supra* note 2, at 884–95.

20. See *id.* On the human liberty and autonomy point, my argument was greatly influenced by scholars such as Kevin Collins, Alan Durham, and Jay Thomas. See Kevin Emerson Collins, *Propertizing Thought*, 60 SMU L. REV. 317 (2007) [hereinafter Collins, *Propertizing Thought*]; Kevin Emerson Collins, *Constructive Nonvolition in Patent Law and the Problem of Insufficient Thought Control*, 2007 WIS. L. REV. 759; Alan L. Durham, "Useful Arts" in the Information Age, 1999 BYU L. REV. 1419; John R. Thomas, *Liberty and Property in Patent law*, 39 HOUS. L. REV. 569 (2002) [hereinafter Thomas, *Liberty and Property*]; John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139 (1999) [hereinafter Thomas, *Liberal Professions*].

21. See Cotter, *supra* note 2, at 883–84.

22. See *id.* at 884–95.

23. See *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 393–94 (2006).

Federal Circuit's teaching-suggestion-motivation test as the overriding criterion for evaluating nonobviousness,²⁴ and in *Microsoft v. AT & T* the Court reversed the Federal Circuit's expansive interpretation of Patent Act § 271(f).²⁵ In other cases, the Court made it easier for patent licensees to challenge patent validity,²⁶ and reaffirmed the vitality of the first-sale doctrine.²⁷ These decisions may be open to criticism in various respects, but at least in a rough sense the Court appears to have made a positive contribution by nudging patent doctrine away from some of the dysfunctional aspects that critics had flagged in recent years.²⁸

But just as Burke counseled against an unthinking adherence to custom and tradition, we should be wary about indulging an unthinking nostalgia for pre-Federal Circuit patent doctrine. Confining my remarks to patent eligibility, my own view is that the Federal Circuit's machine-or-transformation standard as announced in *Bilski*²⁹ is probably an improvement over *State Street Bank*.³⁰ Applied woodenly,

24. See *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007).

25. See *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 441–42 (2007).

26. See *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118, 137 (2007).

27. See *Quanta Computer, Inc. v. LG Elecs., Inc.*, 128 S. Ct. 2109, 2119 (2008).

28. See, e.g., JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK (2008); FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY (2003), available at <http://www.ftc.gov/os/2003/10/innovationrpt.pdf>; ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT (2004); NAT'L RESEARCH COUNCIL OF THE NAT'L ACADS., A PATENT SYSTEM FOR THE 21ST CENTURY (Stephen A. Merrill et al. eds. 2004).

29. See *In re Bilski*, 545 F.3d 943, 953–54 (Fed. Cir. 2008) (en banc), cert. granted sub nom. *Bilski v. Doll*, 129 S. Ct. 2735 (2009) (“A claimed process is surely patent-eligible . . . if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing”; that patentable methods do not preempt all practical uses of a fundamental principle; and that “the recited machine or transformation must not constitute mere ‘insignificant post solution activity.’”).

30. See *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373–76 (Fed. Cir. 1998) (holding that a system that involved the transformation of data by a machine constituted patentable subject matter, because it was a “practical application of a mathematical algorithm, formula, or calculation, because it produce[d] a ‘useful, concrete, and tangible result’”; and laying to rest the exclusion of business methods from the scope of patent eligibility), abrogated by *In re Bilski*, 545 F.3d 943.

however, the *Bilski* standard potentially produces some dubious results. Does it make sense, for example, not to characterize a general purpose computer as equivalent to a “particular machine,” while two such computers linked together are?³¹ Is the *Bilski* standard a good fit for diagnostic and therapeutic method patents?³² More generally, does *Bilski* really address the core concerns that once underlay the mental steps and technological arts doctrines, or does it merely sweep those concerns under the rug? Drawing on my 2006 paper and on insights from other scholars (as well as some of the amicus briefs that have been filed in connection with the *Bilski* litigation), I present below three screens that I believe would embody the essential wisdom of the past while remaining flexible enough to meet new technological challenges.

IV. THREE SCREENS

A. TECHNOLOGICAL ARTS

As the first of my proposed three screens, I suggest that courts seriously consider reintroducing some version of the technological arts doctrine. As I noted in 2006, case law and USPTO guidelines were, until relatively recently, uniform in stating that such a doctrine existed.³³ Some, though not all, scholars equate the “technological arts” with the “useful arts” mentioned in article I of the Constitution,³⁴ and a technological arts doctrine is common to other patent systems.³⁵ That said,

31. See *Ex parte Wasynczuk*, 87 U.S.P.Q. 2d (BNA) 1826, 1833–34 (B.P.A.I. 2008) (concluding that a *combination* of two computing devices operating together *was* a particular apparatus).

32. See *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 548 U.S. 124, 129, 134–38 (2006) (Breyer, J., dissenting) (arguing that Claim 13 of plaintiff’s patent, which recited a method comprising (1) testing a blood or tissue sample for the presence of an elevated level of homocysteine, and (2) correlating an elevated level with a folate or cobalamin deficiency, did not constitute patentable subject matter); *Prometheus Labs., Inc. v. Mayo Collaborative Servs.*, 581 F.3d 1336, 1345 (Fed. Cir. 2009), *pet’n for cert. filed*, 78 U.S.L.W. 3254 (U.S. Oct. 22, 2009) (No. 09-490); *Classen Immunotherapies, Inc. v. Biogen Idec*, 304 F. App’x 866 (Fed. Cir. Dec. 19, 2008).

33. See Cotter, *supra* note 2, at 862, 868–69.

34. See *id.* at 875 n.112 (citing sources for and against this proposition).

35. See *id.* at 885 n.154 (noting the presence of such a requirement within the European Patent Office); Kelvin W. Willoughby, *How Much Does Technology Really Matter in Patent Law? A Comparative Analysis of Doctrines of Appropriate Patentable Subject Matter in American and European Patent Law*, 18 FED. CIR. B.J. 63 (2008) (discussing technological arts doctrines in

the U.S. case law and commentary was never entirely clear about exactly what the technological arts doctrine meant, and depending on how it is phrased the doctrine can carry different meanings. Be that as it may, my proposal is that, to be patent eligible, the claimed invention must in some meaningful sense (1) harness the forces of nature (2) in some stable, predictable, and reproducible manner³⁶ (3) to achieve a practical end result. So construed, the doctrine would preclude, among other things, attempts to patent laws of nature and other naturally occurring phenomena; abstract ideas; and aesthetic creations. To this end, the doctrine would help to buttress other standard patent law doctrines, including utility, inherency, nonobviousness, claim definiteness, and enablement.³⁷ As I have argued before, some degree of redundancy or doctrinal overlap may actually be a virtue, insofar as it increases one's confidence that the rules at issue are serving legitimate purposes, and serves as insurance that, should courts or other policymakers fail in correctly applying one doctrine another may serve as a backup to attain the correct result.³⁸ In addition, the doctrine as formulated above would help to clarify the boundaries between patent and copyright, which otherwise increasingly risk becoming blurred.³⁹ Finally, a technological arts doctrine of the type I propose here would ensure that the patent system remains off-limits to inventions the practice of which requires no physical structure of any sort. As such, this screen would serve as a backup for screens two and three below, both of which are intended to prevent the patent system from invading important liberty and autonomy interests. To the extent an inventor could easily add a technological "step" to an otherwise nontechnological invention, however, this screen would leave intact a robust patent incentive. It would only screen out claims

different European nations); Brief of Amicus Curiae William Mitchell College of Law Intellectual Property Institute in Support of Respondent at 22–24, *Bilski v. Kappos*, No. 08-964 (Oct. 2, 2009) (noting presence of a similar requirement in Japanese and German law).

36. This requirement is inspired by Yahoo!'s amicus brief in *Bilski*. See Brief of Amicus Curiae Yahoo!, Inc. in Support of Neither Party at 4, *Bilski v. Kappos*, No. 08-964 (Aug. 6, 2009) (arguing that patentable processes must be "stable, predictable, and reproducible—i.e., . . . 'machine-like'").

37. See Cotter, *supra* note 2, at 882–84.

38. See *id.*

39. See, e.g., Andrew F. Knight, *A Potentially New IP: Storyline Patents*, 86 J. PAT. & TRADEMARK OFF. SOC'Y 859 (2004) (arguing in favor of patenting storylines).

that are drafted so broadly (such as *Bilski*'s)⁴⁰ as to require no physical instantiation whatsoever and—at the other end of the spectrum—inventions that are likely to have little if any social value, such as a method for proposing marriage.⁴¹ At the same time, requiring the drafter to add that technological step would not be an exercise in mere formalism; it would help to ensure that patent law neither preempts all practical applications of fundamental principles⁴² nor unduly siphons off social resources to trivia.

B. MINIMAL PHYSICALITY

My second proposed screen would require that a claimed method reflect at least some minimal degree of physicality. In this respect, I would modify the *Bilski* standard and draw upon the dissenting opinion in *Ex parte Lundgren*⁴³ to require that a method either (1) effect a physical transformation, external to the human actor, of matter or energy from one state to another, or (2) be tied to some tangible thing (but not necessarily a “particular machine”). In addition, drawing on the work of Professor Kevin Collins,⁴⁴ I would require that a method

40. See *In re Bilski*, 545 F.3d 943, 962 (Fed. Cir. 2008) (en banc), cert. granted sub nom. *Bilski v. Doll*, 129 S. Ct. 2735 (2009) (noting that Claim 1 did not require the use of “any specific machine or apparatus”).

41. See U.S. Patent App. No. 20070078663 (filed Mar. 3, 2003), available at <http://appft1.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fmetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PG01&s1=20070078663.PG01.&OS=DN/20070078663&RS=DN/20070078663>. According to one source, this application was subsequently abandoned. See Comments to Posting of Orin Kerr to The Volokh Conspiracy, <http://volokh.com/posts/1207635554.shtml> (Apr. 8, 2008, 2:19 AM). A technological arts doctrine could be more stringent, of course, than what I propose above. In Part IV, I discuss some of the advantages and disadvantages of a stricter standard.

42. See *Bilski*, 545 F.3d at 953 (explaining that Supreme Court case law allows patents for *particular applications* of fundamental principles).

43. 76 U.S.P.Q. 2d (BNA) 1385, 1399 (B.P.A.I. 2005) (Barrett, J., concurring in part and dissenting in part).

44. See Collins, *Propertizing Thought*, supra note 20, at 331; see also Brief of Amicus Curiae Law Professor Kevin Emerson Collins in Support of Neither Party at 12–13, *Bilski v. Doll*, No. 08-964 (Aug. 6, 2009) [hereinafter Collins Amicus Brief]; Posting of Kevin Emerson Collins to Patently-O, *An Initial Comment on Prometheus: The Irrelevance of Intangibility*, <http://www.patentlyo.com/patent/2009/09/an-initial-comment-on-prometheus-the-irrelevance-of-intangibility-1.html> (Sept. 17, 2009, 5:42 PM) [hereinafter Collins, *Initial Comment*].

contain at least one step that both (1) distinguishes the method from the prior art and (2) cannot be performed mentally. The intuition here is twofold. First, a patentable invention should have some effect on or relation of the external physical world. A common problem with many method patents in recent years is the level of abstraction with which they are drafted; the resulting fuzziness in the scope of the property right, in turn, reduces the social utility of the patent system as a tool for inducing innovation.⁴⁵ Some connection with the physical world, as Professors Bohannon and Hovenkamp have noted, reduces the social costs of unduly abstract patent claims.⁴⁶ Second, the second part of the test ensures that it cannot be an act of even “technical” patent infringement to think patentable thoughts.⁴⁷ In these respects, the minimal physicality screen helps to ensure that abstract ideas, human cognition, and (once again) laws of nature and other naturally occurring phenomena remain in the public domain. At the same time, as phrased above the criterion would accommodate the patentability of diagnostic and therapeutic methods like the ones at issue in *Laboratory Corp. of American* and *Prometheus v. Mayo* as long as those claims contain a third, physical step (in addition to what Collins refers to as the “determine” and “infer” steps)⁴⁸ that distinguishes them from the prior art.⁴⁹

45. See BESSEN & MEURER, *supra* note 28, at 194–212.

46. See Christina Bohannon & Herbert J. Hovenkamp, *IP and Antitrust: Reformation and Harm* 40, 47–48 (Univ. of Iowa Legal Studies Research Paper No. 09-16, 2009), available at <http://ssrn.com/abstract=1377382>.

47. See Cotter, *supra* note 2, at 893 & n.191. I have argued before that, even if it is unlikely that any patent owner would actually file suit against someone for thinking patentable thoughts, the wisdom of a system that renders such private (and sometimes involuntary) conduct even technically infringing is difficult to grasp. I suggest below that the inclusion of a third, nonmental step to “determine and infer” claims should provide an adequate incentive to engage in socially useful invention without the absurdity of rendering persons even technically liable based on the content of their brains. Moreover, while one might argue that my proposed approach introduces a measure of formalism into patent drafting, my response is that the distinction between a “determine and infer” claim and a claim involving a third nonmental step is not merely a matter of form, but rather works (1) to preserve the dignitary interest in preventing patent claims from reading on human thought processes and (2) to keep the naturally occurring correlation between some physical phenomenon and a human condition within the public domain.

48. Collins, *Initial Comment*, *supra* note 44.

49. See *id.* According to some of the *Bilski* amicus briefs, the ability to patent such methods provides an important incentive for investment in so-

C. NONINVASIVENESS

Under my third proposed screen, and perhaps most controversially, an invention would not be patent eligible if its enforcement would unduly interfere with fundamental liberty interests or with the domain of copyright law. Inspired here principally by the work of Jay Thomas⁵⁰ I suggest that a screen of this type would prevent the state, through the intermediation of the patent system, from intruding upon (for example) the provision of advice that otherwise would be privileged by reason of doctor-patient, attorney-client, or priest-penitent relationships.⁵¹ In addition, the introduction of this screen would (like the technological arts screen) help to prevent patent law from encroaching upon copyright by precluding the patenting of subject matter such as books, music, motion pictures, and story lines. Moreover, by operating at a subconstitutional level, this screen would enable courts to avoid having to decide difficult questions such as whether the issuance and enforcement of patents falling into these categories intrudes upon constitutionally protected speech or privacy interests.⁵²

V. CONCLUSION: SOME APPLICATIONS AND POSSIBLE DRAWBACKS

Many applications of my three proposed screens should be relatively straightforward. As noted above, the physicality screen would exclude “determine and infer” claims such as *Metabolite’s* claim 13 (but it would not exclude a hypothetical alternative claim that included a third, nonmental step that distinguished the invention from the prior art).⁵³ Similarly,

called personalized medicine. *See, e.g.*, Brief of Dr. Ananda Chakrabarty as Amicus Curiae in Support of Petitioners at 24–25, *Bilski v. Doll*, No. 08-964 (Aug. 6, 2009); Brief of Amicus Curiae Medtronic, Inc. in Support of Neither Party at 10–12, *Bilski v. Doll*, No. 08-964 (Aug. 6, 2009). Absent evidence to the contrary, however, it seems unlikely that requiring the addition of a third, nonmental step would greatly weaken the patent incentive; and it would preserve the dignitary and public domain interests that I identified above.

50. *See* Thomas, *Liberty and Property*, *supra* note 20; Thomas, *Liberal Professions*, *supra* note 20.

51. Imagine, for example, a claim to a method for hearing a penitent’s confession.

52. *See* Cotter, *supra* note 2, at 881–82 (citing Thomas, *Liberty and Property*, *supra* note 20, at 609).

53. *See supra* notes 47–49.

claims such as those at issue in *Bilski*, *Comiskey*, and *Ferguson*,⁵⁴ all of which would read on purely intangible processes, would be excluded under the physicality screen as well as, most likely, by the technological arts criterion.⁵⁵ Patents claiming legal methods (including the tax planning patents that many observers find offensive,⁵⁶ as well as others such as the method for selecting a jury⁵⁷) would be excluded by the noninvasiveness criterion (and possibly by the first two screens in addition). Other types of intangible methods, such as the aforementioned application for a patent for a method for proposing marriage, would be excluded by the technological arts screen and possibly by the other two as well.

The vast majority of claimed inventions, on the other hand, would still be patent eligible under my criteria. The physicality screen as defined above would permit many business and software-related methods to be patented, as long as (for example) they are tied to a machine or apparatus (such as a general purpose computer). Genes and other naturally occurring substances that are refined and isolated from their natural state, and that can be put to some practical human purpose, would still be patent eligible, as would (as noted) diagnostic and therapeutic methods the point of novelty of which is a nonmental step.

To be sure, the relative modesty of my three proposed screens will appear to some observers as a drawback. Many people (though not I) still decry the patentability of genes, human created life forms, and other products of biotechnology.⁵⁸ On somewhat firmer ground, in my view, are

54. See *In re Ferguson*, 558 F.3d 1359, 1364 (Fed. Cir. 2009) (holding that claimed method failed the machine-or-transformation test); *In re Comiskey*, 554 F.3d 967, 980–81 (Fed. Cir. 2009); *In re Bilski*, 545 F.3d 943, 962 (Fed. Cir. 2008) (en banc), cert. granted sub nom. *Bilski v. Doll*, 129 S. Ct. 2735 (2009).

55. See Brief Amicus Curiae of Yahoo!, Inc., *supra* note 36, at 4.

56. See, e.g., A Bill to Amend Title 35, United States Code, to Limit Damages and Other Remedies with Respect to Patents for Tax Planning Methods, H.R. 2365, 110th Cong. (2007), available at http://tax.aicpa.org/NR/rdonlyres/5A89F6D0-7757-4135-8B78-8AB8433C94E8/0/Tax_Planning_Method_Patents.pdf; Wade M. Chumney et al., *Patents Gone Wild: An Ethical Examination and Legal Analysis of Tax-Related and Tax Strategy Patents*, 46 AM. BUS. L.J. 343, 343–47 (2009) (introducing an argument for reducing the scope of tax-planning patents).

57. See U.S. Patent No. 6,607,389 (filed Dec. 3, 2001).

58. See *Ass'n for Molecular Pathology v. U.S. Patent & Trademark Off.*,

those who argue that (notwithstanding some possible counterexamples) the extension of patent eligibility to software and business methods has produced, on net, far greater social costs than benefits.⁵⁹ My response to this critique, however, is to note that patent eligibility is a crude filter for carrying out social policy. Once we move beyond the narrow functions I have articulated above—of keeping laws of nature and other natural phenomena within the public domain, or preserving important human liberty and autonomy interests, and of maintaining some boundary between the domains of patent and copyright law—any consensus is much harder to maintain and is, in my view, a matter better addressed either by other patent law doctrines or, if necessary, by legislative action. An important consideration here is that, even if under current circumstances the social costs of business and software-related patents outweigh the benefits, that mix of costs and benefits may vary over time, as well as from one industry to another. Rather than excluding such subject matter from the scope of patent protection altogether, a rational patent system might strive to constrain the potential social costs through judicious applications of such proxies as nonobviousness, claim definiteness, and enablement doctrine. In this sense, patent eligibility exclusions should be reserved for the relatively “easy” cases.

Other possible critiques of my approach may evince differing reactions. Some observers may argue that the term “technology” or “technological arts” cannot be adequately defined, or that any proposed definition is so broad as to exclude relatively little, if anything.⁶⁰ To the extent these

__F. Supp. 2d __, 2009 WL 3614434, at *1, 12–14, 28–29 (S.D.N.Y. Nov. 2, 2009) (denying motion to dismiss claim that patents on genetic sequences are unconstitutional).

59. See Brief Amici Curiae of Professors Peter S. Menell & Michael J. Meurer in Support of Respondent at 31, *Bilski v. Kappos*, No. 08-964 (Oct. 2, 2009).

60. See Brief of Regulatory DataCorp et al. as Amici Curiae in Support of Neither Party at 28–29, *Bilski v. Doll*, No. 08-964 (Aug. 6, 2009) (arguing that “innovations in business, finance, and other applied economic fields plainly qualify as ‘technological’” under a definition that stresses “the practical application of knowledge in a particular area”) (quoting WEBSTER’S THIRD NEW INT’L DICTIONARY 2348 (1963)); see also W. BRIAN ARTHUR, *THE NATURE OF TECHNOLOGY: WHAT IT IS AND HOW IT EVOLVES* 56 (2009) (though not offering an opinion on the patentable subject matter debate, suggesting that in a sense even works of art can be viewed as technological insofar as they

critiques depend on dictionary definitions of technology, however, I find them less than persuasive; legal terms often, and unremarkably, depart from standard everyday usage. I do concede, however, that if the “forces of nature” include the “laws” of economics, psychology, and other social scientific disciplines—a proposition which I am inclined to accept, assuming that the purported laws are sufficiently predictable, etc., in their application—the universe of “technology” will be correspondingly expansive. Coming at the issue from the other side, some critics may argue that because my proposed technological arts requirement only requires that the invention *use* technology it will include too much. Alternative definitions of technological arts might require that the invention perform a technological function, or pertain to a technological field, or (yet more difficult to satisfy) contribute a technical solution to a technical problem.⁶¹ These more rigorous definitions of technological arts presumably would exclude many sports moves (as well as the infamous patent for a method of exercising a cat by means of a laser pointer⁶²), whereas it’s not clear that mine would.

Similar critiques might be raised with respect to my physicality and noninvasiveness criteria. As noted above, in order to implement a version of the mental steps doctrine the physicality screen would require application of a “point of novelty” test that, in many other patent contexts,⁶³ is disfavored and is (in any event) inelegant.⁶⁴ To some, the noninvasiveness criterion might seem vague and, like the

stimulate human emotions in an intentional manner). The Regulatory DataCorp brief also notes that, in U.S. practice, games have been considered patentable subject matter for many decades. *See id.* at 29. Are games technological under my definition, simply because they make use of physical artifacts and are human creations?

61. *See* Cotter, *supra* note 2, at 888–89 (noting this approach in EPO case law); Willoughby, *supra* note 35, at 135 (concluding, after surveying the technological arts doctrines in different European nations, that there is “a good deal” of variation).

62. *See* U.S. Patent No. 6,701,872 (filed Oct. 30, 2002).

63. Point of novelty appears to retain vitality in connection with the printed matter doctrine, however. *See In re Ngai*, 367 F.3d 1336, 1339 (Fed. Cir. 2004). In the amicus brief he filed in *Bilski*, Collins argues that printed matter and mental steps are two sides of the same coin. *See* Collins Amicus Brief, *supra* note 44, at 22.

64. On the inelegance point, *see* Cotter, *supra* note 2, at 887 n.162.

disfavored “moral utility” doctrine,⁶⁵ to tax the USPTO’s institutional competence.

My response to all of these possible critiques, however, is as before twofold. First, because traditional patent eligibility standards (as I view them) implicate longstanding intuitions that the patent system should not impinge upon certain of realms—natural laws, human liberty and autonomy interests, and the domain of copyright—patent examiners, courts, and other policymakers will necessarily need to exercise judgment in evaluating cases near the boundary. If the interests served by these doctrines are as important as I perceive them to be, they are worth preserving even when doing so might appear to tax institutional capabilities. Second, however, because these interests can be preserved by relatively narrow limits on the scope of patentable subject matter, broader exclusions are in my view less clearly defensible. In particular, broad exclusions from patent eligibility that depend on cost/benefit estimates that may change over time may be less desirable than more finely honed approaches to what may prove to be temporary problems. For better or worse, my proposed framework seeks to preserve the wisdom of the older doctrines while retaining the patent system’s flexibility to adapt to new technologies. Properly modified, patent eligibility doctrine can serve as a useful—but modest—tool for achieving important—but nevertheless limited—human purposes.

65. See *Juicy Whip, Inc. v. Orange Bang, Inc.*, 185 F.3d 1364, 1366–67 (Fed. Cir. 1999) (rejecting application of the “moral utility” doctrine to preclude the patenting of immoral or fraudulent inventions).