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Cover Page Footnote

J.D. Candidate, 2009, Fordham University School of Law; Ph.D., 2005, The Scripps Institute; B.A., 2000, Northwestern University. I would like to thank Professor Jeanne C. Fromer and Raymond C. Woodring for their invaluable support and comments.

ARE STORYLINES PATENTABLE? TESTING THE BOUNDARIES OF PATENTABLE SUBJECT MATTER

Anu R. Sawkar*

This Note examines doctrinal issues relating to the patentability of nonphysical inventions by assessing a proposal to patent storylines for use in books and movies. Analyzing recent and historical case law regarding the limits of patentable subject matter, this Note identifies four points of doctrinal tension whose resolution will determine the extent to which nonphysical inventions, such as the storyline proposal, are patentable. This Note suggests how the U.S. Court of Appeals for the Federal Circuit should resolve these tensions in upcoming cases and proposes boundaries for the patentability of nonphysical inventions.

INTRODUCTION

Copyright law is failing writers. At least that is how novelist Leon Arden felt after losing a legal battle with Columbia Pictures over a plotline he created.¹ Arden alleges that the movie studio copied his story to produce the blockbuster film *Groundhog Day*² without giving him credit.³ Arden is not the only writer who has used the courts to try to protect the products of his creativity against theft by Hollywood. Indeed, federal courts regularly entertain claims by the authors of screenplays or novels that popular movies have infringed their copyrights⁴—with mixed results.⁵

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1. See Sathnam Sanghera, *A Gnawing Kind of Pain*, FT.com, June 18, 2004, http://search.ft.com/ftArticle?queryText=%22A+gnawing+kind+of+pain%22+&y=0&aje=false&x=0&id=040618004725&ct=0&nclick_check=1 (interviewing Leon Arden).

2. *Groundhog Day* (Columbia Pictures 1993).

3. See Sanghera, *supra* note 1.

4. See, e.g., Herzog v. Castle Rock Entm't, 193 F.3d 1241 (11th Cir. 1999) (the movie *Lone Star*); Williams v. Crichton, 84 F.3d 581 (2d Cir. 1996) (the movie *Jurassic Park*); Towler v. Sayles, 76 F.3d 579 (4th Cir. 1996) (the movie *Passion Fish*); Beal v. Paramount Pictures Corp., 20 F.3d 454 (11th Cir. 1994) (the movie *Coming to America*); Kouf v. Walt Disney Pictures & Television, 16 F.3d 1042 (9th Cir. 1994) (the movie *Honey, I Shrunk the Kids*); Litchfield v. Spielberg, 736 F.2d 1352 (9th Cir. 1984) (the movie *E.T.*); Chase-Riboud v. Dreamworks, 987 F. Supp. 1222 (C.D. Cal. 1997) (the movie *Amistad*); Arden v. Columbia Pictures Indus., Inc., 908 F. Supp. 1248 (S.D.N.Y. 1995) (the movie *Groundhog Day*); Zambito v. Paramount Pictures Corp., 613 F. Supp. 1107 (E.D.N.Y. 1985) (the movie *Raiders of the Lost Ark*).

American copyright law has protected the written expression of stories since the first Congress enacted the first copyright statute in 1790.⁶ Yet while the movie adaptation of a written work will itself qualify for copyright protection,⁷ it will infringe the source material only if it is substantially similar to the underlying work.⁸ Plaintiffs occasionally do succeed in demonstrating sufficient similarity between their work and an unauthorized derivation,⁹ but courts frequently reject these infringement claims,¹⁰ leaving the authors with no recourse.

Consider Leon Arden's example. In *Arden v. Columbia Pictures, Inc.*, Arden brought a claim for infringement of his published novel, *One Fine Day*, about a man trapped in a repeating day.¹¹ Arden alleged that the film *Groundhog Day* copied several elements of his novel, including "the plot, mood, characters, pace, setting, and sequence of events."¹² Although the district court judge Denny Chin granted Columbia Pictures' motion for summary judgment, he acknowledged that "the Novel and the Film are based on the same idea, a man trapped in a day that repeats itself over and over."¹³ Nevertheless, the court held that the novel and the film express the idea differently, and that the similarities between the works "relate only to unprotectible ideas, concepts, or abstractions."¹⁴ The opinion further noted

5. See *infra* note 9 for cases where the author won. See *supra* note 4 for cases where the author lost.

6. See 1 Cong. ch. 15, 1 Stat. 124 (1790) (current version codified generally at 17 U.S.C. § 101 (2000)) (conferring copyright protection on maps, charts, and books).

7. A copyright confers rights to any derivative work—i.e., any "work based upon one or more preexisting works," including "any other form in which a work may be recast, transformed, or adapted." 17 U.S.C. §§ 101, 106(2) (2000).

8. *Arden*, 908 F. Supp. at 1249. For a comprehensive examination of copyright infringement in motion picture screenplays, see Nick Gladden, *When California Dreamin' Becomes a Hollywood Nightmare: Copyright Infringement and the Motion Picture Screenplay: Toward an Improved Framework*, 10 J. Intell. Prop. L. 359 (2003).

9. See, e.g., *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49, 56 (2d Cir. 1936) (holding that defendant's motion picture infringed plaintiff's stage play, where there were extensive similarities in the details and incidents of the two works and "the dramatic significance of the scenes . . . is the same, almost to the letter"); see also *Metcalf v. Bochco*, 294 F.3d 1069, 1073–74 (9th Cir. 2002) (noting that "[t]he similarities between the relevant works are striking" and holding that "[t]he cumulative weight of these similarities allows the Metcalfs to survive summary judgment.").

10. See *supra* note 4 (listing cases where courts rejected a plaintiff author's copyright infringement claim).

11. *Arden*, 908 F. Supp. at 1249.

12. *Id.*

13. *Id.*

14. *Id.* at 1249–50. The court compared the two works:

The Novel is dark and introspective, featuring witchcraft and an encounter with God. It is marked, for example, by an explosion on an airplane that kills 192 people, the rape of one young woman, and the suicide of another. These tragic events recur as the day repeats itself over and over again. In contrast, the Film is essentially a romantic comedy about an arrogant, self-centered man who evolves into a sensitive, caring person who, for example, in his repeating day, saves a boy falling out of a tree, changes a flat tire for several elderly women, and learns to play the piano.

Id. at 1250.

that, “[b]ecause the copyright law only protects the expression of ideas, rather than ideas themselves, it is clear that the idea of a repeating day, even if first conceived by plaintiff, is not protectible.”¹⁵

In a 2004 interview, Arden discussed his feelings about the litigation’s outcome, stating, “The worst thing . . . was when all the reviews of the film came through and all of them said how wonderful the idea was. . . . Many said the idea was ‘genius.’ I can’t tell you how bad that felt. Because they were really saying how good I was, but nobody knew.”¹⁶ Arden noted that not receiving credit for commercial ideas has a particularly devastating impact because such ideas “put you on the map.”¹⁷ He stated that he gladly would have sold the rights to his story for less than the costs of litigation because simply receiving credit would have generated interest in his novel.¹⁸ Indeed, the judge noted in the *Arden* opinion that he could “appreciate [Arden’s] frustration at seeing his idea of a man trapped in a repeating day used, without his consent, in a movie that has grossed more than \$70 million, not one cent of which he has received,” but he reiterated that copyright law did not provide the protection Arden sought.¹⁹

Patent attorney Andrew Knight proposes an unusual solution to the problem that Arden and other writers face in protecting the ideas underlying their stories. Knight argues that copyright law should not be the only protection regime available for writers.²⁰ Rather, noting that software can be protected by both patents and copyright, Knight argues that storylines also warrant dual protection.²¹ Whereas copyright only protects the written expression of a single embodiment of a storyline,²² Knight argues that patents can be used to protect the underlying storyline itself, separate from any particular written expression based on it.²³ While patenting storylines may seem counterintuitive,²⁴ Knight proposes that framing a storyline invention as a patentable process can serve as the statutory basis for procuring a patent, and he believes that he can draft a patent application for a storyline process that will comply with all the statutory requirements for

15. *Id.* at 1259.

16. Sanghera, *supra* note 1.

17. *Id.* (“I think every writer gets two, maybe three, really commercial ideas in his life They may not be his best books, but they are the most commercial ones. Faulkner had a couple. Nabokov had *Lolita*. When they steal from you, that’s bad enough, but when they steal a commercial idea that could put you on the map, it’s just unbearable.”).

18. *See id.* (“[T]he funny thing about Columbia Pictures is that they used up \$60,000 defending the film in court—I would have accepted that as the sale price. The film would have come out, then the book would have sold more and, in turn, I would have got more.”).

19. *Arden*, 908 F. Supp. at 1264.

20. *See generally* Andrew F. Knight, *A Potentially New IP: Storyline Patents*, 86 J. Pat. & Trademark Off. Soc’y 859 (2004).

21. *Id.*

22. *See* Copyright Act, 17 U.S.C. § 102 (2000) (defining works eligible for copyright protection).

23. *See* Knight, *supra* note 20, at 859.

24. *See, e.g.,* Daniel Fisher, *Box Office Patents*, *Forbes.com*, Aug. 15, 2005, http://www.forbes.com/business/2005/08/15/patent-movies-scripts-cz-df_0812script.html (discussing why “[t]he idea isn’t as crazy as it sounds”).

patent protection.²⁵ In fact, Knight already has filed four such storyline patent applications,²⁶ and he now advertises his services for preparing similar storyline applications for clients.²⁷

Knight suggests that because copyright protection is too limited and state law protections are too varied to be adequate,²⁸ patent protection is the right vehicle to solve a problem such as Arden's. But Knight's attempt to use the statutory eligibility of processes to protect this unusual subject matter faces complication because courts recently have begun to scrutinize the scope of patentable subject matter.²⁹ Thus, to evaluate the long-term potential of Knight's proposal to patent storylines, one must review recent developments in the case law regarding the trajectory of the scope of patentable subject matter, particularly regarding the scope of patentable processes.

This Note examines the current scope of patentable subject matter in order to explore the basis for Knight's claim that an original storyline can constitute a patentable process. Part I of this Note provides a brief overview of the statutory requirements for obtaining a patent, reviews the current case law regarding patentable subject matter, and concludes with a discussion of Knight's legal and policy-based rationales for allowing storyline patents. Part II explores in detail several tensions in the case law regarding patentable subject matter that have created controversies and paved the way for likely future revisions regarding the proper scope of patentable processes. Specifically, Part II focuses on ambiguities in courts' approaches to applying the doctrines of patentable processes, judicial exclusions to patentable subject matter, "mental steps," and the technological arts requirement. Finally, Part III analyzes whether storylines claimed as processes are indeed patentable subject matter under current case law. Part III concludes that storyline processes are not patentable subject matter under the most recent case law from the U.S. Court of Appeals for the Federal Circuit and recommends that the Federal Circuit limit the scope of patentable processes by clarifying some of the ambiguities in the case law as it stands today.

25. See Knight, *supra* note 20, at 866-68.

26. See U.S. Patent Application No. 10/869,082 (filed June 17, 2004); U.S. Patent Application No. 10/861,849 (filed June 7, 2004); U.S. Patent Application No. 10/846,544 (filed May 17, 2004); U.S. Patent Application No. 10/722,473 (filed Nov. 28, 2003).

27. Andrew F. Knight's web site provides information about storyline patents and describes the services offered. Knight and Associates, The First and Best in Storyline Patents, http://www.plotpatents.com/about_us.htm (last visited Apr. 19, 2008).

28. For an introduction to state law doctrines used to protect film and television show ideas, see Aileen Brophy, Note, *Whose Idea Is It Anyway? Protecting Idea Purveyors and Media Producers after Grosso v. Miramax*, 23 *Cardozo Arts & Ent. L.J.* 507 (2005).

29. See *infra* Parts I.B, II.

I. PATENTS, PATENTABLE SUBJECT MATTER, AND THE PROPOSAL TO PATENT STORYLINES

This part first reviews the statutory requirements for protection under the United States patent system and then presents patent attorney Andrew Knight's proposal for protecting storylines as process patents. Specifically, Part I.A provides an overview of the United States patent system. Part I.B examines the current case law regarding patentable subject matter, discussing the scope of patentable processes, as well as several doctrines that the courts have developed to limit what inventions may be patented. Part I.C briefly outlines commentators' concerns about the expanding scope of patentable processes. Finally, Part I.D examines Knight's storyline patent applications, reviews one of his applications in detail, and presents his arguments for why storyline processes should constitute patentable subject matter.

A. *An Overview of the U.S. Patent System*

To encourage inventors to create and disclose new inventions, patents confer a limited monopoly over the subject matter of the patent.³⁰ Specifically, a patent granted in the United States confers "the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States" for a limited term.³¹ Via this limited term, the U.S. patent regime reflects an effort to balance "the need to encourage innovation and the avoidance of monopolies which stifle competition without any concomitant advance."³² The monopoly period provides a financial incentive to make inventions public and to develop new inventions.³³ In exchange for allowing this limited monopoly period, the public receives full disclosure of the patented invention, the right to invent and patent improvements to the patented invention, and an unencumbered right to copy the patented invention after the patent expires.³⁴

The U.S. Constitution gives Congress the specific power to grant patents. Article I, Section 8 of the Constitution states, "The Congress shall have Power . . . [t]o promote the Progress of Science and useful Arts, by securing

30. See 35 U.S.C. § 154 (2000) (describing patent terms and rights).

31. *Id.* This limited term is usually for twenty years from the application filing date. See *id.*

32. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989); see also Ben Klemens, *The Rise of the Information Processing Patent*, 14 B.U. J. Sci. & Tech. L. 1, 1 (2008) ("Patent law seeks to avoid the dangers of overprotection just as surely as it seeks to avoid the diminished incentive to invent that underprotection can threaten." (quoting Justice Breyer's dissenting opinion in *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 126 S. Ct. 2921, 2922 (2006))).

33. See, e.g., Viva R. Moffat, *Mutant Copyrights and Backdoor Patents: The Problem of Overlapping Intellectual Property Protection*, 19 Berkeley Tech. L.J. 1473, 1483-85 (2004).

34. See *id.* (describing the patent bargain and the public's rights under the patent scheme).

for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”³⁵ This clause is “both a grant of power and a limitation,” reminding Congress that “the exercise of the patent power may not overreach the restraints imposed by the stated constitutional purpose.”³⁶

Beginning in 1870, Congress has used its patent clause power to enact a series of patent acts.³⁷ Under the current statutory scheme, an applicant is entitled to patent protection if his invention is adequately disclosed in the patent application,³⁸ is novel³⁹ and nonobvious,⁴⁰ and fits within one of the four specific categories of statutorily defined subject matter.⁴¹ The following discussion provides a brief overview of these requirements.⁴²

Adequate public disclosure is a central element of the patent bargain. As a result, each application must comply with the four basic disclosure requirements contained in 35 U.S.C. § 112: (1) enablement, (2) best mode, (3) written description, and (4) clear claiming.⁴³

The patent system also seeks to avoid granting patents on inventions that do not reflect a sufficient degree of innovation over past inventions—known as the “prior art”—to warrant a monopoly. The novelty and nonobviousness requirements are meant to ensure that a patented invention represents such an advance.⁴⁴ An invention is novel if it has not been previously disclosed in the prior art.⁴⁵ An invention is nonobvious if a

35. U.S. Const. art. I, § 8, cl. 8.

36. *Graham v. John Deere Co.*, 383 U.S. 1, 5–6 (1966).

37. For a history of the various patent acts, see Sheldon W. Halpern et al., *Fundamentals of United States Intellectual Property Law: Copyright, Patent, Trademark 196–99* (2007). Congress is currently considering sweeping amendments to the current patent scheme as part of The Patent Reform Act of 2007. S. 1145, 110th Cong. (2007); H.R. 1908, 110th Cong. (2007) (as passed by House, Sept. 7, 2007). For a discussion of the major revisions contained in H.R. 1908 as passed, see Patently-O: Patent Law Blog, <http://www.patentlyo.com/patent/2007/09/patent-reform-2.html> (Sept. 11, 2007).

38. 35 U.S.C. § 112 (2000).

39. *Id.* § 102.

40. *Id.* § 103.

41. *Id.* § 101.

42. Because Knight frames his storyline applications as processes in order to meet the statutory subject matter requirement, Part I.B discusses statutory subject matter and patentable processes in depth.

43. See 35 U.S.C. § 112; see also Halpern et al., *supra* note 37, at 202–03 (“[E]nablement . . . demands [that the specification provides] sufficient information [such that] a person skilled in the relevant art [can] make and use the claimed invention without ‘undue experimentation.’”); *id.* at 206 (“The best mode requirement prohibits an inventor from applying for a patent while concealing from the public a preferred embodiment . . .”); *id.* at 208 (“[W]ritten description [requires the applicant] to convey with reasonable clarity to those skilled in the art that [he] was in possession of the claimed subject matter when the patent application was filed.”); *id.* at 209 (“[Clear claiming requires the applicant to] ‘particularly point[] out and distinctly claim[]’ the invention. The purpose of [this] requirement is to put the public . . . on notice of what exactly is being claimed by the patentee.”).

44. See 35 U.S.C. § 102 (novelty); *id.* § 103 (nonobviousness).

45. See *id.* § 102 (listing eligible prior art). Patent claims are “anticipated” by prior art under § 102 if “each claim limitation is disclosed, ‘either expressly or inherently,’ in a *single*

person of skill in the relevant art could not arrive at the invention based on information available in the prior art, including by combining elements of different prior art.⁴⁶ The nonobviousness requirement usually is a greater obstacle to patentability than is novelty because an invention may be novel but still not patentable if “it is not *significantly* different” than the prior art.⁴⁷

The statutory subject matter requirements define what kinds of inventions may be patented. Section 101 provides that a patent may be granted for “any new⁴⁸ and useful⁴⁹ process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.”⁵⁰ Thus, patents may be granted for four classes of inventions: (1) machines, (2) manufactures, (3) compositions of matter, and (4) processes.⁵¹

As discussed below in Part I.D, Knight has drafted his storyline claims as process claims and argues that this form of claiming renders his storylines patentable subject matter.⁵² The following section traces the development of U.S. Supreme Court and Federal Circuit jurisprudence regarding patentable subject matter—particularly patentable processes.

prior art reference that existed before the patent applicant’s *date of invention*.” Halpern et al., *supra* note 37, at 210. Prior art references may not be combined to anticipate an invention. Rather, a single piece of prior art must contain “all the claimed elements . . . in exactly the same situation and united in the same way to perform the identical function.” *Id.* at 212 (quoting *Studiengesellschaft Kohle, m.b.H. v. Dart Indus., Inc.*, 549 F. Supp. 716, 723 n.4 (D. Del. 1982)).

46. Unlike the novelty inquiry, the examiner may combine the teachings of several prior art references to allege obviousness. See Halpern et al., *supra* note 37, at 234. For an analysis of the obviousness inquiry in view of the U.S. Supreme Court’s recent decision in *KSR Int’l Co. v. Teleflex Inc.*, see *The Supreme Court, 2006 Term—Leading Cases*, 121 Harv. L. Rev. 185, 375 (2007).

47. Halpern et al., *supra* note 37, at 234 n.158 (“An invention which has been made, and which is new in the sense that the same thing has not been made before, may still not be patentable if the difference between the new thing, and what was known before is not considered sufficiently great to warrant a patent.” (quoting P.J. Federico, *Commentary on the New Patent Act*, 75 J. Pat. & Trademark Off. Soc’y 161, 180–81 (1993))).

48. The “new” requirement under § 101 is separate and distinct from the novelty requirement of § 102. See, e.g., Katharine P. Ambrose, *The Mental Steps Doctrine*, 48 Tenn. L. Rev. 903, 905 (1981) (“The concepts of novelty and nonobviousness . . . are only part of what is implied by the word ‘new’ in the section 101 phrase ‘new and useful.’ The term ‘new’ is broader and excludes all things presumed to have always existed in the public domain, whether or not they were recognized previously.”).

49. This utility requirement helps secure a quid pro quo for society. See Halpern et al., *supra* note 37, at 232. The invention must be “capable of performing the proposed function” even if it is not “fully operational” to satisfy § 101; a lack of utility may be demonstrated “by a showing of total incapacity.” *Id.* at 233.

50. 35 U.S.C. § 101 (2000).

51. See *infra* notes 69–72 and accompanying text (defining the four types of subject matter).

52. See Knight, *supra* note 20, at 868–69 (“A method is a method and should be examined as such. . . . There is simply no statutory or common law exempting from patentability a useful method for producing entertainment.”).

B. Patentable Subject Matter and Patentable Processes

Processes are unique among the four types of statutory subject matter. Machines, manufactures, and compositions of matter are physical products, and patents protecting these tangible things provide the right to exclude others from making and using them.⁵³ Process claims, on the other hand, protect an “act or a series of acts.”⁵⁴ Types of processes include methods of making products as well as new methods of using products.⁵⁵ Patents protecting processes thus provide the right to exclude others from performing the steps of the claimed method.⁵⁶ This right to exclude is narrower than the right to exclude afforded by a product patent because, to infringe a process patent, the actor must perform all of the recited steps of the method.⁵⁷ If she uses an alternative method to achieve the same result, she does not infringe.⁵⁸

To illustrate the potential breadth of patentable processes and the scope of patent rights conveyed by a process claim, consider the following claim excerpted from an amusing patent that recites steps for using a laser pointer to “exercise” a cat:

1. A method of inducing aerobic exercise in an unrestrained cat comprising the steps of:

(a) directing an intense coherent beam of invisible light produced by a hand-held laser apparatus to produce a bright highly-focused pattern of light at the intersection of the beam and an opaque surface, said pattern being of visual interest to a cat; and

(b) selectively redirecting said beam out of the cat’s immediate reach to induce said cat to run and chase said beam and pattern of light around an exercise area.⁵⁹

53. See 35 U.S.C. § 154.

54. See Halpern et al., *supra* note 37, at 244 (quoting *Cochrane v. Deener*, 94 U.S. 780, 788 (1876)).

55. See 35 U.S.C. § 100(b).

56. See, e.g., *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1318 (Fed. Cir. 2005) (“Because a process is nothing more than the sequence of actions of which it is comprised, the use of a process necessarily involves doing or performing each of the steps recited.”).

57. See, e.g., *Roberts Dairy Co. v. United States*, 530 F.2d 1342, 1354 (Ct. Cl. 1976) (“It is well established that a patent for a method or process is not infringed unless all steps or stages of the claimed process are utilized.”).

58. See, e.g., *Amgen, Inc. v. Hoechst Marion Roussel, Inc.*, 126 F. Supp. 2d 69, 102 (D. Mass. 2001) (“[U]nlike . . . product claims, for which it does not matter how one reached the patented result[,] . . . *how one reaches the useful* result is the very substance of a process patent.”). Depending on the final scope of Knight’s claims after prosecution, one can avoid infringing his claims by any numbers of ways. One can perform a noninfringing method by leaving out one or several of the steps, altering the steps, or performing the steps in a different order.

59. U.S. Patent No. 5,443,036 (filed Nov. 2, 1993) (issued Aug. 22, 1995) (expired September 17, 2007 due to failure to pay maintenance fees). The claims of this patent are widely criticized as being obvious, but the patent has never been litigated or reexamined. See FreePatentsOnline, List of Crazy Patents, <http://www.freepatentsonline.com/crazy.html> (last

If the patentees also had invented a patentable laser apparatus, they could have claimed a method of using this special apparatus to exercise a cat (or to do anything else). The patentees explicitly do not, however, “claim a right to exclude others from possessing a cat, making a laser pointer, using a laser pointer in a classroom, or even from ‘directing’ a laser pointer with a cat present without subsequently ‘redirecting’ it.”⁶⁰ The rights granted to the patentees are limited “to the use of the entire series of actions that make up the recited method.”⁶¹ Thus, a person who uses a flashlight to perform the claimed method does not infringe.⁶² Furthermore, the patentees do not have the right to exclude the public from “discussing, communicating, or thinking about the cat-exercising method.”⁶³

The rest of this section examines the law governing patentable subject matter, including the law allowing process patent claims such as the one discussed above. Part I.B.1 presents the statutory framework governing patentable subject matter. Part I.B.2 traces Supreme Court and Federal Circuit jurisprudence regarding patentable processes. Part I.B.3 discusses several judicially created exceptions to patentable subject matter. Part I.B.4 describes two additional doctrines that courts have employed at various times to restrict the scope of patentable processes.

1. Statutory Framework

As discussed above, the Constitution grants Congress the power to grant patents “[t]o promote the Progress of Science and useful Arts.”⁶⁴ Accordingly, in 35 U.S.C. § 101, Congress limited the types of inventions that are eligible for patent protection to “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.”⁶⁵ In *In re Nuijten*, a split Federal Circuit recently interpreted this language from § 101 when it addressed whether a claimed electrical signal fit within one of the four categories of patentable subject matter.⁶⁶ The *Nuijten* majority noted that the claimed signals “are not traditional step-by-step process claims, nor are they directed to any apparatus for generating, receiving, processing, or storing the signals.”⁶⁷

visited Apr. 19, 2008) (discussing the obviousness of the “Method of Exercising a Cat” patent and listing other “crazy” patents).

60. Kevin Emerson Collins, *Propertizing Thought*, 60 SMU L. Rev. 317, 324–25 (2007) (discussing the scope of the “Method of Exercising a Cat” patent).

61. *Id.* at 325.

62. Using a flashlight would not literally infringe the patent because it does not recite using a beam of light from a flashlight instead of a laser in the claimed method; however, a court might find infringement under the Doctrine of Equivalents. See Halpern et al., *supra* note 37, at 281–83.

63. Collins, *supra* note 60, at 325.

64. U.S. Const. art. I, § 8, cl. 8.

65. 35 U.S.C. § 101 (2000).

66. See *In re Nuijten*, 500 F.3d 1346, 1348 (Fed. Cir. 2007), *reh’g and reh’g en banc denied*, 515 F.3d 1361 (Fed. Cir. 2008).

67. *Id.* at 1351 (noting that “such claims have been allowed”). The independent claim at issue recites,

The majority held that the claimed signals were not patentable because they did not fall within any statutory subject matter category.⁶⁸ First, the court held that a signal is not a process because it does not “cover an act or series of acts.”⁶⁹ Second, the court held that a “propagating electromagnetic signal is not a ‘machine’” because it is not “a concrete thing, consisting of parts, or of certain devices and combination of devices.”⁷⁰ Third, the court held that a “signal comprising a fluctuation in electric potential or in electromagnetic fields” is not a composition of matter because it “is not a ‘chemical union,’ nor a gas, fluid, powder, or solid.”⁷¹ Finally, the court held that “Nuijten’s signals, standing alone, are not ‘manufacture[s]’ under the meaning of that term in § 101.”⁷²

Judge Richard Linn, in dissent, saw the case as an opportunity to confront an ongoing controversy regarding the scope of patentable subject matter.⁷³ While he acknowledged the majority’s “desire to draw an exclusionary line,” he cautioned that the court must be “mindful of [its] duty to interpret the law as Congress wrote it rather than attempt ‘to preempt congressional action by judicially decreeing what accords with ‘common sense and the public weal.’”⁷⁴

Judge Linn’s analysis focused on the textual requirements of § 101.⁷⁵ He suggested that “[t]he answer to this [question of permissible scope] is best found in § 101’s textual requirements that statutory subject matter be ‘new’ and ‘useful,’ which are limits on the four statutory categories that otherwise encompass ‘anything under the sun that is made by man.’”⁷⁶ Judge Linn analyzed both the “new” and the “useful” requirements in turn.

A signal with embedded supplemental data, the signal being encoded in accordance with a given encoding process and selected samples of the signal representing the supplemental data, and at least one of the samples preceding the selected samples is different from the sample corresponding to the given encoding process.

Id.

68. *Id.* at 1357.

69. *See id.* at 1355 (noting that “[t]he Supreme Court and this court have consistently interpreted the statutory term ‘process’ to require action”).

70. *Id.* at 1355–56 (internal quotation marks omitted).

71. *Id.* at 1357.

72. *Id.* at 1356–57 (discussing definitions of “manufacture”). *But see id.* at 1359–63 (Linn, J., concurring in part and dissenting in part) (analyzing precedent and concluding that the majority’s definition of “manufacture” was erroneous).

73. *See id.* at 1358 (“This case presents challenging questions that go beyond the single patent claim at issue. In determining the scope of patentable subject matter, we must reconcile cutting-edge technologies with a statute, the language of which dates back to the beginning of the Republic. Moreover, we decide this case against a backdrop of ongoing controversy regarding the wisdom of software patenting and our decision in *State Street Bank . . .*”).

74. *Id.* (quoting *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 195 (1978)) (disagreeing with the majority’s belief that its “holding is compelled by or consistent with precedent or the language of the statute” and “fear[ing] that [the holding] risks further confusing an already uncertain set of doctrines”).

75. *See id.* at 1358–67.

76. *Id.* at 1358 (quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980)).

Judge Linn first distinguished the term “new” in § 101 from § 102’s “novelty” requirement.⁷⁷ He concluded that § 101 demands that an invention be a “new” creation, rather than the discovery of a preexisting principle.⁷⁸ For example, a scientific truth simply reveals a relationship that has always existed and thus is not “new” in the § 101 sense, even if it may be “novel”—i.e., previously undiscovered by man.⁷⁹ The “new” requirement thus filters out subject matter that preexists in nature and is “part of the storehouse of knowledge of all men” that should remain “free to all men and reserved exclusively to none.”⁸⁰

Turning to the “useful” requirement, Judge Linn noted that the practical application of a claim directed to one of several judicial exceptions to patentable subject matter—i.e., a law of nature, a physical phenomenon, or an abstract idea⁸¹—usually is “too attenuated from the subject of the claim to be ‘useful.’”⁸² An invention satisfies this requirement if its “‘currently available form’” confers “‘specific benefits.’”⁸³ In other words, the claimed invention must have a “‘specific and substantial utility to satisfy § 101.’”⁸⁴

Judge Linn therefore ultimately framed the § 101 inquiry as (1) whether the invention is a “process,” “machine,” “manufacture,” or “composition of

77. *See id.* at 1363–64.

78. *See id.* The Supreme Court has reserved certain subject matter—laws of nature, physical phenomena, and abstract ideas—from the realm of patentable subject matter. Judge Richard Linn suggested that these judicially created exceptions are examples of subject matter that fail § 101’s “new” requirement. For a discussion of the judicial exceptions, see *infra* Part I.B.3.

79. *See Nuijten*, 500 F.3d at 1364–65.

80. *Id.* at 1364 (internal quotation marks omitted) (noting further that “[t]o be ‘made by man,’ something must not be pre-existing in nature; it must be, literally, an invention”).

81. *See infra* Part I.B.3 for a discussion of the judicial exceptions.

82. *Nuijten*, 500 F.3d at 1365 (“[A]lthough mathematical algorithms and similarly abstract principles may be useful (in the casual sense of the term) in a wide variety of contexts, their utility is too far removed from what is claimed for them to be ‘useful’ under § 101.”).

83. *Id.* (quoting *Brenner v. Manson*, 383 U.S. 519, 534–35 (1966)).

84. *Id.* (internal quotation marks omitted) (quoting *In re Fisher*, 421 F.3d 1365, 1371 (Fed. Cir. 2005) (indicating that “a claim to a gene sequence where the sequence has only been shown to have ‘biological activity’” does not meet this criteria)).

Part I.B.2 discusses the courts’ struggles in trying to identify when a process that does not involve a physical transformation satisfies this substantial utility. Judge Linn believes that the U.S. Court of Appeals for the Federal Circuit’s “useful, concrete, and tangible result” test, discussed in Part I.B.2.b, speaks to the “useful” requirement. *See id.* Judge Linn declined to address, however, whether a process requires a physical transformation or whether a patentable process must be “technological,” reserving these “difficult questions” for “other days and other cases.” *See id.* at 1367 n.7 (“I express no opinion as to whether an invention can be a ‘manufacture,’ or for that matter whether it can be ‘useful’ within the meaning of 35 U.S.C. § 101 and Article I, clause 8 of the Constitution, without having some discernible effect upon the world or effecting some physical transformation. . . . Nor do I express an opinion as to whether ‘useful’ may mean ‘technological’ and thereby require either a result or an art that is technological in character.” (discussing *In re Comiskey*, 499 F.3d 1365 (Fed. Cir. 2007); *Ex parte Lundgren*, 76 U.S.P.Q. 2d (BNA) 1385 (B.P.A.I. 2005))).

matter” and (2) whether it is “new” and “useful.”⁸⁵ Applying this framework, he concluded that the claimed signal was both “new” and “useful.”⁸⁶ The signal is “new” because it is “man-made,” “artificial in character,” and not “natural or pre-existing.”⁸⁷ Although the claimed signal requires “encoding” using transformations that apply laws of mathematics and physics, it recites an application and does not preempt any law of mathematics or physics.⁸⁸ Moreover, the signal is “useful” in “a direct and specific way” because the invention “is directed to encoding and communicating data, and that is precisely what the signal does.”⁸⁹ Accordingly, Judge Linn concluded that the claimed signal was patentable subject matter.⁹⁰

The *Nuijten* court’s split decision highlights the difficulty that courts have faced in construing the boundaries of the four categories of statutory subject matter based on the language of § 101.⁹¹ The Supreme Court, interpreting the scope of 35 U.S.C. § 101 in *Diamond v. Chakrabarty*, asserted that the statute’s history supports a broad construction because “Congress intended statutory subject matter to ‘include anything under the sun that is made by man.’”⁹² The Court cautioned, however, that this does not “suggest that § 101 has no limits or that it embraces every discovery.”⁹³

2. The Scope of Patentable Processes

Having discussed the basic requirements of § 101 relating to patentable subject matter in the previous section, this section discusses judicial tests for identifying patentable processes specifically. As highlighted by the “Method of Exercising a Cat” patent discussed above, nearly any endeavor can be claimed as a process by stating the action as a series of steps; however, this does not mean that every process satisfies the constitutional and statutory subject matter requirements.⁹⁴ This section discusses the scope of the process category of patentable subject matter.⁹⁵

85. *Id.* at 1367 (internal quotation marks omitted).

86. *Id.*

87. *Id.* at 1368.

88. *See id.*

89. *Id.*

90. *Id.* at 1369. Judge Linn analogized his conclusion in *Nuijten* with the Supreme Court’s decision to allow certain claims in *O’Reilly v. Morse*. *See id.* at 1368–69 (citing *O’Reilly v. Morse*, 56 U.S. (15 How.) 62, 111–12 (1853)). For further discussion of *Morse*, see *infra* notes 166–68 and accompanying text.

91. Indeed, Judge Linn would have held that the claimed signals were manufactures, whereas the majority held that the claimed signals were not manufactures. *See id.* at 1359.

92. *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (citing S. Rep. No. 1979, at 5 (1952), reprinted in 1952 U.S.C.C.A.N. 2394, 2399; H.R. Rep. No. 1923, at 6 (1952), reprinted in 1952 U.S.C.C.A.N. 2394, 2399).

93. *Id.*

94. *See, e.g., Parker v. Flook*, 437 U.S. 584, 589 (1978) (“The holding that the discovery of [Benson’s] method could not be patented as a ‘process’ forecloses a purely literal reading of § 101.”).

95. There are differing approaches to analyzing the scope of statutory processes. For example, one approach concludes that the judicial exclusions discussed in Part I.B.3

The difficulties in identifying patentable processes begins with the statute, which somewhat circularly defines the term “process” as a “process, art or method,” including “a new use of a known process, machine, manufacture, composition of matter, or material.”⁹⁶ Not surprisingly, courts have long experienced difficulties in defining the boundaries of patentable processes.⁹⁷ Various Supreme Court interpretations include “a method of doing a thing,”⁹⁸ “a mode of treatment of certain materials to produce a given result,”⁹⁹ “some practical method or means of producing a beneficial result or effect,”¹⁰⁰ and “transform[ation] and reduc[tion] to a different state or thing.”¹⁰¹ The Court’s guidance is particularly lacking with regard to processes that involve no “physical manipulations of physical items.”¹⁰² As a result, subject matter such as business methods, computer-related art, and tax methods have tested and expanded the bounds of patentable subject matter because the lower courts have struggled to develop a coherent test for identifying patentable processes that do not involve a physical transformation.¹⁰³ The following sections trace the Supreme Court and Federal Circuit jurisprudence regarding patentable processes, particularly processes that do not involve physical transformations.¹⁰⁴

technically refer to subject matter that is not within § 101 and thus cannot be a process. Alternatively, some case law suggests that the judicial exceptions refer to subject matter that is within § 101 processes but for their special condition as exceptions. Both approaches should yield the same result.

96. 35 U.S.C. § 100(b) (2000).

97. See John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. Rev. 1139, 1144 (1999).

98. *Expanded Metal Co. v. Bradford*, 214 U.S. 366, 383 (1909).

99. *Cochrane v. Deener*, 94 U.S. 780, 788 (1876).

100. *Corning v. Burden*, 56 U.S. (15 How.) 252, 268 (1853).

101. *Chochrane*, 94 U.S. at 788.

102. Richard S. Gruner, *In Search of the Undiscovered Country: The Challenge of Describing Patentable Subject Matter*, 23 Santa Clara Computer & High Tech. L.J. 395, 400 (2007).

103. For examples of these types of patents, see *infra* notes 277–83 and accompanying text.

104. Norman D. McClaskey offers a thorough analysis of the Supreme Court’s statutory process doctrine prior to 1970. Norman D. McClaskey, *The Mental Process Doctrine: Its Origin, Legal Basis, and Scope*, 55 Iowa L. Rev. 1148, 1150–62 (1970) (discussing *Smith v. Snow*, 294 U.S. 1 (1935); *Expanded Metal Co. v. Bradford*, 214 U.S. 366 (1909); *Westinghouse v. Boyden Power Brake Co.*, 170 U.S. 537 (1898); *Risdon Iron & Locomotive Works v. Medart*, 158 U.S. 68 (1895); *The Telephone Cases*, 126 U.S. 1, 534 (1888); *Tilghman v. Proctor*, 102 U.S. 707 (1880); *Cochrane v. Deener*, 94 U.S. 780 (1876); *Jacobs v. Baker*, 74 U.S. (7 Wall.) 295 (1869); *O’Reilly v. Morse*, 56 U.S. (15 How.) 62 (1853); *Waxham v. Smith*, 294 U.S. 20 (1935)). McClaskey concludes that the Supreme Court’s definition of statutory process is “[a]ny process that produces useful, predictable results and which may be described with definiteness.” *Id.* at 1162.

a. *Supreme Court Tests for Inventions That Apply Algorithms*

*Gottschalk v. Benson*¹⁰⁵ marked the Supreme Court's first foray into an emerging software field as it considered whether computer-related methods are patentable subject matter.¹⁰⁶ The claims were not limited to physical manipulations in a specific device or apparatus.¹⁰⁷ Thus, "the Court was required to consider whether developers of innovative computer programming methods or information processing advances that used nonphysical means to achieve useful results could obtain patents for these types of advances in the absence of additional physical device features or processes that implemented the advances."¹⁰⁸

The unanimous Court cited several disjointed reasons for rejecting the application. The Court first recited the historical requirement that patentability of "a process claim that does not include particular machines" requires "[t]ransformation and reduction of an article 'to a different state or thing.'"¹⁰⁹ But the Court failed to address whether this precedent applied.¹¹⁰ Instead, it expressed concern that allowing the patent would have the practical effect of granting a patent on a mere idea—a mathematical algorithm.¹¹¹

The Court revisited the scope of patentable processes in *Parker v. Flook*.¹¹² The patent applicant argued that "a process [that] implements a principle in some specific fashion . . . automatically falls within the patentable subject matter of § 101 [because it is a process,] and the substantive patentability of the particular process can then be determined by

105. 409 U.S. 63 (1972).

106. The applicants sought to patent a method for converting information from one computer-readable format (binary-coded decimal numerals) into another computer-readable format (pure binary numerals). *See id.* at 64.

107. *Id.* at 64 (noting that "[t]he claims were not limited to any particular art or technology, to any particular apparatus or machinery, or to any particular end use" and "cover[ed] any use of the claimed method in a general-purpose digital computer of any type").

108. Gruner, *supra* note 102, at 402.

109. *Benson*, 409 U.S. at 70. Commentators have suggested that some of the method claims meet this requirement. *See, e.g.*, Thomas, *supra* note 97, at 1149 ("Arguably, at least those claims reciting computer implementation of the numerical conversion method did involve some sort of physical conversion.").

110. *See Benson*, 409 U.S. at 71 (noting that prior precedent suggested that "a process patent must either be tied to a particular machine or apparatus or must operate to change articles or materials to a 'different state or thing,'" but clarifying that "[w]e do not hold that no process patent could ever qualify if it did not meet the requirements of our prior precedents").

111. *Id.* at 71–72 ("The mathematical formula involved here has no substantial practical application except in connection with a digital computer, which means that if the judgment below is affirmed, the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself."). The Court did not clarify whether including developed and clearly described engineering details in the specification would have sufficiently limited the method claims to be patentable subject matter.

112. 437 U.S. 584 (1978). The inventor in *Flook* sought to patent a method for updating the value of an alarm limit using a mathematic formula. *See id.* at 596–98.

the conditions of §§ 102 and 103.”¹¹³ The Court discarded the applicant’s argument and explained that some processes are not statutory subject matter, noting that “[t]he rule that the discovery of a law of nature cannot be patented rests, not on the notion that natural phenomena are not processes, but rather on the more fundamental understanding that they are not the kind of ‘discoveries’ that the statute was enacted to protect.”¹¹⁴

The Court ruled on the merits “that the discovery of a novel and useful mathematical formula may not be patented”¹¹⁵ but distinguished the invention in *Flook* from that of *Benson* as a “useful, though conventional, post-solution application[] of [a mathematical] formula.”¹¹⁶ The Court stated that “a process is not unpatentable simply because it contains a law of nature or a mathematical algorithm,”¹¹⁷ but it held that the claimed process was not patentable because the postsolution step was “conventional or obvious.”¹¹⁸ Although the Court did not articulate what features would be needed to render patentable the use of the mathematical algorithm, the Court suggested that “the discovery of such a phenomenon cannot support a patent unless there is some other inventive concept in its application.”¹¹⁹

The Court confronted the issue of defining statutory processes a final time in *Diamond v. Diehr*.¹²⁰ As in *Flook*, the advancement that the Diehr method offered was the use of a mathematical algorithm,¹²¹ but the Court reached the opposite conclusion regarding its patentability.¹²² Quoting

113. *Id.* at 593. *But see* *Diamond v. Diehr*, 450 U.S. 175, 191 (1981) (“A rejection on [§ 102 or § 103] grounds does not affect the determination that respondents’ claims recited subject matter which was eligible for patent protection under § 101,” although “it may later be determined that the respondents’ process is not deserving of patent protection because it fails to satisfy the statutory conditions of novelty under § 102 or nonobviousness under § 103.”).

114. *Flook*, 437 U.S. at 593.

115. *Id.* at 585.

116. *Id.*

117. *Id.* at 590.

118. *Id.* (“The notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance.”). The Court further argued, “A competent draftsman could attach some form of post-solution activity to almost any mathematical formula; the Pythagorean theorem would not have [become patentable just] because a patent application contained a final step indicating that the formula, when solved, could be usefully applied to existing surveying techniques.” *Id.*

119. *Id.* at 594.

120. 450 U.S. 175 (1981). The Court analyzed the statutory definition of the word “process” in 35 U.S.C. § 101. *Id.* at 181–84. The Court noted that, historically, “[i]t is for the discovery or invention of some practical method or means of producing a beneficial result or effect, that a [process] patent is granted, and not for the result or effect itself. It is when the term process is used to represent the means or method of producing a result that it is patentable” *Id.* at 184 n.7 (quoting *Corning v. Burden*, 56 U.S. (15 How.) 252, 267–68 (1854)).

121. *Id.* at 177. The process at issue in *Diehr* used a computer to repeatedly calculate an algorithm, the Arrhenius equation, to determine the optimal cure time for “a process for molding raw, uncured synthetic rubber into cured precision products.” *Id.*

122. In contrast to *Benson* and *Flook*, the Court noted that the inventors “do not seek to patent a mathematical formula. Instead, they seek patent protection for a process of curing

Cochrane v. Deener, the Court stated, “A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing.”¹²³ Because processes for curing rubber have “historically been eligible to receive [patent] protection” and the “claims describe in detail a step-by-step method for accomplishing such,” the Court held that the method constituted patentable subject matter under § 101 despite its use of a mathematical equation.¹²⁴

A broad reading of *Diehr* suggests that a process that applies an abstract idea or algorithm is patentable if the process as a whole performs a function “which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing).”¹²⁵ A reading limited to the facts suggests that “a physical manipulation of a functionally significant aspect of a process is *sufficient* to transform [the application of a mathematical equation] into a patentable advance.”¹²⁶

The Court did not articulate what “minimum physical features or relationships to physical surrounds . . . are *necessary* to place an advance within the range of patentable subject matter.”¹²⁷ The Court also did not address “whether a statutory process *must* effect a physical transformation—and if so, exactly what this means—or whether the quotation from *Cochrane* is merely illustrative of one type of statutory process.”¹²⁸ The following section describes the lower courts’ difficulties delineating the boundary of patentable processes due to this “gap” in Supreme Court guidance.¹²⁹

b. *The Federal Circuit’s Useful, Concrete, and Tangible Result Test for Patentable Processes*

The Federal Circuit articulated a test for identifying patentable processes in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*¹³⁰

synthetic rubber. Their process admittedly employs a well-known mathematical equation, but they do not seek to pre-empt the use of that equation [except in conjunction with] their claimed process.” *Id.* at 187.

123. *Id.* at 183 (quoting *Cochrane v. Deener*, 94 U.S. 780, 788 (1877)).

124. *Id.* at 184–85.

125. *Id.* at 192–93.

126. Gruner, *supra* note 102, at 408.

127. *Id.*

128. Thomas F. Cotter, *A Burkean Perspective on Patent Eligibility*, 22 Berkeley Tech. L.J. 855, 864–65 (2007). For example, the *Diehr* Court indicated that there are certain processes that “the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing)”; however, the Court’s use of “e.g.,” indicates that it was not explicitly limiting patentable processes to only those that transform or reduce an article to a different state or thing. *Diehr*, 450 U.S. at 192.

129. See Gruner, *supra* note 102, at 408.

130. 149 F.3d 1368 (Fed. Cir. 1998); see also *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994) (en banc) (holding that the computer-implemented invention was patentable because it “is not a disembodied mathematical concept” but rather a specific machine that

According to the court, “The question of whether a claim encompasses statutory subject matter should . . . [focus] on the essential characteristics of the subject matter, in particular, its practical utility.”¹³¹ Applying the Supreme Court’s reasoning in *Benson*, *Flook*, and *Diehr*, the Federal Circuit explained that “[u]npatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not ‘useful.’”¹³²

The court held on the merits that the claimed machine programmed with the described software produced a “‘useful, concrete, and tangible result’—a final share price.”¹³³ The court further articulated that producing a useful, concrete, and tangible result renders “[an invention] statutory subject matter, even if the useful result is expressed in numbers, such as price, profit, percentage, cost, or loss.”¹³⁴

The Federal Circuit reaffirmed and clarified the “useful, concrete, and tangible result” test in *AT&T Corp. v. Excel Communications, Inc.*¹³⁵ Excel argued that “method claims containing mathematical algorithms are patentable subject matter only if there is a ‘physical transformation’ or conversion of subject matter from one state into another.”¹³⁶ Interpreting *Diehr*, the Federal Circuit held that “physical transformation” is not “an invariable requirement, but merely one example of how a mathematical algorithm may bring about a useful application.”¹³⁷ Because the invention “as a whole, produces a tangible, useful, result,” the Federal Circuit held that “the claims . . . fall comfortably within the broad scope of patentable subject matter under § 101.”¹³⁸

produces “a useful, concrete, and tangible result”). Professor John R. Thomas has noted that reconciling *Alappat* with *Benson* is difficult. See Thomas, *supra* note 97, at 1154.

The disputed claims in *State Street* involved a data processing system used to implement a financial investment structure and business method. *State Street*, 149 F.3d at 1371–72.

131. *State Street*, 149 F.3d at 1375 (noting that “[s]ection 101 specifies that statutory subject matter must also satisfy the other ‘conditions and requirements’ of Title 35, including novelty, nonobviousness, and adequacy of disclosure and notice”).

132. *Id.* at 1373.

133. *Id.*

134. *Id.* at 1375.

135. 172 F.3d 1352 (Fed. Cir. 1999).

136. *Id.* at 1358 (citing *Diamond v. Diehr*, 450 U.S. 175, 184 (1981)).

137. *Id.* at 1358–59 (“As the Supreme Court itself noted, ‘when [a claimed invention] is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101.’ The ‘e.g.’ signal denotes an example, not an exclusive requirement.” (citing *Diehr*, 450 U.S. at 192)).

138. *Id.* at 1361. The Federal Circuit remanded the case so the district court could further consider the validity of the claims. *Id.* (“[W]e note that the ultimate validity of these claims depends upon their satisfying the other requirements for patentability such as those set forth in 35 U.S.C. §§ 102, 103, and 112.”). The district court subsequently held the patent invalid and unenforceable under 35 U.S.C. §§ 102 and 103. See *AT&T Corp. v. Excel Commc’ns, Inc.*, 52 U.S.P.Q. 2d (BNA) 1865 (D. Del. 1999).

c. *The Supreme Court's Doubts Regarding the Federal Circuit's Useful, Concrete, and Tangible Result Test*

In 2005, the Supreme Court granted certiorari in *Laboratory Corp. of American Holdings v. Metabolite Laboratories, Inc.*¹³⁹ Commentators hoped that the Court would use this case as an opportunity to clarify its jurisprudence regarding patentable subject matter.¹⁴⁰ Although the parties presented oral argument on this question in 2006, the Court ultimately dismissed the writ as improvidently granted.¹⁴¹ Justice Stephen G. Breyer, however, in a dissent joined by Justices John Paul Stevens and David H. Souter, discussed how he would have analyzed the merits of the case.¹⁴² Significantly, he questioned the Federal Circuit's patentable subject matter standards: "[*State Street*] does say that a process is patentable if it produces a 'useful, concrete, and tangible result.' But this Court has never made such a statement and, if taken literally, the statement would cover instances where this Court has held the contrary."¹⁴³ Despite his criticism, Justice Breyer's dissenting opinion did not provide any further guidance about the proper standard for patentable processes.

Justices Breyer, Souter, and Stevens may not be the only members of the Court who are concerned about the Federal Circuit's patentable subject matter jurisprudence. Earlier in the same term, Justice Anthony M. Kennedy, in a concurrence joined by Justices Breyer, Souter, and Stevens, expressed concern about "the burgeoning number of patents over business methods," noting their "potential vagueness and suspect validity."¹⁴⁴ Given these remarks by two justices (with the support of two more), commentators

139. 126 S. Ct. 2921, 2925 (Breyer, J., dissenting) (2006).

140. *See, e.g.*, Cotter, *supra* note 128, at 872 ("[P]erhaps the most anticipated development in the law of patent eligibility in recent years turned out to be something of a non-event.").

141. *LabCorp.*, 126 S. Ct. at 2921. *LabCorp* did not raise the 35 U.S.C. § 101 objection in the lower courts, and the Federal Circuit did not directly consider this issue so the Court dismissed the writ as improvidently granted. *See id.* at 2925; *see generally* Sue Ann Mota, *What Is Patentable Subject Matter? The Supreme Court Dismissed LabCorp v. Metabolite Laboratories, But the Issue Is Not Going Away*, 11 Marq. Intell. Prop. L. Rev. 181, 185–92 (2007) (reviewing the district court's, the Federal Circuit's, and the Supreme Court's decisions in *LabCorp*).

142. *LabCorp.*, 126 S. Ct. at 2921–29 (Breyer, J., dissenting).

143. *Id.* at 2928 (citing *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998)). Justice Stephen G. Breyer notes,

The Court, for example, has invalidated a claim to the use of electromagnetic current for transmitting messages over long distances even though it produces a result that seems 'useful, concrete, and tangible.' Similarly the Court has invalidated a patent setting forth a system for triggering alarm limits in connection with catalytic conversion despite a similar utility, concreteness, and tangibility. And the Court has invalidated a patent setting forth a process that transforms, for computer-programming purposes, decimal figures into binary figures—even though the result would seem useful, concrete, and at least arguably (within the computer's wiring system) tangible.

Id. (discussing *O'Reilly v. Morse*, 56 U.S. (15 How.) 62 (1853); *Parker v. Flook*, 437 U.S. 584 (1978); *Gottschalk v. Benson*, 409 U.S. 63 (1972), respectively).

144. *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 397 (2006).

have suggested that the Supreme Court likely will reconsider the Federal Circuit's patentable subject matter standards in the near future.¹⁴⁵

d. *The Federal Circuit's Responses to Justice Breyer's Admonishment*

After *LabCorp*, the Federal Circuit has addressed the issue of patentable subject matter in two cases, *In re Comiskey*¹⁴⁶ and *In re Nuijten*.¹⁴⁷ Professor Jeanne Fromer suggests, "Perhaps prompted by [Justice Breyer's] criticism of *State Street's* breadth, the Federal Circuit . . . reined in patentable subject matter with regard to business method patents in *In re Comiskey*," turning sharply, at least in result, off the path for patentable subject matter it had partially paved and then followed for decades.¹⁴⁸

The contested business method claims in *Comiskey* involved a method of conducting mandatory arbitration.¹⁴⁹ Most of the claims were not machine implemented, and none of the claims caused a transformation of materials.¹⁵⁰ Emphasizing that "not every 'process' is patentable,"¹⁵¹ the court noted that the Supreme Court has allowed process patents reciting

145. See, e.g., Gruner, *supra* note 102, at 420; Mota, *supra* note 141, at 192.

146. 499 F.3d 1365 (Fed. Cir. 2007).

147. 500 F.3d 1346 (Fed. Cir. 2007).

148. See Jeanne C. Fromer, *Panel I: The Business Method Patent and the Patent Reform Act of 2007: Can the Law Keep Pace with Technology?*, 18 *Fordham Intell. Prop. Media & Ent. L.J.* (forthcoming 2008).

149. Claim 1 of patent application No. 09/461,742 recites,

A method for mandatory arbitration resolution regarding one or more unilateral documents comprising the steps of:

enrolling a person and one or more unilateral documents associated with the person in a mandatory arbitration system at a time prior to or as of the time of creation of or execution of the one or more unilateral documents;
 incorporating arbitration language, that is specific to the enrolled person, in the previously enrolled unilateral document wherein the arbitration language provides that any contested issue related to the unilateral document must be presented to the mandatory arbitration system, in which the person and the one or more unilateral documents are enrolled, for binding arbitration wherein the contested issue comprises one or more of a challenge to the documents, interpretation of the documents, interpretation or application of terms of the documents and execution of the documents or terms of the documents;
 requiring a complainant to submit a request for arbitration resolution to the mandatory arbitration system wherein the request is directed to the contested issue related to the unilateral document containing the arbitration language;
 conducting arbitration resolution for the contested issue related to the unilateral document in response to the request for arbitration resolution;
 providing support to the arbitration; and
 determining an award or a decision for the contested issue related to the unilateral document in accordance with the incorporated arbitration language, wherein the award or the decision is final and binding with respect to the complainant.

Comiskey, 499 F.3d at 1368 n.1 (quoting U.S. Patent No. 09/461,742).

150. *Id.* at 1371 ("[The claims] neither were tied to a particular machine nor operated to change materials to a different state or thing.").

151. *Id.* at 1375-76 (citing *Parker v. Flook*, 437 U.S. 584, 593 (1978)) (noting that it is incorrect to assume "that if a process application implements a principle in some specific fashion, it automatically falls within the patentable subject matter of § 101").

algorithms or abstract concepts in claims directed to “industrial processes.”¹⁵² Specifically, “[t]he Supreme Court has recognized only two instances in which such a method may qualify as a section 101 process: when the process ‘either [1] was tied to a particular apparatus’ or [2] operated to change materials to a ‘different state or thing.’”¹⁵³ The court concluded that “a [process] claim reciting an algorithm or abstract idea can state statutory subject matter only if [the process] is embodied in, operates on, transforms, or otherwise involves another class of statutory subject matter, i.e., a machine, manufacture, or composition of matter.”¹⁵⁴ Using this analysis, the court held that Comiskey’s non-machine-implemented process claims were not patentable subject matter without considering whether the claimed method produced a useful, concrete, and tangible result.¹⁵⁵

While the scope of patentable processes seemed to be predictably expanding over the past decades, the Federal Circuit’s reaction to *LabCorp* has generated uncertainty in this area of the law. *Comiskey* and the split decision in *Nuijten* “illustrate[] ongoing debate in the Federal Circuit over the fundamental issue of patentable subject matter”¹⁵⁶—a debate that will be further addressed by the Federal Circuit in the upcoming *In re Bilski* en banc rehearing.¹⁵⁷ While Andrew Knight filed his storyline applications in a *State Street* world, the standard under which his applications will be examined is in flux.

3. Judicially Created Exceptions to Patentable Subject Matter

While the *Chakrabarty* Court expressed that the categories of patentable subject matter should be interpreted broadly, the Supreme Court has

152. *Id.* at 1376.

153. *Id.* (citing Supplemental Letter Brief of Appellee at 3, *Comiskey*, 499 F.3d 1365 (No. 2006-1286)). This seems inconsistent with the Federal Circuit’s rationale in *AT&T Corp. v. Excel Communications, Inc.* See *supra* note 137 and accompanying text (suggesting that a process that produces a transformation is an example of a patentable process but such a transformation is not necessarily a requirement).

The Federal Circuit reconciled *Alappat*, *State Street*, and *AT&T* by emphasizing that the claimed inventions in these prior cases all involved the use of a machine—a computer. See *Comiskey*, 499 F.3d at 1377 n.14.

154. *Comiskey*, 499 F.3d at 1376.

155. On the facts, the court noted that many of the disputed claims “do not require a machine, and . . . do not describe a process of manufacture or a process for the alteration of a composition of matter.” *Id.* at 1379. The court further determined that two of the independent claims, “under the broadest reasonable interpretation, could require the use of a computer as part of Comiskey’s arbitration system.” *Id.* The court held that these claims did recite statutory subject matter, and it remanded to the Patent Office to determine whether the machine-associated claims satisfy other requirements for patentability, including nonobviousness. *Id.* at 1380–81. The court suggested that the claims may not satisfy the other statutory requirements. *Id.* at 1380 (“The routine addition of modern electronics to an otherwise unpatentable invention typically creates a prima facie case of obviousness.”).

156. Lewis R. Clayton, *Two Patentability Rulings*, Nat’l L.J., Nov. 12, 2007, at 2.

157. See *infra* notes 221–23 and accompanying text (discussing the upcoming rehearing in *Bilski*).

repeatedly held, consistent with Judge Linn's analysis in *Nuitjen*, that "[t]he laws of nature, physical phenomena, and abstract ideas [are] not patentable" because they are "free to all men" and "reserved exclusively to none."¹⁵⁸ By way of example, the Court indicated that newly discovered mineral or plant species are not patentable because these are natural phenomena,¹⁵⁹ as are things like "the heat of the sun, electricity, [and] the qualities of metals."¹⁶⁰ Examples of laws of nature include Sir Isaac Newton's law of gravity and Albert Einstein's mass-energy equation,¹⁶¹ while abstract ideas include "novel and useful mathematical formula[e]."¹⁶²

Although the Court has made it clear that these examples constitute judicially created exceptions to patentable subject matter, the Court has been neither precise in its application of this doctrine nor clear in articulating its reasoning when it invokes the doctrine.¹⁶³ Yet the abstract idea exception, at least, may be increasingly relevant for certain types of process inventions that seek to make abstract intellectual concepts sufficiently concrete to be described in a patent application.¹⁶⁴ Although the Court has not consistently discussed this concept under the specific rubric of abstract ideas, this section discusses cases in which the courts' treatment of the patentable subject matter issue appears to invoke the Supreme Court's prohibition against patenting abstract ideas.

The courts have struggled to define when a general principle is sufficiently abstract to warrant exclusion from the realm of patentable subject matter.¹⁶⁵ The landmark case on the issue of excluding principles from patent protection is *O'Reilly v. Morse*.¹⁶⁶ The Court upheld Samuel Morse's claims relating to a telegraph apparatus and a system of transmitted type and signs using electromagnetism, but scrutinized a more abstract

158. *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (internal quotation marks omitted) (citing *Parker v. Flook*, 437 U.S. 584 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972); *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948); *O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 112–21 (1853); *Le Roy v. Tatham*, 55 U.S. (14 How.) 156, 175 (1852)).

159. *See id.*

160. *Funk Bros.*, 333 U.S. at 130.

161. *Chakrabarty*, 447 U.S. at 309.

162. *Flook*, 437 U.S. at 585.

163. *See supra* Part I.B.3.

164. *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 126 S. Ct. 2921, 2926 (2006) (Breyer, J., dissenting) (noting that "many 'process' patents seek to make abstract intellectual concepts workably concrete").

165. For example, in *Le Roy v. Tatham*, the Court held that "a principle is not patentable" because "in the abstract, [it] is a fundamental truth; an original cause; a motive" which "cannot be patented, as no one can claim in either of them an exclusive right." 55 U.S. (14 How.) 156, 174–75 (1852). The dissent agreed that mere principles could not be patented, but argued that if the invention employs a principle to produce a new and useful effect or result, the inventor should be entitled to protection against all other modes of applying that principle. *See id.* at 180–81 (Nelson, J., dissenting). While the justices disagreed on the scope of exclusion, they agreed that "mere principles" could not be the subject of a patent.

166. 56 U.S. (15 How.) 62 (1853).

claim.¹⁶⁷ Specifically, the Court held that claim 8, which claimed any use of electromagnetism to transmit characters without being limited to the machines disclosed in Morse's specification, was invalid.¹⁶⁸ The Court expressed concern that allowing such a broad claim would preempt subsequent inventors' ability to develop other electromagnetism-based technologies for transmitting messages using different methods or machines than those used by Morse.¹⁶⁹

The Court reversed course in the *Telephone Cases*, however, when it definitively addressed the issue of whether electricity could be patentable subject matter.¹⁷⁰ Alexander Graham Bell's patent broadly claimed a method of and an apparatus for telegraphically transmitting sound using electrical vibrations.¹⁷¹ The Court began its analysis by characterizing its holding in *Morse*, noting that the use of electromagnetism separate from a particular process described in the patent application is not patentable subject matter but that the use of electromagnetism in connection with a specific process is patentable subject matter.¹⁷² The Court stated that unlike Morse, who claimed magnetism as a motive power without regard to process,¹⁷³ Bell's "art consist[ed] in so controlling the force as to make it accomplish the purpose" of transmitting speech.¹⁷⁴ It then concluded that Bell's claims reciting a method of using electricity to transmit speech were patentable subject matter even if the method was not tied to a specific apparatus.¹⁷⁵

Over the years, courts have particularly struggled with how to treat process patents that cover abstract instructions or software for running electronic equipment.¹⁷⁶ As discussed above, the *Benson* Court expressed concern that allowing software claims would have the practical effect of

167. *See id.* at 84–86 (listing the claims); *id.* at 112 ("We perceive no well-founded objection to the description which is given of the whole invention and its separate parts, nor to his right to a patent for the first seven inventions set forth in the specification of his claims. The difficulty arises on the eighth.").

168. *Id.* at 113. Claim 8 recites,

I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specification and claims; the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electro-magnetism, however developed for making or printing intelligible characters, signs, or letters, at any distances, being a new application of that power of which I claim to be the first inventor or discoverer.

Id. at 112.

169. *Id.* at 113. The Court also suggested that claim 8 fails the enablement and other disclosure requirements. *Id.* at 117 ("[F]or the method or process thus discovered, he is entitled to a patent. But he has not discovered that the electro-magnetic current, used as motive power, in any other method, and with any other combination, will do as well.").

170. *The Telephone Cases*, 126 U.S. 1 (1888).

171. *Id.* at 531.

172. *Id.* at 534.

173. *Id.*

174. *Id.* at 532.

175. *Id.* at 537–39.

176. *See supra* Part I.B.2 (discussing *Benson*, *Flook*, *Diehr*, *State Street*, and *AT&T*).

granting a patent on a mere idea—in that case, a mathematical algorithm.¹⁷⁷ In *Diehr*, the Court determined that processes applying mathematical algorithms may be patentable subject matter,¹⁷⁸ and the Federal Circuit explained in *State Street* that “[u]npatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not ‘useful.’”¹⁷⁹ *State Street* paved the way for a growing tolerance for increasingly abstract processes, such as business methods, which have “useful” applications.¹⁸⁰

Returning to the electrical signal at issue in *Nuijten*, Judge Linn addressed in his dissent whether such a signal falls within the judicial exception for abstract ideas.¹⁸¹ He explained what he believed is at the core of the judicial exclusion of laws of nature, natural phenomena, and abstract ideas from patentable subject matter:

[S]uch phenomena “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. . . . 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.” . . . Certain innovations, no matter how new to human thought, are not the type of technological invention to which Congress has extended patent protection, but instead are considered to be abstract truths that were not “made by man.” “The underlying notion is that a scientific principle . . . reveals a relationship that has always existed.”¹⁸²

Judge Linn concluded that subject matter that falls within the judicial exceptions is not “new” in the § 101 sense. He also concluded that the practical application of a claim directed to a judicial exception—laws of nature, physical phenomena, and abstract ideas—is usually too attenuated from the subject of the claim to be “useful” in the § 101 sense.¹⁸³

Judge Linn also clarified why the algorithm claims in *Benson* were unpatentable abstract ideas that were not “new” whereas those in *State Street* were patentable subject matter.¹⁸⁴ He suggested that the method in *Benson* was “deemed to be unpatentably abstract [because] the claims attempted to monopolize a timeless mathematical relationship among integers, even if the particular representations of the integers may have been

177. *Gottschalk v. Benson*, 409 U.S. 63, 71–72 (1972).

178. *See* *Diamond v. Diehr*, 450 U.S. 175, 184–87 (1981) (“[A]n application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”).

179. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998).

180. *See infra* notes 276–83 and accompanying text (discussing the expansion of patentable processes after *State Street*).

181. *In re Nuijten*, 500 F.3d 1346, 1363–67 (Fed. Cir. 2007) (Linn, J., concurring in part and dissenting in part).

182. *Id.* at 1364 (second and fourth alterations in original).

183. *Id.* at 1365 (“[A]lthough mathematical algorithms and similarly abstract principles may be useful (in the casual sense of the term) in a wide variety of contexts, their utility is too far removed from what is claimed for them to be ‘useful’ under § 101.”).

184. *Id.* at 1364–67.

new to computer science.”¹⁸⁵ In contrast, the invention in *State Street* did not “represent[] principles that too closely reflected the laws of mathematics and nature to be ‘new’” and “achieved real-world results with sufficient directness and specificity to be ‘useful’ as that term is used in § 101.”¹⁸⁶

While the courts have not clearly defined the boundaries of the judicial exceptions, particularly abstract ideas, they regularly invoke this doctrine to reserve subject matter to the public domain. As applicants have begun to seek patents on nontraditional and increasingly abstract processes that do not involve physical transformations, the courts likely will continue to define the boundaries of judicially excluded subject matter.

4. Other Doctrines Employed by Courts to Limit the Scope of Patentable Processes

In addition to the judicial exceptions noted above in Part I.B.3, the courts have, at various times, held certain subject matter to be unpatentable per se.¹⁸⁷ Specifically, courts have invoked the mental steps doctrine, the technological arts doctrine, the business methods exception,¹⁸⁸ and the

185. *Id.* at 1364–65. The *Benson* court worried that the software claims in question were “so abstract and sweeping as to cover both known and unknown uses of the [algorithm],” in effect allowing “a patent on the algorithm itself.” *Gottschalk v. Benson*, 409 U.S. 63, 68, 72 (1972); see *supra* notes 105–11 (discussing *Benson*).

186. *Nuijten*, 500 F.3d at 1367.

187. See Thomas, *supra* note 97, at 1145 (discussing limiting doctrines).

188. In 1908, dicta in *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467, 469 (2d Cir. 1908), spawned the “business method” exception. See Matthew A. Melone, *The Patenting of Tax Strategies: A Patently Unnecessary Development*, 5 DePaul Bus. & Com. L.J. 437, 450 (2007). This bar against business method patents grew from the prohibition against patenting abstract principles. The Federal Circuit laid to rest the “ill-conceived” business methods exception in *State Street*. Cotter, *supra* note 128, at 867–68 (“Despite widespread belief that case law dating back to the nineteenth century had established that business methods were unpatentable, neither the Federal Circuit nor its predecessor Court of Customs and Patent Appeals had ever specifically invoked that exception so as to render an invention unpatentable.”). The court indicated that “[w]hether the claims are directed to subject matter within § 101 should not turn on whether the claimed subject matter does ‘business’ instead of something else.” *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d, 1368, 1377 (Fed. Cir. 1998).

While business methods have been readily patented since *State Street*, the recent onslaught of patents claiming tax planning techniques, which the patent office currently examines as any other process claims, has been quite controversial. See generally William A. Drennan, *The Patented Loophole: How Should Congress Respond to this Judicial Invention?*, 59 Fla. L. Rev. 229 (2007) (arguing that tax strategy patents are unnecessary and suggesting that Congress should limit the damages available to tax strategy patent holders); Melone, *supra* (criticizing the granting of tax strategy patents and advocating a categorical exception to subject matter eligibility). As the first lawsuit involving a tax planning patent settled, the courts have yet to review this type of business method patent. See Consent Final Judgment Regarding Settlement Agreement, *Wealth Transfer Group v. Rowe*, No. 06 Civ. 00024 (D. Conn. Mar. 9, 2007). Congress may resolve the issue as the patent reform bills currently pending in the House and Senate both propose introducing language into 35 U.S.C. § 101 stipulating that “[a] patent may not be obtained for a tax planning invention.” See The Patent Reform Act of 2007 (S. 1145, 110th Cong. (2007); H.R. 1908, 110th Cong. (2007)); see also *supra* note 37 (discussing the pending patent reform bills).

printed matter doctrine¹⁸⁹ to reject certain subject matter. As Professor Thomas Cotter has noted, however, “doctrines that courts once employed to exclude . . . inventions from patent eligibility have in recent years been narrowed or jettisoned altogether.”¹⁹⁰ The following sections discuss the development and constriction of two of these doctrines, the mental steps doctrine and the technological arts requirement.

a. *The Mental Steps Doctrine*

Courts have used the mental steps doctrine to deny patent protection to inventions that require the use of human intellect, that contain steps that cover activities that take place in the human mind, or that may be performed by a human.¹⁹¹ Prior to the mental steps doctrine, courts often held that patents could not be issued for processes “involving variables that made the results of the application of the process unpredictable.”¹⁹² Courts also recognized the difficulty in “describing exactly the steps of a process that required subjective judgments on the part of a human operator.”¹⁹³ Patent applications containing these defects failed to satisfy § 112.¹⁹⁴

The Patent Office Board of Appeals first articulated a version of the mental steps doctrine in *Ex parte Read*.¹⁹⁵ The disputed claim recited a method of determining the speed of a vehicle using two logarithmic scales.¹⁹⁶ To perform the method, the operator needed to correlate two readings, although the operator’s role was mainly manipulative and only required routine, nonsubjective mental activity.¹⁹⁷ Nonetheless, the board rejected the claim because it involved a “purely . . . mental act.”¹⁹⁸ The U.S. Court of Appeals for the Ninth Circuit adopted this “purely mental act” standard for application of the mental steps doctrine in *Halliburton Oil Well Cementing Co. v. Walker*.¹⁹⁹ The Court of Customs and Patent Appeals, the precursor to the Federal Circuit, also adopted this “purely mental act” standard in *In re Heritage*.²⁰⁰ This line of cases, none of which cites any of the seminal Supreme Court cases regarding patentable subject

189. For a discussion of the printed matter doctrine, see Dan L. Burk, *Patenting Speech*, 79 Tex. L. Rev. 99, 141–45 (2000).

190. Cotter, *supra* note 128, at 859–60 & n.15.

191. See, e.g., McClaskey, *supra* note 104, at 1148.

192. Ambrose, *supra* note 48, at 906–07 & n.18 (listing cases).

193. *Id.* at 906–07 & n.19 (listing cases).

194. See *id.* at 905–07.

195. 123 U.S.P.Q. (BNA) 446 (Pat. Off. Bd. App. 1943).

196. See *id.* at 446–47.

197. See *id.*

198. *Id.* at 447. The Patent Office Board of Appeals applied similar reasoning to reject the claims in *Ex parte Toth*, 63 U.S.P.Q. (BNA) 131, 132 (Pat. Off. Bd. App. 1944) (rejecting claims with “determining” and “correcting” steps).

199. 146 F.2d 817, 821 (9th Cir. 1944).

200. 150 F.2d 554 (C.C.P.A. 1945).

matter, appears to hold that any human activity undertaken to perform a process renders the claim nonstatutory subject matter.²⁰¹

A second line of cases applies the mental steps doctrine to reject claims that rely on interpretive human judgments or emotions.²⁰² For example, in *Greenewalt v. Stanley Co. of America*, the U.S. Court of Appeals for the Third Circuit held that a method of “combining sound and light for aesthetic expression” was not patentable subject matter where “[w]hat is done in carrying the method into effect [is] determined by the aesthetic and emotional reaction of the individual [performing the method], and such reactions may differ with different individuals.”²⁰³ In these cases, the courts seem concerned about the unpredictable results produced by methods that depend on human emotions or subjective judgment.²⁰⁴

The Court of Customs and Patent Appeals greatly narrowed the mental steps doctrine in *In re Musgrave*,²⁰⁵ while simultaneously articulating a separate technological arts requirement. The court dismissed the notion that the law “requires all steps of a statutory ‘process’ to be physical acts applied to physical things,” noting that this misconstruction originated from dictum that was inconsistent with subsequent Supreme Court opinions.²⁰⁶ The court held:

We cannot agree . . . that these claims . . . are directed to non-statutory processes merely because some or all the steps therein can also be carried out in or with the aid of the human mind or because it may be necessary for one performing the processes to think. All that is necessary, in our view, to make a sequence of operational steps a statutory “process” within 35 U.S.C. § 101 is that it be in the technological arts so as to be in consonance with the Constitutional purpose to promote the progress of “useful arts.”²⁰⁷

After *Musgrave*, the courts essentially stopped invoking the mental steps doctrine to reject process claims. The *Comiskey* court, however, revived the mental steps doctrine in its rejection of claims regarding a process for conducting arbitration. Suggesting that *Benson* narrowed the scope of

201. This seems inconsistent with *Morse* and the *Telephone Cases*. Both of these cases concerned patents that contained allowable process claims even though the claims required a human operator.

202. See, e.g., *Greenewalt v. Stanley Co. of Am.*, 54 F.2d 195 (3d Cir. 1931); *Johnson v. Duquesne Light Co.*, 29 F.2d 784 (W.D. Pa. 1928); *Ex parte Mayne*, 59 U.S.P.Q. (BNA) 342 (Pat. Off. Bd. App. 1942).

203. *Greenewalt*, 54 F.2d at 196.

204. See, e.g., *id.*

205. 431 F.2d 882 (C.C.P.A. 1970).

206. *Id.* at 893 (discussing *Cochrane v. Deener*, 94 U.S. 780 (1876)) (noting that this erroneous premise arose from dictum in *Cochrane* that is inconsistent with later Supreme Court opinions).

207. *Id.* The court also indicated that the claims “must also comply with all the other provisions of the statute, including definiteness under 35 U.S.C. § 112. A step requiring the exercise of subjective judgment without restriction might be objectionable as rendering a claim indefinite, but this would provide no statutory basis for a rejection under 35 U.S.C. § 101.” *Id.*; accord *Ambrose*, *supra* note 48, at 917 (arguing that the mental steps doctrine should not be used in determining statutory subject matter but may be invoked under § 112).

Musgrave's interpretation of the mental steps doctrine, the *Comiskey* court declared that "mental processes—or processes of human thinking—standing alone are not patentable even if they have practical application."²⁰⁸ The court stated that many of *Comiskey*'s claims, which comprise the steps of "conducting arbitration resolution" and "determining an award," "claim the mental process of resolving a legal dispute between two parties by the decision of a human arbitrator" and "seek to patent the use of human intelligence in and of itself."²⁰⁹ Because these claims involved a practical application of a mental process that neither is tied to a machine nor produces a transformation, the court held that the claims did not constitute patentable subject matter under § 101.²¹⁰

Confusingly, the court further determined that two of the independent claims may require the use of a computer as part of the claimed arbitration system.²¹¹ But *Comiskey*'s machine-free arbitration method claims and the arbitration method claims that use a computer for managing documents and providing other support both require the arbitrator to "determine an award" as part of the claimed method.²¹² Thus, both types of claims implicate a mental step. Yet the court held that the machine-associated claims nevertheless recite statutory subject matter.²¹³ The *Comiskey* court's convoluted application of the mental steps doctrine and its implementation of a machine requirement has caused the U.S. Patent and Trademark Office (USPTO) much confusion, as discussed in the following section.

b. *The Technological Arts Requirement*

After *Musgrave*, examiners applied and courts upheld a technological arts requirement as an accepted requirement for patentability.²¹⁴ In 2005, the USPTO's Board of Patent Appeals and Interferences renounced the technological arts test in *Ex parte Lundgren*.²¹⁵ Unlike many business method claims, a computer or other machine was not needed to perform the

208. *In re Comiskey*, 499 F.3d 1365, 1376 n.11, 1377 (Fed. Cir. 2007) ("In *Benson*, the Supreme Court reversed a decision by our predecessor court that had, in turn, relied on earlier decisions, such as *Application of Musgrave*, . . . suggesting that a process of human thinking in and of itself could be patentable.").

209. *Id.* at 1379 (internal quotation marks omitted).

210. *Id.*

211. *Id.*

212. *Id.* at 1379–80.

213. *Id.* at 1380. The court suggests that the claims may not satisfy the other statutory requirements. *Id.* ("The routine addition of modern electronics to an otherwise unpatentable invention typically creates a prima facie case of obviousness.").

214. See, e.g., *In re Toma*, 575 F.2d 872 (C.C.P.A. 1978). The inventor sought to patent "a method of operating a digital computer to translate from a source natural language, e.g., Russian, to a target natural language, e.g., English." *Id.* at 874. The examiner rejected the claims because "a computerized method of translating is not . . . in the 'technological arts,'" but rather was a "liberal art." *Id.* at 877 (quoting the examiner's rejection). The court reversed and held that such an invention was within the technological arts because it was a method of operating a machine. See *id.*

215. 76 U.S.P.Q. 2d (BNA) 1385 (B.P.A.I. 2005).

claimed method. The majority held that “there is currently no judicially recognized separate ‘technological arts’ test to determine patent eligible subject matter under § 101 [and w]e decline to create one.”²¹⁶ In a concurring opinion, Administrative Patent Judge Lee Barrett, also concluding that there is no separate technological arts requirement, further suggested that a such a test “would be very difficult to apply since what constitutes ‘technology’ can always be debated and because some things, which may not seem ‘technological’ in nature, clearly fall within the § 101 categories (e.g., a board game is a ‘manufacture’ and a food product can be a ‘manufacture’ or a ‘composition of matter’).”²¹⁷ Administrative Patent Judge Jerry Smith’s dissent, however, argued that the technological arts standard is a permissible limitation on the scope of the patent statute because it merely is a modern interpretation of the constitutional mandate to promote the “useful arts.”²¹⁸

While the *Comiskey* court did not articulate a technological arts requirement, the court held that claims encompassing mental steps are patentable subject matter if they also involve a machine.²¹⁹ The Board of Patent Appeals and Interferences is now struggling to apply *Comiskey*, issuing § 101 rejections for any process that recites a step that could potentially be performed mentally, even if subjective judgment is not required, if the claimed process does not explicitly require a machine.²²⁰

216. *Id.* at 1388. The *Lundgren* court opined that “[w]e do not view the court’s statement in *Musgrave* in regard to the technological arts to have created a separate ‘technological arts’ test in determining whether a process is statutory subject matter.” *Id.* at 1387.

217. *Id.* at 1426 (Barrett, J., concurring). Administrative Patent Judge Lee Barrett’s opinion contained an extensive discussion of statutory subject matter in view of judicial precedents and nonjudicial authority. While he argued that a technological arts test was unworkable and irreconcilable with controlling authority, he proposed that “non-machine-implemented process claims” such as the claimed method should not be patentable if they do not transform physical subject matter into a different state or thing. *Id.* at 1430.

218. *Id.* at 1388–89 (Smith, J., dissenting). Administrative Patent Judge Jerry Smith argued,

My view of this mandate is that an invention must in some manner be tied to a recognized science or technology in order to promote the progress of the useful arts. Although a machine, manufacture, or composition of matter will rarely fail to meet the constitutional mandate, processes represent an especially troublesome type of invention. This is because almost anything can be claimed as a series of steps that technically can be considered a process, but the term process is so broad that it can be used to claim inventions that cover nothing more than human conduct or thought processes that are totally unrelated to any science or technology.

Id. at 1388.

219. *In re Comiskey*, 499 F.3d 1365, 1379–80 (Fed. Cir. 2007).

220. In *Ex parte Serkin*, the Board of Patent Appeals and Interferences remanded the application to the examiner for consideration under § 101, pointing out particular claims that “recite only a mental process of matching without integrating a machine, or constituting a process of manufacture, or the altering [of] a composition of matter.” Appeal 2006-3104, 2007 WL 3325012, at *4 (B.P.A.I. Nov. 8, 2007).

Similarly, in *Ex parte Brown*, the board issued a new § 101 rejection finding that the claimed invention “merely claims the mental process of controlling access to content by the decision of a human,” without “necessarily requir[ing] a machine, [or] describ[ing] a process

As this section suggests, there currently are many tensions and ambiguities in the case law regarding the scope of patentable processes, especially with regard to processes that are not machine implemented and processes that do not transform matter. Recognizing this uncertainty, the Federal Circuit recently granted, *sua sponte*, an en banc hearing in *In re Bilski*.²²¹ Because the claims at issue in *Bilski* neither produce a transformation nor involve a machine but ostensibly produce a “useful, concrete, and tangible result,” the case potentially is an excellent vehicle for resolving some of these tensions in the previous case law.²²² Of particular relevance, the Federal Circuit seeks to address the following questions: (1) What standard should govern whether a process is § 101 patentable subject matter? (2) When is subject matter patent ineligible because it constitutes an abstract idea or mental process? (3) When are claims containing both mental and physical steps eligible subject matter? (4) Must a statutory process produce a physical transformation or be tied to a machine? (5) Should *State Street* and *AT&T* be reconsidered and overruled in any respect?²²³

C. Concerns About the Role of Statutory Subject Matter

As noted above with respect to process patents and patentable subject matter in general, the patent system’s regulatory reach has dramatically expanded in recent years. This expansion has raised concerns about the proper normative scope of the system.²²⁴ As Professor John R. Thomas has suggested, “[d]etermining the appropriate subject matter for patenting is important because a paucity of constraining doctrines allay the proprietary

of manufacture or a process for the alteration of a composition of matter.” Appeal 2007-0575, 2007 WL 3325013, at *13 (B.P.A.I. Nov. 8, 2007).

In *Ex parte Kinzhalin*, the board held that a method for testing software modules, which recited steps such as “determining” and “marking” “can be considered merely a series of mental processes” because the claim “does not recite any steps that necessarily involve machine implementation.” Appeal 2007-1416, 2007 WL 3114968, at *6 (B.P.A.I. Oct. 24, 2007). In *Kinzhalin*, the board focused its attention on whether the recitation of “automated” in the preamble of the claim ties the mental steps to a particular machine. *See id.* at *7.

221. No. 2007-1130, 2008 WL 417680, at *1 (Fed. Cir. Feb. 15, 2008). Oral argument will be held on May 8, 2008.

222. *See generally In re Bilski*, Appeal 2002-2257, 2006 WL 4080055 (B.P.A.I. Sept. 26, 2006).

223. *See Bilski*, 2008 WL 417680, at *1.

224. John R. Thomas, *Liberty and Property in the Patent Law*, 39 Hous. L. Rev. 569, 572 (2002). The patent system is increasingly issuing patents that may conflict with important competing interests such as free speech and privacy. For example, Professor Thomas argues that issued patents appropriating abortion techniques, methods of complying with the tax laws, and consumer surveying techniques are among those that “hold[] the potential to impinge upon individual liberties in ways not previously considered possible.” *Id.* at 570. Professor Dan Burk has noted that “[t]he introduction of expressive subject matter [such as computer software] into patent law” may raise First Amendment concerns. *See Burk, supra* note 189, at 160–61. Professor Kevin Collins suggests that allowing patents with method claims that recite steps such as “knowing” and “reasoning” may have the dangerous outcome of propertizing thought. *See generally Collins, supra* note 60.

rights associated with granted patents.”²²⁵ The broad current scope of patentable subject matter has led some commentators to note that “the issue of patentable subject matter may now be the least vital doctrine in the set of statutory requirements for patentability.”²²⁶

While statutory subject matter is merely one of several requirements of patentability, “there is sometimes a tendency to conflate consideration of the appropriate scope of patentable subject matter with other requirements of patentability, without considering whether each requirement should be serving independent purposes.”²²⁷ While novelty and nonobviousness play a key role in identifying patentable inventions, critics can point to patents like the “Method of Exercising a Cat” to support the view that the bar for both novelty and nonobviousness is too low or too difficult to apply rigorously.²²⁸ One solution is to use § 101 to police the proper scope of patents. Some commentators, like Professor Eileen Kane, propose that patentable subject matter should play a more active “gate-keeping” role, especially in certain, highly technical fields such as biotechnology and computer-related inventions.²²⁹ Alternatively, properly applying the novelty and nonobviousness requirements rather than resorting to using § 101 as a blunt tool also addresses the allowance of questionable patents. Indeed, commentators including Professor Michael Risch, argue that § 101 should be a low bar for patentability. Risch suggests that the other statutory requirements should weed out improper inventions, and he therefore advocates that the subject matter inquiry be strictly limited to determining whether an invention falls within one of the four statutory categories.²³⁰ Recent comments from Supreme Court justices suggest a willingness to

225. Thomas, *supra* note 97, at 1141. While limiting the scope of patentable subject matter is certainly one way of reigning in the patent system, this is not the only approach. See Drennan, *supra* note 188, at 252–53 (“As a practical matter, in most cases, the Federal Circuit has eliminated both the statutory subject matter test and the utility test as restrictions on the patentability of business methods. As leading commentators note, since neither test is a ‘gatekeeper,’ that leaves . . . [‘]novelty and non-obviousness[’] . . .”).

226. Eileen M. Kane, *Patent Ineligibility: Maintaining a Scientific Public Domain*, 80 St. John’s L. Rev. 519, 523–25 (2006) (criticizing this view and urging that patentable subject matter should play an active role).

227. Cynthia M. Ho, *Lessons from Laboratory Corp. of America Holdings v. Metabolite Laboratories, Inc.*, 23 Santa Clara Computer & High Tech. L.J. 463, 479 (2007).

228. See *id.* (suggesting that §§ 102 and 103 establish too low of a threshold).

229. See Kane, *supra* note 226, at 519, 523.

230. Michael Risch, *Everything is Patentable*, Intellectual Property Scholars Conference, Aug. 9–10, 2007, available at www.law.depaul.edu/centers_institutes/ciplit/ipsc/pdf/Michael_Risch.pdf (abstract of speech delivered at Intellectual Property Scholars Conference, Chicago Illinois) (“The currently confused and inconsistent jurisprudence of patentable subject matter can be clarified by implementing a single rule—that which is otherwise patentable under the Patent Act is patentable subject matter. In other words, if a discovery otherwise meets the requirements of patentability—namely category, utility, novelty, unobviousness, and specification—then the discovery will be properly patentable . . . [S]trict application of my proposed rule will in fact reduce the number of discoveries that might otherwise be patentable.”).

visit the role of § 101,²³¹ and, as noted above, an en banc Federal Circuit will confront the scope of § 101 head-on when it rehears *Bilski* this year.²³²

D. Andrew Knight's Proposal to Patent Storylines

On November 3, 2005, the USPTO published the first of a series of applications for storyline patents submitted by patent attorney Andrew Knight.²³³ While the business and legal communities were intrigued by this potentially new area of intellectual property,²³⁴ the patentability of Knight's claims is controversial and unclear.²³⁵ At the time Knight filed his applications, the Federal Circuit's decision in *State Street* was the relevant precedent for defining the scope of patentable processes, and shortly thereafter, the *Lundgren* court broadened the scope of patentable processes by denouncing the technological arts requirement. Since that time, however, the opinions in *LabCorp*, *Comiskey*, and *Nuijten* have created doubt about the scope of patentable processes. As the USPTO has just begun examination of Knight's patent applications,²³⁶ an analysis of the patentability of storyline process claims is timely.

1. Storyline Patent Applications

Knight proposes that a unique storyline qualifies as patentable subject matter when claimed as a process²³⁷ that can be performed by any potential infringer, such as a screenwriter, director, actor, movie theater owner, publisher, or even a consumer watching a movie at home.²³⁸ He suggests that given a novel storyline, a process claim can be prepared that satisfies the other statutory requirements for patentability, including novelty, nonobviousness, and adequate disclosure.²³⁹

231. See *supra* Part I.B.2.c.

232. See *supra* text accompanying notes 221–23.

233. See *supra* note 26 (listing Knight's patent applications).

234. See, e.g., Fisher, *supra* note 24.

235. See generally Ben Manevitz, *What's the Story with Storyline Patents—an Argument Against the Allowance of Proposed Storyline Patents and for the Rejection of Currently Pending Storyline Patent Applications*, 24 *Cardozo Arts & Ent. L.J.* 717 (2006) (asserting that storyline patent applications will likely fail under the subject matter, novelty and nonobviousness requirements, and under public policy); Note, *Pure Fiction: The Attempt to Patent Plot*, 19 *Harv. J.L. & Tech.* 231 (2005) [hereinafter *Harvard Note*] (asserting that storyline patent applications will likely fail under the subject matter requirement, enablement, the First Amendment, and public policy); Lewis R. Clayton, *'Lundgren' and Limits*, *Nat'l L.J.*, Dec. 19, 2005, at 2 (asserting that storyline patent applications will likely fail under the subject matter, novelty, nonobviousness, indefiniteness, and enablement requirements).

236. See Request for Information Under 37 C.F.R. § 1.105 from Corbett B. Coburn, Primary Exam'r, U.S. Patent & Trademark Office, to Andrew F. Knight (June 7, 2007) (on file with author).

237. Knight frames his claims as “processes” because, presumably, storyline claims do not fit within the machine, manufacture, or composition of matter categories.

238. See Knight, *supra* note 20, at 867.

239. See *id.* at 868.

For example, under Knight's approach, process claims directed to the storyline of *Romeo and Juliet* could be drafted as follows:

A process of relaying a story having a unique plot, the story involving characters and having a timeline, comprising:

- (a) indicating that a first character sees a second character and desires said second character;
- (b) indicating that said first character falls in love with said second character;
- (c) indicating that said second character also falls in love with said first character;
- (d) indicating that the families of said first character and said second character are enemies;
- (e) indicating that said first character kills a relative of said second character; and
- (f) indicating that said first character mistakenly believes that said second character is dead and therefore wants to die.²⁴⁰

Knight believes that this type of process claim "catch[es] the essence of the [work's] underlying storyline," while "look[ing] and feel[ing] like a method—an ordinary, functional, useful method."²⁴¹ A director would infringe this process claim by making or showing a movie with these elements, and a consumer would infringe by playing a DVD containing the movie.²⁴² The claim also is broad enough to encompass other embodiments of the storyline besides *Romeo and Juliet*. For example, a consumer playing a DVD of *West Side Story*²⁴³ would infringe the claim because she still would perform all of its steps.

Knight's first storyline patent application describes a storyline wherein the protagonist's consciousness becomes "switched off" for a period of time while he continued to live his life.²⁴⁴ The protagonist subsequently "wakes

240. The language of this example claim tracks the language of the claimed storyline in Knight's 10/722,473 patent application. See *infra* note 244 for the text of claim 1 from Knight's 10/722,473 application. Of course, this example claim is anticipated and not patentable.

241. Knight, *supra* note 20, at 868.

242. See *id.*

243. *West Side Story* (United Artists 1961).

244. See generally U.S. Patent Application No. 10/722,473 (filed Nov. 28, 2008). The first claim recites,

A process of relaying a story having a timeline and a unique plot involving characters, comprising:

indicating a character's desire at a first time in said timeline for at least one of the following:

- a) to remain asleep or unconscious until a particular event occurs; and
 - b) to forget or be substantially unable to recall substantially all events during the time period from said first time until a particular event occurs;
- indicating said character's substantial inability at a time after said occurrence of said particular event to recall substantially all events

up” and realizes that many years have passed, but he has no memory of them.²⁴⁵ The specification describes various embodiments of this plot.²⁴⁶ The specification also provides a written description of a “point of view, characterization, setting, theme, and dialogue” and contains a full example story.²⁴⁷

2. Legal Basis for Granting Patent Protection

Knight suggests that the amnesia-story application discussed above satisfies the statutory disclosure requirements, including enablement²⁴⁸ and definiteness.²⁴⁹ He also believes that his application satisfies the requirements of §§ 101, 102 and 103.²⁵⁰ Noting that § 101 has the lowest

during the time period from said first time to said occurrence of said particular event; and
indicating that during said time period said character was an active participant in a plurality of events.

Id. at 6.

245. *See id.* at 4.

246. For example, the specification states, “the protagonist may be completely incapable of recalling any event during his period of unconsciousness. Alternatively, he may be able to remember a few events (representing a small fraction of the total), or he may have very fuzzy, vague, or dream-like memories of a few or most events.” *Id.* at 6. Thus, some embodiments of the process may involve indicating that the protagonist cannot remember anything from his period of unconsciousness while others may involve indicating that the protagonist has some memories.

247. *See* Andrew F. Knight, *A Patently Novel Plot: Fiction, Information, and Patents in the 21st Century*, 47 IDEA 203, 214 (2006).

248. Knight argues that the claimed invention is fully enabled because one of skill in the art of storytelling can perform the claimed method as described in the specification to produce the story. *See id.* at 214–15 (arguing that, just as a trained chef can produce a hamburger from ground meat and a roll, one of ordinary skill in the art of storytelling can produce a developed story from a detailed plot description). Furthermore, because the specification contains a complete story, he notes that “any literate person can practice the claimed invention simply by copying or relaying the story-containing disclosure.” *Id.* at 218. While particular embodiments may be enabled by the described storyline, the enablement must be commensurate with the scope of the claims. Claim 1 as filed is quite broad and likely not enabled by the disclosed story alone. *See supra* note 244.

249. Some method steps are intuitively definite—for example, “indicating that a first character sees a second character” may be accomplished in recognizable ways without specific direction in the specification on how to perform this step. *See supra* text accompanying note 240. Other steps, like indicating that the first character “desires said second character,” may initially seem problematic. *See id.* Knight argues that subjective words such as “desires” and “believes” should not raise problems of indefiniteness because the steps actually being performed are “indicating.” *See* Knight, *supra* note 20, at 868. (“In other words, a step of ‘desiring’ might be problematic because desiring is an introspective, subjective mental process that can doubtfully be measured However, ‘indicating a desire’ is clear—a jury *knows* what that looks like, particularly if the specification gives concrete examples of how one might indicate a desire”); *see also* Knight, *supra* note 247, at 219–21 (discussing why “[o]ne of [o]rdinary [s]kill in the [a]rt of [s]torytelling [w]ould [u]nderstand the [s]cope of the [c]laims [w]hen [r]ead in [c]onjunction with the [s]pecification”).

250. The most difficult statutory demands for storyline patents may be novelty and nonobviousness requirements. Indeed, Knight “expect[s] novelty and non-obviousness hurdles to be high to any would-be plot inventor” but suggests that these requirements are

threshold of the statutory requirements, Knight invokes the broad reading of § 101 used by the Supreme Court in *Diamond v. Chakrabarty*.²⁵¹ He argues that statutory subject matter includes “anything under the sun that is made by man,” except “laws of nature, physical phenomena, and abstract ideas.”²⁵² Knight proposes that his storyline method claims are statutory subject matter because they recite a process and do not fall within any of the judicial exceptions.²⁵³ He admits that “a story in the abstract is just that: an unpatentable abstract idea,” but distinguishes his invention as a “functional method of implementing [a] plot” to produce the “‘useful, concrete, tangible result’ of . . . valuable entertainment.”²⁵⁴

3. Policy Rationales for Granting Patent Protection

a. *Invention*

Knight states, “There is something fundamentally inventive—in the same way that conceiving of a new rocket engine design is inventive—about creating a new storyline. The flash of inspiration is the same.”²⁵⁵ One need not actually build a rocket to conceive a new rocket engine design, but constructing a rocket containing the new engine design is certainly one way to express that design. By analogy, Knight suggests one need not express—i.e., write—an actual screenplay or novel to conceive an inventive storyline, although one can certainly express an embodiment of the storyline by writing the novel.²⁵⁶ He argues that “[t]he spark of ingenuity is what gives rise to the infinitely many ways of expressing an invention—whether in the form of a tangible rocket engine or a novel—but without the invention there is nothing to express,” and suggests that both the rocket engine design and the new storyline are “both inventions in a very real sense, distinct from their possible expressions.”²⁵⁷

not insurmountable if the plot is indeed new. See Knight, *supra* note 247, at 213. This high bar is necessary to ensure that patents are not granted that strip property from the public, however, the examination process also should address this concern. See Knight, *supra* note 20, at 870. For example, Knight has already directed the U.S. Patent and Trademark Office (USPTO) to the film *Total Recall*, which may be relevant prior art. Information Disclosure Statement by Applicant from Andrew F. Knight, First Named Inventor, to Corbett B. Coburn, Exam’r, U.S. Patent & Trademark Office (Sept. 24, 2007). If this film or any other art is cited against the 10/722,473 application as § 102 or 103 art, Knight will have the opportunity to distinguish his invention by argument or by amending the claims.

251. See Knight, *supra* note 20, at 861.

252. *Id.* (quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980)).

253. See *id.* at 868–69.

254. *Id.* at 867.

255. *Id.* at 871.

256. See *id.* at 871–72.

257. *Id.* at 872.

b. *Idea/Expression Dichotomy*

Knight suggests that the current intellectual property regime already recognizes this dichotomy in the context of software.²⁵⁸ He points out that poorly written software that implements a new and useful method may be protected as a method patent, while a unique expression of software, even if it encodes an archaic method, may be protected via copyright.²⁵⁹ This dual protection scheme recognizes that the method the software relays is not only distinct from any particular expression of the method but is valuable in its own right.²⁶⁰

Knight argues that a story may also comprise two such features: (1) a specific expression of the storyline and (2) the underlying story itself.²⁶¹ Either or both of these features may be valuable (and should be protectable). For example, while the underlying storyline of *Romeo and Juliet* likely was not novel when William Shakespeare wrote it, Shakespeare's "particular expression of that underlying storyline is today as brilliant and beautiful as the day it was written."²⁶² Conversely, the underlying storyline may be valuable even if the particular expression of the storyline is not. This may have been the case with Leon Arden's novel *One Fine Day*,²⁶³ which arguably had less commercial value than its underlying idea.

Knight suggests that there are storylines that are "so inventive, so surprising, and so profound that any expression of [them] is valuable."²⁶⁴ These "refreshingly original" storylines have value beyond the value of the particular expression of the storyline, such that "public policy dictates a need for legal protection, in the form of intellectual property rights, for the entire work—expression *and* storyline."²⁶⁵ Knight proposes that these storylines should be protected by patents.²⁶⁶

c. *Public Interest*

Knight believes that copyright law does not provide adequate incentives for creating novel stories for movies and books because only the expression of the story is protected and not the underlying idea of the storyline.²⁶⁷ He argues that the value of a copyright depends on an artist's ability as a performer and not as an inventor.²⁶⁸ For example, an artistic inventor may create an interesting and unique storyline but be such a poor writer that his

258. *See id.* at 860.

259. *See id.*

260. *See id.*

261. *See id.*

262. *Id.* at 871.

263. *See supra* notes 11–14 and accompanying text.

264. Knight, *supra* note 20, at 871 (emphasis omitted).

265. *Id.* at 860–61.

266. *See id.* at 877.

267. *See id.* at 874–76.

268. *See id.* at 876–77.

expression of the storyline results in a copyrighted work with little value.²⁶⁹ Knight argues that a Hollywood producer may recognize the creative value of the underlying storyline and effectively steal it to make a blockbuster movie, thus obtaining unearned financial benefit from the inventor's unrewarded innovation.²⁷⁰

Without patent protection, Knight argues, "the great artistic minds of the day will be compelled to continue composing . . . slightly altered dialogues for carbon copied movie plots."²⁷¹ The ability to fully protect their artistic inventions will motivate the creation of "never-seen-before, never-experienced-before, intellectually inspiring forms of entertainment."²⁷²

Knight's proposal has many critics, as discussed below in Part II, many of whom suggest that patent protection will actually suppress artistic creation and remove works from the public domain. Yet Knight points out that a storyline application must meet stringent tests of patentability before a patent is granted.²⁷³ Thus, an artist who composes a tale about star-crossed lovers will not be able to patent her storyline, as it likely is not novel or nonobvious. Such a storyline already is part of the public domain and remains free for anyone to use.

As discussed above, the scope of patentable processes seemingly has been expanding over the past several decades. Part II suggests that the current scope of patentable subject matter might be broad enough to cover Knight's storyline patents. Yet even now, the standard under which Knight's applications will be examined is in flux. Determining whether Knight's storyline process applications are patentable requires resolving tensions and ambiguities in the case law regarding patentable processes and other doctrines that limit the scope of patentable subject matter. The newest case law may portend a coming constriction of the scope of patentable subject matter that could well render Knight's claims unpatentable. As Ben Klemens notes, given the current state of the law, "it is difficult to determine whether storyline and legal method patents are just amusing novelties, a brewing storm, or the dawn of a new age in tax loophole innovation."²⁷⁴ Part II addresses that question.

269. *See id.*

270. *See id.* at 876.

271. *Id.*

272. *Id.* at 877.

273. *See id.* at 870 ("An old storyline can never be patentable (Section 102). A storyline obvious to one of ordinary skill in the art can never be patentable (Section 103). An indefinite storyline can never be patentable (Section 112)."); *see also id.* at 876 ("There is little fear that artistic creation will be halted due to the enforcement of patent protection newly applied to artistic inventions. A love song composer may indefinitely continue writing love songs without worry of infringing any patent [E]ven if the broad concept or invention of singing about love were statutory subject matter under § 101, it is as old as civilization, and would not survive an attack under §§ 102-103.").

274. Klemens, *supra* note 32, at 20. *See supra* note 188 for a discussion of tax method patents.

II. AMBIGUITIES IN THE SCOPE OF PATENTABLE PROCESSES

Part II of this Note explores in greater detail the tensions and ambiguities that emerge from the current case law regarding the scope of patentable processes. In particular, this part focuses on how the patentability of storyline processes depends on the courts' developing approach to applying the doctrines of patentable processes, judicial exclusions to patentable subject matter, mental steps, and the technological arts requirement. Part II.A presents a broad reading of the case law in each of these four areas that would support Knight's position that storyline processes are patentable. Part II.B then articulates a narrow reading, in which these doctrines would limit the scope of patentable subject matter and exclude storyline patents.

A. Interpretations of the Case Law That Allow Storyline Applications

Under current case law, which represents the result of a decades-long expansion of statutory subject matter, Knight's storyline claims arguably are patentable. *State Street* and its permissive progeny set the standard for patentable processes at the time Knight filed his applications.²⁷⁵

Judge Raymond C. Clevenger of the Federal Circuit noted after *State Street* that "this court has recently held [that] virtually anything is patentable."²⁷⁶ Indeed, following the Federal Circuit's increasingly permissive approach to statutory subject matter, the Patent Office has issued method or process patents in a broad range of industries that previously were strangers to patent protection, including tax methods,²⁷⁷ artistic methods,²⁷⁸ entertainment methods,²⁷⁹ architectural methods,²⁸⁰ theology,²⁸¹ athletic moves,²⁸² and non-computer-related business methods.²⁸³ Such patents rely on a broad reading of the courts' approach to

275. See *supra* Part I.B.2.b (discussing *State Street* and *AT&T*).

276. *Hughes Aircraft Co. v. U.S.*, 148 F.3d 1384, 1385 (Fed. Cir. 1998) (Clevenger, J., dissenting from the Order declining the suggestion for rehearing in banc).

277. See *supra* note 188 (discussing the tax method patent controversy).

278. See, e.g., *Painting Kit and Related Method*, U.S. Patent No. 6,022,219 (filed Dec. 18, 1998) (reciting a method of painting using a baby's butt).

279. See, e.g., *Method of Swinging on a Swing*, U.S. Patent No. 6,368,227 (filed Nov. 17, 2000) (claiming a method of swinging that results in a "side-to-side swinging motion").

280. See, e.g., *Method for Designing and Illustrating Architectural Enhancements to Existing Buildings*, U.S. Patent No. 5,668,736 (filed Jan. 25, 1995) (claiming a method that presents designs to a client, allows the client to select a design idea, and prepares an image of the remodeled building).

281. See, e.g., *System for Allowing a Person to Experience Systems of Mythology*, U.S. Patent No. 5,734,795 (filed May 15, 1995) (claiming a virtual reality system for "personal myth exploration," the uses of which include, inter alia, "spiritual quest, lifepath exploration and shaping, [and] drug rehabilitation").

282. See, e.g., *Method of Executing a Tennis Stroke*, U.S. Patent No. 5,993,336 col.1 l.21 (filed Mar. 31, 1998) (claiming a method of "executing tennis strokes in difficult ball-return situations" using a knee pad).

283. See, e.g., *Systems and Methods for Making Jury Selection Determinations*, U.S. Patent No. 6,607,389 (filed Dec. 3, 2001) (claiming "[a] method of conducting a mock trial exercise in a lawsuit pending before a court at law"); *Building Block Training Systems and Training Methods*, U.S. Patent No. 5,851,117 (filed Apr. 23, 1997) (claiming a method for

the patentable processes, judicial exclusions, mental steps, and technological arts doctrines.

1. A Broad Interpretation of Statutory Processes

Citing *State Street*, Knight argues that “[a] method is a method and should be examined as such.”²⁸⁴ Invoking the Supreme Court’s declaration in *Chakrabarty* that patentable subject matter includes “anything under the sun that is made by man,” he concludes that “[t]here is simply no statutory or common law exempting from patentability a useful method for producing entertainment.”²⁸⁵

Professor Richard Gruner suggests that “[m]uch of the current uncertainty in the law of patentable subject matter stems from the failure of the Supreme Court to articulate clear principles for separating patentable applications from unpatentable abstract ideas.”²⁸⁶ He argues that the Court basically has only addressed certain easy cases that involve an act or a series of acts that perform some physical transformation.²⁸⁷ For example, while the *Diehr* court ultimately held that a process applying an abstract idea or algorithm is patentable subject matter, the Court explicitly noted that the claimed process performed a physical transformation.²⁸⁸ Gruner thus criticizes the *Diehr* Court for failing to clarify what “minimum physical features or relationships to physical surrounds . . . are *necessary* to place an advance within the range of patentable subject matter.”²⁸⁹ The Court also failed to address “whether a statutory process *must* effect a physical transformation—and if so, exactly what this means—or whether [transforming an article to a different state or thing] is merely illustrative of one type of statutory process.”²⁹⁰

As discussed in Part I.B above, the Supreme Court has provided little guidance in the area of processes that do not involve physical manipulations

training a janitor); Shaving Method, U.S. Patent No. 6,014,975 (filed June 6, 1995) (claiming a shaving method including the steps of soaking a razor in an astringent bath after each shave and shaving with the razor while the razor is still wet with the astringent liquid from the bath).

284. Knight, *supra* note 20, at 868. However, in *Flook*, the applicant argued that any process that implements a principle in a specific fashion falls within § 101. 437 U.S. 584, 593 (1978). The Court stated that this assumption is “untenable” because “it would make the determination of patentable subject matter depend simply on the draftsman’s art and would ill serve the principles underlying the prohibition against patents for ‘ideas’ or phenomena of nature.” *Id.*

285. See Knight, *supra* note 20, at 868–69.

286. Gruner, *supra* note 102, at 400.

287. See *id.*

288. See *supra* notes 120–26 and accompanying text (discussing *Diehr*).

289. Gruner, *supra* note 102, at 408.

290. Cotter, *supra*, note 128, at 864–65. In fact, the Court has said that there are certain processes that “the patent laws were designed to protect (*e.g.*, transforming or reducing an article to a different state or thing)” but the laws do not specifically limit patentable processes to only those that transform or reduce an article to a different state or thing. See, *e.g.*, *Diamond v. Diehr*, 450 U.S. 175, 192 (1981).

of physical items.²⁹¹ Regardless, the Federal Circuit has defined certain minimum features necessary for a process to be patentable, ruling that a statutory process does not require a physical manipulation, as long as it produces a useful, concrete, and tangible result.²⁹² Knight argues that his storyline processes satisfy these requirements because they produce the “‘useful, concrete, tangible result’ of . . . valuable entertainment.”²⁹³ Therefore, given the lack of clear Supreme Court guidance, Knight’s claims arguably are patentable under the current Federal Circuit standard for processes. Indeed, Gruner argues that the Federal Circuit’s *State Street* test has normative merit.²⁹⁴

Although recent decisions by the Federal Circuit question the relevance of *State Street*’s “useful, concrete, and tangible result” test, Gruner asserts that this test “seems well grounded and a useful means to carry the patent system forward to socially desirable impacts regarding new technologies.”²⁹⁵ He argues that the “useful, concrete, and tangible result” test “should be upheld in the face of doubts about that standard recently expressed by Justice Breyer.”²⁹⁶

Justice Breyer’s comments have precipitated a significant debate within the Federal Circuit over the scope of patentable subject matter, resulting in Judge Linn’s dissent in *Nuijten*, described above.²⁹⁷ Even if Judge Linn’s position eventually were to become law, however, Knight’s storyline processes still may be patentable.

Unlike the *Comiskey* court, Judge Linn apparently would not use § 101 to limit the scope of patent protection, at least not without further guidance from Congress.²⁹⁸ Although his opinion acknowledges the pressure to start

291. See *supra* Part I.B.2.a.

292. See *supra* Part I.B.2.b (discussing *State Street* and *AT&T*).

293. See Knight, *supra* note 20, at 867.

294. See Gruner, *supra* note 102, at 401.

295. *Id.* at 402.

296. *Id.* at 401–02. Specifically, Justice Breyer notes that the Federal Circuit test is inconsistent with *O’Reilly*, *Flook*, and *Gottschalk*. See *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 126 S. Ct. 2921, 2928 (2006) (Breyer, J., dissenting). However, the invalidated claim in *Morse* was improperly broad and attempted to patent electromagnetism. See *supra* notes 166–69 and accompanying text (discussing *Morse*). The Court’s decision in *Diehr* “appears to have taken a broader view of patentable subject matter . . . [and] has been viewed as being in tension with *Flook*.” Brief for the United States as Amicus Curiae at 12, *Lab. Corp.*, 126 S. Ct. 2921 (No. 04-607).

297. *In re Comiskey* may be the Federal Circuit’s attempt to narrow the scope of patentable subject matter in response to Justice Breyer’s comments in *LabCorp*. The *Comiskey* court did not try to reconcile its newly restrictive test with its own precedent. The court neither applied nor rejected its long-used “useful, concrete, and tangible result” test. The court also did not address its own holding in *AT&T* determining that a “physical transformation” is not “an invariable requirement” of a process. Rather, the court simply pointed out that the claimed inventions in *Alappat*, *State Street*, and *AT&T* were tied to machines, making them statutory subject matter. *In re Comiskey*, 499 F.3d 1365, 1379–80 (Fed. Cir. 2007).

298. See *In re Nuijten*, 500 F.3d 1346, 1358 (Fed. Cir. 2007) (Linn, J., concurring in part and dissenting in part). Congress’s willingness to legislatively restrict patentable subject

drawing clearer exclusionary lines that accord with “common sense and the public weal,” he argues that the court should not preempt congressional action with judicial activism.²⁹⁹ Under his analysis, subject matter satisfies § 101 if it falls within one of the four statutory categories that essentially encompass “anything under the sun that is made by man,” and is “new” and “useful.”³⁰⁰ Claims that improperly recite laws of nature, natural phenomena, and abstract ideas will not pass the “new” and “useful” tests.³⁰¹

Even if *State Street*'s “useful, concrete, and tangible result” test is rejected in favor of some new standard resembling Judge Linn's analysis, Knight's storyline claims may satisfy these requirements. A storyline is made by man and is the product of the storyteller. Unlike natural phenomena, laws of nature, mathematical algorithms, and scientific principles, it does not preexist in nature and is a new creation.³⁰² Therefore, it arguably passes the newness requirement.³⁰³ Knight's storyline claims also ostensibly satisfy Judge Linn's “usefulness” test.³⁰⁴ Knight's storyline claim confers a specific benefit—namely, the generation of a story comprising specific elements for the purpose of entertainment.³⁰⁵ Just as Nuijten's electronic signal is useful in a direct and specific way, because it performs its articulated function as specified, Knight's claims do exactly what they claim to do—namely, they relay a story having a timeline and a unique plot involving characters.³⁰⁶

Thus, whether the relevant test for identifying a statutory process is the *State Street* test or Judge Linn's analytical framework, storyline processes may survive a statutory process analysis.

2. A Narrow Interpretation of Abstract Ideas

Although the Supreme Court has not clearly defined what specific ideas are abstract enough to fall under this judicial exception to the scope of patentable subject matter, the Court has stated that “[a]n idea of itself is not patentable, but a new device by which it may be made practically useful is.”³⁰⁷ While the Court has consistently held that a mathematical algorithm, separate from its practical application, falls within the judicial exception

matter, as demonstrated by the proposed per se exclusion on tax planning method patents, bolsters Judge Linn's approach.

299. *Id.* (quoting *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 195 (1978)).

300. *Id.* at 1363.

301. *See id.* at 1364.

302. The § 102 novelty requirement will exclude any storyline claim that has already been performed and is part of the prior art.

303. *See Nuijten*, 500 F.3d at 1363–64 (interpreting the “new” requirement). For further discussion of Judge Linn's analysis of the “new” requirement, see the text accompanying notes 77–80.

304. *See id.* at 1365–67 (interpreting the “useful” requirement). For further discussion of Judge Linn's analysis of the “useful” requirement, see the text accompanying notes 81–84.

305. *See Knight*, *supra* note 20, at 867.

306. *See Nuijten*, 500 F.3d at 1368 (discussing the usefulness of the claimed signal).

307. *Rubber-Tip Pencil Co. v. Howard*, 87 U.S. (20 Wall.) 498, 507 (1874).

and is not patentable.³⁰⁸ Gruner notes that the Court's analyses generally have lacked a clear discussion of the minimum features required for an idea's implementation to be considered a practical application, rather than just an unpatentable idea.³⁰⁹

The *Comiskey* court further confused the issue of what constitutes an abstract idea. The Federal Circuit's discussion suggests that any process that involves a mental step is an abstract idea.³¹⁰ As discussed below, however, one can envision inventions that require a so-called "mental step" that are not merely abstract ideas, because the patent application can provide detailed instructions for performing the step.³¹¹ For instance, the applicant in *Bilski* argues that methods are not mere abstract ideas when they set forth a series of specific, real-world, physical acts for achieving a useful objective.³¹² The applicant suggests that examples of abstract ideas would be process claims that recite "somehow transmitting information with electromagnetism" or "somehow supplying a commodity at a fixed price."³¹³ Similarly, Knight admits that "a story in the abstract is just that: an unpatentable abstract idea," but he attempts to distinguish his invention as a "functional method of implementing [a] plot" to produce the useful, concrete, and tangible result of valuable entertainment.³¹⁴

Even if a storyline is considered to be an unpatentable abstract idea, Knight argues that a well-articulated process for communicating the storyline is not an abstract idea and should not be patentable. Given the lack of a clear judicial standard for what constitutes an abstract idea, Knight's proposal is at least plausible on its face.

3. A Narrow Interpretation of the Mental Steps Doctrine

The courts have applied mental steps exclusions under a variety of circumstances, and storyline method claims may be allowable under some of these standards. For example, courts have invoked the mental steps doctrine to exclude patent claims that cover activities that take place solely inside the human mind, such as aesthetic judgments.³¹⁵ Some courts have invoked this doctrine where the results produced by the claimed method are not predictable due to the potential vagaries of the mental steps involved.³¹⁶

308. See, e.g., *Diamond v. Diehr*, 450 U.S. 175, 175 (1981) ("[A] mathematical formula, like a law of nature, cannot be the subject of a patent . . .").

309. Gruner, *supra* note 102, at 400.

310. See *In re Comiskey*, 499 F.3d 1365, 1377 n.12 (Fed. Cir. 2007) (implying that mental processes are an example of an abstract concept or algorithm).

311. See *infra* Part II.A.3 (discussing claims that satisfy the disclosure requirement despite containing mental steps).

312. See Brief of Appellants at 9, *In re Bilski*, 2007 WL 851293 (Fed. Cir. Feb. 15, 2007) (No. 2007-1130).

313. *Id.* (internal quotation marks omitted).

314. See Knight, *supra* note 20, at 867.

315. Cotter, *supra* note 128, at 860-61 & n.16.

316. *McClaskey*, *supra* note 104, at 1166-69 (discussing *Greenewalt v. Stanley Co. of Am.*, 54 F.2d 195 (3d Cir. 1931); *Johnson v. Duquesne Light Co.*, 29 F.2d 784 (W.D. Pa.

This doctrine also may be viewed as an effort to prevent patents on thought processes in general, with a potential normative basis as a means of protecting the public's First Amendment rights.³¹⁷

Because the courts' basis for applying the mental steps doctrine "has been somewhat ambiguous," Cotter proposes four possible approaches to applying the doctrine.³¹⁸ First, while noting that courts have not adopted—and commentators have not advocated—such a broad approach, Cotter suggests that the most expansive possible interpretation of the mental steps doctrine "would render unpatentable a process that contains any steps that *can* be performed mentally, regardless of whether (1) the process also contains steps that are incapable of being performed mentally, or (2) the steps that can be performed mentally also can be performed non-mentally."³¹⁹ Conversely, the narrowest and least limiting application would limit the doctrine's scope of exclusion only to processes that must be performed in a human mind and that cannot be performed by a machine or apparatus.³²⁰ A third, intermediate view is that "a process that can be performed *entirely* by mental steps is unpatentable, even if the process also can be performed by means of a machine or apparatus."³²¹ A fourth interpretation is that a process is unpatentable if the invention's novel aspect depends on a mental step or steps.³²²

In narrowing the scope of the mental steps doctrine, the *Musgrave* court suggested that the mental steps inquiry should be part of the examiner's analysis under § 112, rather than § 101.³²³ Processes whose performance requires a certain level of human thought will produce results that vary depending on the identity of the performer. For example, the results of the method of associating light and music for aesthetic expression at issue in

1928); *Ex parte* Mayne, 59 U.S.P.Q. 342 (Pat. Off. Bd. App. 1942)). McClaskey argues that *Johnson*, *Greenewalt*, and *Mayne* suggest that "methods relying on interpretive human judgments or emotions are too indefinite to constitute statutory subject matter. The performance of such methods does not produce predictable results, and, therefore, the methods cannot be disclosed in such a way that an individual can perform them to achieve a particular result." *Id.* at 1169. For example, in *Greenewalt*, the court held that a method of "combining sound and light for aesthetic expression" was not patentable subject matter where "[w]hat is done in carrying the method into effect [is] determined by the aesthetic and emotional reaction of the individual [performing the method], and such reactions may differ with different individuals." 54 F.2d at 196. Accordingly, Katherine Ambrose argues that "[t]he mental steps doctrine should play no role in determining statutory subject matter," although "processes involving subjective human mental activity will properly fail under section 112 for inexactness." See Ambrose, *supra* note 48, at 917.

317. See Cathy E. Cretsinger, *AT&T Corp. v. Excel Communications, Inc.*, 15 Berkeley Tech. L.J. 165, 178 n.120 (2000) ("The prohibition on patenting thought could also be justified on First Amendment grounds.").

318. Cotter, *supra* note 128, at 860–61.

319. *Id.* at 861.

320. *Id.* (emphasis omitted).

321. *Id.*

322. *Id.* This test is often called the "point of novelty test." *Id.* (internal quotation marks omitted).

323. *In re* Musgrave, 431 F.2d 882, 893 (C.C.P.A. 1970); see also *supra* note 316.

Greenewalt will vary depending on a person's aesthetic judgment.³²⁴ Accordingly, these claims would fail § 112's requirements and would not be patentable.³²⁵ Katherine Ambrose has described the relevant inquiry:

Is the process disclosed so exactly that one skilled in the art could follow the process and produce the same result? If the process involves something incapable of exact description, such as discretionary judgment, belief, or feeling on the part of the human operator, or any mental step of such sophistication that it could not be performed by a machine, then and only then should the process fail to receive a patent on the strength of the mental steps doctrine.³²⁶

Although the *Comiskey* court did not address its predecessor court's decision in *Musgrave* suggesting that the mental steps inquiry is best viewed as a § 112 investigation, *Comiskey's* outcome is consistent with Ambrose's test. The court held that because the product of *Comiskey's* claimed arbitration method depends on the discretionary judgment of the arbitrator, the method is not drawn to patentable subject matter.³²⁷

Applied to the issue at hand, one can envision inventions—including storyline patents—that require a so-called “mental step” but still satisfy § 112 because their applications provide detailed instructions for performing the required steps. For example, a step that requires “determining” simply invokes human operation, rather than human creativity, if the application provides a sufficiently detailed disclosure for how to make the determination. It therefore would seem that a storyline process application could be drafted to provide enough detailed disclosure to allow a user to successfully perform all of the “indicating” steps and produce the story, without requiring any discretionary judgment, belief, or feeling. Under the *Musgrave* interpretation, the mental steps doctrine would not be a bar to patenting such storyline processes.

4. Arguments Against a Technological Arts Requirement

As discussed above, the Board of Patent Appeals and Interferences eliminated the technological arts requirement in *Lundgren*, opening the door for business method patents that do not require computer implementation.³²⁸ Critics of the technological arts requirement applauded this decision, noting that neither the Patent Act nor previous case law

324. See *Greenewalt v. Stanley Co. of Am.*, 54 F.2d 195, 196 (3d Cir. 1931).

325. See *supra* note 43 and accompanying text (discussing the requirements of § 112).

326. Ambrose, *supra* note 48, at 917.

327. See *In re Comiskey*, 499 F.3d 1365, 1379 (Fed. Cir. 2007) (“*Comiskey's* independent claims 1 and 32 claim the mental process of resolving a legal dispute between two parties by the decision of a human arbitrator.”).

328. See generally Barry Schindler, *Key Ruling for Business Methods: 'Lundgren' Holds that a 'Technological Basis' Isn't Necessary for a Patent*, Nat'l L.J., Dec. 5, 2005, at 1–2.

supported the requirement.³²⁹ While the Federal Circuit has not opined on the matter, the USPTO and the Board of Patent Appeals and Interferences presently do not require patentable subject matter to have a technological basis.³³⁰ Accordingly, under current administrative precedent, the nontechnological nature of Knight's inventions should not prevent their eligibility for patent protection.

B. Interpretations of the Case Law That Exclude Storyline Applications

While the scope of patentable subject matter apparently has been expanding over the past several decades, some Supreme Court justices have recently questioned the Federal Circuit's patentable subject matter jurisprudence.³³¹ The lower courts' reactions to the Supreme Court's opinion in *LabCorp* have created further uncertainty in this area, and may indicate the beginning of a contraction in the scope of patentable subject matter. This section resolves the tensions in the case law regarding statutory processes, abstract ideas, mental steps, and the technological arts requirement in a way that would limit the scope of patentable subject matter and potentially exclude Knight's storyline claims.

1. A Narrow Interpretation of Statutory Processes

Since *State Street* and *AT&T*, many patent applicants have assumed that the sole test for a patentable process is whether the invention produces a useful, concrete, and tangible result. This view arguably overlooks the constitutional requirement that protectable inventions must further the "useful arts."³³² This view also arguably overlooks the Supreme Court's determination that the definition of statutory process is narrower than the literal meaning of the word "process."³³³ In *Diehr*, the Court noted that Congress did not add the term "process" to the patent statute until 1952, and when it did so, it adopted the definition that has evolved in the courts.³³⁴ The USPTO argues that this judicial definition limits statutory processes to

329. See generally John A. Squires & Thomas S. Biemer, *Patent Law 101: Does a Grudging Lundgren Panel Decision Mean That the USPTO is Finally Getting the Statutory Subject Matter Question Right?*, 46 IDEA 561 (2006).

330. See 1300 Off. Gaz. Pat. Office 142, Annex III (Nov. 22, 2005), available at <http://www.uspto.gov/web/offices/com/sol/og/2005/week47/patgupa.htm> (advising patent examiners not to consider whether the claimed invention is within the technological arts).

331. See *supra* notes 143–44 and accompanying text.

332. Brief for Appellee Director of the U.S. Patent and Trademark Office at 4, *In re Bilski*, 2007 WL 851293 (Fed. Cir. Feb. 15, 2007) (No. 2007-1130).

333. See *supra* note 94 and accompanying text.

334. *Diamond v. Diehr*, 450 U.S. 175, 182–84 (1981) ("Although the term 'process' was not added to 35 U.S.C. § 101 until 1952[,] a process has historically enjoyed patent protection because it was considered a form of 'art' as that term was used in the 1793 Act. . . . Analysis of the eligibility of a claim of patent protection for a 'process' did not change with the addition of that term to § 101.").

processes that are “tied to a particular apparatus” or transform materials to a “different state or thing.”³³⁵

Although the Supreme Court has declined to hold that statutory processes must involve a “transformation,”³³⁶ it has yet to endorse any other test for eligibility, nor has it held patentable any process that does not meet this requirement. The USPTO suggests that “concerns for future, unforeseen technologies that potentially would not fit within the existing transformation rubric, yet nevertheless may be worthy of patent protection” motivated the Supreme Court’s position.³³⁷ New eligibility tests may be required under such circumstances.³³⁸ While expansion of the scope of statutory processes may be needed to accommodate emerging technologies,³³⁹ one of Knight’s critics argues that “[a] fictional storyline, unlike software, is neither established technology nor emerging technology,” so “[t]he Federal Circuit’s policy rationale in the decisions cautiously upholding patents of traditionally nonpatentable subject matter does not support extending patent protection to fictional plots.”³⁴⁰

As noted above, storyline processes might qualify as patentable subject matter if the “useful, concrete, and tangible results” test is the single governing standard. But while *State Street* and its progeny were the most recent precedent at the time Knight filed his storyline applications, the Federal Circuit’s recent opinion in *Comiskey* may signal a turn away from this rather permissive standard toward a focus on more bright-line rules.

The *Comiskey* test may prove to be a higher bar for Knight’s storyline method claims than the *State Street* test. The *Comiskey* court held that methods that claim an abstract concept or algorithm, including a mental process, either must be tied to a particular apparatus or must produce some physical transformation.³⁴¹ The court further held that claims that recite one of the three other types of statutory subject matter—machines, manufactures, or compositions of matter—in addition to the process encompassing an abstract concept or algorithm are patentable subject matter.³⁴² Knight’s storyline process claims do not recite one of the three other types of statutory subject matter, do not involve a physical

335. See Brief for Appellee, *supra* note 332, at 16 (citing *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978)). The USPTO notes that Federal Circuit has extrapolated the Supreme Court’s transformation test to include computer-implemented processes that transform data. See *id.* at 20 (“[W]hile *Diehr* involved the transformation of a tangible object—curing synthetic rubber—[the Federal Circuit] also regards the transformation of intangible subject matter to similarly be eligible, so long as the data signals represent some real world activity. The [USPTO] views this ‘data transformation’ test as an appropriate way to evaluate subject matter eligibility.”).

336. See *supra* notes 128, 137 and accompanying text.

337. See Brief for Appellee, *supra* note 332, at 17 (emphasis omitted).

338. See *id.* at 17–18.

339. See *Harvard Note*, *supra* note 235, at 237.

340. *Id.* at 238.

341. *In re Comiskey*, 499 F.3d 1365, 1374–77 (Fed. Cir. 2007).

342. *Id.* at 1377.

transformation, and are not tied to any particular apparatus.³⁴³ Therefore, Knight's claims do not satisfy *Comiskey's* test for statutory processes.

2. A Broad Interpretation of Abstract Ideas

From a public-interest standpoint, the judicially created exceptions to patentable subject matter serve the important function of protecting public access to certain basic subject matter and ideas that otherwise might be patentable.³⁴⁴ Applying these exceptions, however, can be difficult. Gruner argues that the *Flook* opinion properly distinguishes judicially excluded natural phenomena and abstract ideas from patentable applications of these basic principles:

Advances restating a principle or phenomenon of nature are unpatentable, not because they lack the physical features needed to make them "processes" within the meaning of the Patent Act, but rather because the naturally occurring features of these advances preexist the advances and, hence, are not "discoveries" of the sorts needed to qualify for patent protections. . . . By contrast, an idea is unpatentable because it is not useful in the right way absent the addition of either a way to use the idea to achieve a physical manipulation or a way to use the idea to interpret a physical situation in a useful way. . . . Both an unpatentable abstract idea and an unpatentable principle of nature can be used to construct a patentable invention if something more—in the words of the Court in [*Flook*] an additional "inventive concept"—is added that distinguishes the idea or phenomenon from the invention sought to be patented.³⁴⁵

Storyline processes would not be excluded under the first rationale articulated in the *Flook* opinion, which excludes preexisting principles and natural phenomena,³⁴⁶ because storylines arguably are not preexisting in nature and are the products of human creation. But the second rationale does provide a plausible basis for excluding storylines by characterizing them as abstract ideas. Gruner argues that according to *Flook*, an idea is unpatentably abstract when it needs "something more" to be useful—i.e., to produce a physical result or interpret a physical situation in a useful way.³⁴⁷ Following this reasoning, a general idea for a storyline, even when

343. However, *Comiskey* implies that these § 101 hurdles can be overcome by coupling Knight's process to a specific machine. *See id.* at 1376. For example, the claims could be tied to a television or some other method of display. The court notes that doing so may raise obviousness concerns even if the invention satisfies novelty and subject matter requirements. *See id.* at 1380.

344. *See In re Nuijten*, 500 F.3d 1346, 1364 (Fed. Cir. 2007) (Linn, J., concurring in part and dissenting in part) (discussing "the core of the judicial doctrine by which laws of nature, natural phenomena, and abstract ideas are excluded from patentable subject matter").

345. Gruner, *supra* note 102, at 407.

346. *See id.*

347. *See id.*

expressed in the language of a process, is likely a “disembodied concept[.]”³⁴⁸

Indeed, one critic specifically argues that Knight’s storyline patent applications do not encompass patentable subject matter because they seek to protect abstract ideas.³⁴⁹ Noting that the Supreme Court has long held that ideas alone are not patentable,³⁵⁰ this anonymous commentator asserts that Knight’s storyline patents simply “list[] ideas for plot points combined to form . . . a unique storyline,” resulting in “a combination of abstract ideas.”³⁵¹ Because the Federal Circuit has held that simply “taking several abstract ideas and manipulating them together” does not render unpatentable ideas patentable, Knight’s combinations of plot points should not be patentable.³⁵² For these reasons, under *Flook* and previous Federal Circuit case law, Knight’s applications could be rejected as claiming ideas that are unpatentably abstract.

3. A Broad Interpretation of the Mental Steps Doctrine

Parts I.B.4.a and II.A.3 discuss varying approaches to the mental steps exclusion that the courts have used in the past and may potentially invoke in the future. Under some of these approaches, storyline patent claims will be excluded from patentable subject matter for containing impermissible mental steps. The Federal Circuit’s recent opinion in *Comiskey* may portend a reinvigoration of such an application of this doctrine.

Although the Federal Circuit’s recent opinion in *Comiskey* invoked the mental steps doctrine, it did not provide much specific guidance regarding the doctrine’s proper application, perhaps because the arbitration method at issue presented a relatively easy and compelling case for exclusion.³⁵³ The court limited its consideration of prior precedent to clarifying that “a process of human thinking in and of itself” is not patentable.³⁵⁴ It then held that *Comiskey*’s non-machine-implemented arbitration method claims were not patentable because they “seek to patent the use of human intelligence in

348. See, e.g., *In re Alappat*, 33 F.3d 1526, 1542 n.18 (Fed. Cir. 1994) (“[A]bstract ideas constitute disembodied concepts or truths which are not ‘useful’ from a practical standpoint standing alone, i.e., they are not ‘useful’ until reduced to some practical application.”).

349. *Harvard Note*, *supra* note 235, at 239–40 (suggesting further that “ideas within fiction can never be protected, even by the less stringent copyright regime”).

350. See *Rubber-Tip Pencil Co. v. Howard*, 87 U.S. (20 Wall.) 498, 507 (1874) (“An idea of itself is not patentable . . .”); see also *Diamond v. Diehr*, 450 U.S. 175, 185 (1981); *accord* *Buck v. Ooms*, 63 F. Supp. 715, 717 (D.D.C. 1945), *aff’d*, 159 F.2d 462 (D.C. Cir. 1947) (“[Patents] can be awarded only in respect to a concrete embodiment of an idea, whether the embodiment is a device, a product, or a process.”).

351. *Harvard Note*, *supra* note 235, at 240.

352. *Id.* at 239–40.

353. This is unfortunate as a more difficult case may have better clarified what kinds of claims warrant a mental steps inquiry.

354. *In re Comiskey*, 499 F.3d 1365, 1379 (Fed. Cir. 2007); see *id.* at 1378 n.15 (“To the extent that language in the [*Musgrave*] opinion might suggest that mental processes standing alone are patentable, the broad language in the opinion was significantly cabined by *Benson*.”).

and of itself.”³⁵⁵ Applying *Comiskey*, the Board of Patent Appeals has subsequently invoked the mental steps doctrine to reject claims that recite “matching,” “controlling access to content,” “determining,” and “marking,” where the claims do not explicitly recite machine implementation.³⁵⁶

The language of the *Comiskey* opinion suggests that the Federal Circuit was applying a broad interpretation of the mental steps inquiry, rather than the limited § 112 inquiry proposed by Ambrose and the court in *Musgrave*.³⁵⁷ Patent attorney Cathy Cretsinger argues that the mental steps doctrine should be used to limit patents on thought processes.³⁵⁸ She argues that inventors must be free to think in order to invent.³⁵⁹ Used in this way, a broad mental steps doctrine may serve as a proxy for First Amendment considerations.³⁶⁰

Assuming the Federal Circuit is using the mental steps doctrine to balance First Amendment concerns against patent rights, storyline methods arguably should meet the same fate as *Comiskey*’s arbitration method.³⁶¹ Moreover, if the court is using the doctrine to reject claims that attempt to patent human thought, storyline ideas also should fail. The *Comiskey* court indicated that human thought processes can be part of a patentable claim if the claim includes both a mental process and one of the other categories of statutory subject matter.³⁶² Since Knight’s storyline process claims do not include a machine, a manufacture, or a composition of matter, however, they would be unpatentable under this interpretation of the doctrine.

4. Arguments for a Technological Arts Requirement

Many controversial patents, including the “Method for Exercising a Cat,”³⁶³ the “Method for Swinging on a Swing,”³⁶⁴ and the “Method of Executing a Tennis Stroke,”³⁶⁵ “bear little if any relationship to what most people would think of as ‘technology.’”³⁶⁶ While the Patent Clause, the patent statutes, and Supreme Court jurisprudence do not explicitly require patentable subject matter to be technological,³⁶⁷ such a requirement indeed has some basis. Despite the technology-neutral language of the patent statute, an originalist interpretation of the language of the Constitution’s

355. *Id.* at 1379.

356. See *supra* note 220 and the cases cited therein.

357. See *supra* notes 207, 323–26 and accompanying text.

358. See Cretsinger, *supra* note 317, at 178–79 (discussing the role of the mental steps doctrine in limiting patents on thought processes).

359. See *id.*

360. See *id.* at 178 n.120.

361. See *Harvard Note*, *supra* note 235, at 244–49 (discussing the First Amendment implications of storyline patents).

362. *In re Comiskey*, 499 F.3d 1365, 1379 (Fed. Cir. 2007).

363. See *supra* note 59 and accompanying text.

364. See *supra* note 279.

365. See *supra* note 282.

366. Cotter, *supra* note 128, at 869.

367. See Squires & Biemer, *supra* note 329, at 568–79.

Patent Clause justifies a technological arts requirement. Because the Patent Clause recites that patents are intended to “promote the Progress of [the] useful Arts,” “commentators and courts over the years have suggested that this language could be used to restrict patentable subject matter to the useful or technological arts, as opposed to the cultural or liberal arts.”³⁶⁸ As Professor John Thomas argues, “it is unlikely the Framers saw every created thing as encompassed within [the term useful Arts]. They undoubtedly contemplated the industrial, mechanical and manual arts of the late eighteenth century, in contrast to the seven ‘liberal arts’ and the four ‘fine arts’”³⁶⁹

While critics of a technological arts requirement argue that it has no statutory basis and otherwise is unworkable,³⁷⁰ Cotter counters that such a limitation is workable and needed to prevent the grant of patents—such as the recent patents claiming “methods for terminating pregnancy, for advising clients with respect to tax and regulatory compliance, and for various methods of communication”—that intrude on important personal liberties.³⁷¹ He suggests that critics overstate the difficulty of defining the technological arts and of implementing the requirement.³⁷² Indeed, although Judge Barrett argued in his *Lundgren* concurrence that a technological arts test is “unworkable,” he himself proposed to limit the patentability of non-machine-implemented processes to those that involve a physical transformation,³⁷³ essentially the same approach advanced by the *Comiskey* court.³⁷⁴

Because the Board of Patent Appeals’s post-*Comiskey* opinions have evinced a rather restrictive interpretation of § 101, some commentators suggest that the board already is using a limited technological arts test. For example, in *Ex Parte Kinzhalin* the board rejected a claim to an “automated” method as implicating mental steps, declaring the use of the term “automated” to be merely precatory.³⁷⁵ In reviewing the board’s

368. Collins, *supra* note 60, at 345–46.

369. Thomas, *supra* note 97, at 1164. “The seven historic ‘liberal arts’ were: grammar, logic (dialectics), rhetoric, arithmetic, geometry, music and astronomy[.] The four ‘fine arts’ were: painting, drawing, architecture and sculpture; to which were often added: poetry, music, dancing and drama.” *Id.* at 1164 n.189 (quoting Robert I. Coulter, *The Field of the Statutory Useful Arts, Part II*, 34 J. Pat. Off. Soc’y 487, 494–96 (1952)).

370. See generally Squires & Biemer, *supra* note 329.

371. See Cotter, *supra* note 128, at 881–82.

372. See *id.* at 884–94 (proposing a technological arts requirement); see also Thomas, *supra* note 97, at 1163–85 (proposing a normative role for a technological arts requirement).

373. *Ex parte Lundgren*, 76 U.S.P.Q. 2d (BNA) 1385, 1430 (B.P.A.I. 2005).

374. *In re Comiskey*, 499 F.3d 1365, 1376 (Fed. Cir. 2007). The *Comiskey* court noted that the “Supreme Court has recognized only two instances in which such a [process reciting abstract concepts] may qualify as a section 101 process: when the process ‘either [1] was tied to a particular apparatus’ or [2] operated to change materials to a ‘different state or thing.’” *Id.* (quoting *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978)).

375. *Ex parte Kinzhalin*, Appeal 2007-1416, 2007 WL 3114968, at *7 (B.P.A.I. Oct. 24, 2007) (“‘[A]utomated’ is merely an expression of intended use that, at best, recites a desired result of the claimed method. . . . Perhaps the intended use of the method will involve a

recent decisions involving § 101, one commentator notes that “[t]o first approximation, the Board’s view is that a claim has to have the word ‘computer’ in it.”³⁷⁶ Professor Dennis Crouch takes this observation even further, suggesting that the USPTO is resurrecting the technological arts requirement rejected in *Lundgren*.³⁷⁷ Patent attorney Peter Zura characterizes the recent § 101 rejections as ranging “from the laughable to the outrageous,”³⁷⁸ arguing, “The biggest problem is that there is an aggressive agenda to reign in 35 USC 101, but the [USPTO] has been incapable of formulating a clear position on the limits of 101.”³⁷⁹

The board’s post-*Comiskey* activity suggests that, *Lundgren* notwithstanding, Knight’s storyline applications may not encompass sufficiently technological processes for the USPTO to deem them patentable without further clarification from the courts. The board’s recent decisions suggest that Knight’s applications may fail a de facto technological arts requirement, even if the USPTO is not explicitly using that term. Further, though courts have until now ostensibly been expanding the scope of patentable subject matter, this expansion may be “rooted in a desire to protect emerging technologies,” and storylines are not an emerging technology.³⁸⁰

The above discussion highlights some of the tensions and ambiguities in the case law addressing the scope of patentable subject matter that must be resolved in order to determine whether Knight’s storyline processes are patentable subject matter. As discussed in Part I, the Federal Circuit is likely to opine on many of these issues in the upcoming en banc *Bilski* case.³⁸¹ The following part analyzes the patentability of Knight’s applications under the current case law and recommends that the *Bilski* court limit the scope of patentable processes by clarifying some of these ambiguities in the law as it stands today.

III. THE PATENTABILITY OF STORYLINE PROCESSES

Part II explored tensions in the case law regarding the scope of patentable processes, abstract ideas, the mental steps doctrine, and the technological arts requirement. These are all areas of potential expansion or contraction

machine, but we decline to infer such intentions suggested in the present specification into the claims.”).

376. Posting of Patent Hawk to The Patent Prospector: An Open Forum of Patent Information & Opinion, http://www.patenthawk.com/blog/2007/11/101_crumble_1.html (Nov. 13, 2007, 10:51 PM).

377. *Id.*

378. *Id.*

379. *Id.*; see also Peter Zura’s 271 Patent Blog, <http://271patent.blogspot.com/2007/11/chaos-patentable-subject-matter.html> (Nov. 6, 2007, 7:44 AM) (discussing the PTO’s “conflicting rationales over the patentability of specific software and algorithmic processes”).

380. *Harvard Note*, *supra* note 235, at 238.

381. See *In re Bilski*, No. 2007-1130, 2008 WL 417680, at *1 (Fed. Cir. Feb. 15, 2008) (listing questions to be addressed in the en banc hearing); *supra* notes 221–23 and accompanying text (discussing *Bilski*).

in the scope of patentable subject matter. As discussed above, these ambiguities can be resolved to either include or exclude storyline processes from the realm of statutory subject matter. Ultimately, however, given the current state of the Federal Circuit case law, including developments that occurred after Knight first filed his storyline applications, are his proposed storyline processes patentable? And will this still be the case after the Federal Circuit rehears *In re Bilski*³⁸² en banc? How should the en banc Federal Circuit resolve the tensions identified in Part II when it confronts them in *Bilski*? Part III addresses these questions.

A. *The Subject Matter Eligibility of Storyline Processes
Under Current Federal Circuit Case Law*

This section examines, under current case law, whether a court likely would find Knight's storylines to be patentable subject matter. *Comiskey* is the most recent controlling authority on this topic. For the following reasons, Knight's applications do not satisfy the standards for patentable subject matter set forth in *Comiskey*.³⁸³

Comiskey presents a significant hurdle to patenting storyline processes, because it resuscitated and liberally applied limiting doctrines that the courts had previously constricted or discarded. First, as discussed in Parts I and II above, the court articulated a more restrictive standard than *State Street*'s "useful, concrete, and tangible result" test for identifying patentable processes involving abstract ideas.³⁸⁴ The *Comiskey* court held that a process claim that includes an abstract idea is statutory subject matter only if the claim involves one of the other three classes of statutory subject matter: machines, articles of manufactures, or compositions of matter.³⁸⁵ The court also held that such processes qualify under § 101 if they are "tied to a particular apparatus" or change materials to a "different state or thing."³⁸⁶

Knight's storyline processes do not involve machines, articles of manufactures, or compositions of matter.³⁸⁷ Moreover, his claimed methods neither are tied to a particular apparatus nor produce a physical transformation of materials.³⁸⁸ Accordingly, Knight's storyline processes likely do not qualify as statutory subject matter under this analysis.

The court further held that "mental processes—or processes of human thinking—standing alone are not patentable even if they have practical application,"³⁸⁹ explaining that "the patent statute does not allow patents on

382. See *Bilski*, 2008 WL 417680, at *1.

383. See Part I.D.1 for a discussion of Knight's patent applications.

384. See *supra* notes 149–55 and accompanying text (discussing the test applied by the *Comiskey* court)

385. See *Comiskey*, 499 F.3d at 1376.

386. See *id.* (agreeing with the USPTO's argument).

387. See *supra* Part I.D.1 (discussing Knight's patent applications).

388. See *supra* Part I.D.1.

389. *Comiskey*, 499 F.3d at 1377.

particular systems that depend for their operation on human intelligence alone.”³⁹⁰ The court used this construction of the mental steps doctrine to invalidate all of *Comiskey*’s arbitration claims that did not require a computer for implementation.³⁹¹ Like *Comiskey*’s method claims, which used mental processes to resolve a legal dispute, Knight’s storyline claims similarly attempt to patent human thinking alone. Knight’s claims likely are unpatentable for this reason as well.

Finally, the court explained that a mental process may constitute patentable subject matter when combined with a machine or with one of the other categories of statutory subject matter.³⁹² In a sense, this provision introduces a de facto technological arts requirement because, as illustrated by the claims at issue in *Comiskey*, an otherwise unpatentable mental process becomes eligible for protection when a step in the claimed process—including trivial steps—is implemented by a computer.³⁹³ Knight’s applications do not satisfy this requirement because the claims do not involve machines or any other category of statutory subject matter, although this is a strategy that storyline patent applicants may pursue in the future if *Comiskey* remains the governing standard.³⁹⁴

Beyond the negative implications of *Comiskey*, Knight’s applications also implicate the prohibition on artful drafting. Many commentators have suggested that nearly any possible endeavor can be claimed as a process simply by stating the action as a series of steps.³⁹⁵ Courts therefore should view with skepticism any claims that have been artfully drafted in the form of processes simply to invoke that category of statutory subject matter where no other category may be appropriate. As discussed in Part I.B, for example, the applicant in *Flook* argued that any process that implements a principle in a specific fashion falls within § 101.³⁹⁶ The Court stated that this assumption is “untenable” because “[i]t would make the determination of patentable subject matter depend simply on the draftsman’s art,” rather than on the nature of the invention.³⁹⁷ Knight’s storyline processes likewise are an example of artful drafting.³⁹⁸ He seeks to protect unpatentable ideas by couching his claims as processes simply as a means of finding a statutory hook under § 101.

Because Knight’s applications do not satisfy the standards for patentable subject matter set forth in *Comiskey* and also violate the Supreme Court’s

390. *Id.* at 1378.

391. *See id.* at 1379.

392. *See id.* at 1377.

393. *See id.* at 1379–80.

394. For example, a storyline method could include an apparatus for viewing the resulting story.

395. Thomas, *supra* note 97, at 1141 (arguing that availability of process patents should be restricted to technological endeavors).

396. *See Parker v. Flook*, 437 U.S. 584, 593 (1978).

397. *Id.*

398. Knight appears to admit that this is what he is doing. *See Knight, supra* note 20, at 867 (“A particularly skilled patent attorney could convert a unique storyline into a method performed by one of a series of possible infringers . . .”).

prohibition against artful drafting, his storyline method claims are not statutory subject matter under the most recent controlling authority; however, an en banc Federal Circuit may change course on this topic in the upcoming rehearing of *In re Bilski*.³⁹⁹ The following section recommends that the *Bilski* court affirm the *Comiskey* court's holding that a patentable process must either involve a transformation or use one of the other categories of statutory subject matter. Part III.B also recommends that the court clarify the boundaries of abstract ideas, use the mental steps doctrine as a proxy for addressing First Amendment concerns, and put to rest any technological arts requirement.

B. Recommendations for Resolving the Tensions in the Patentable Subject Matter Case Law

The Patent Laws balance the “need to encourage innovation [against] the avoidance of monopolies which stifle competition without any concomitant advance.”⁴⁰⁰ The patent system's regulatory scope has expanded dramatically in recent years, resulting in patents being issued in a broad range of new industries, and raising concerns about the normative scope of the patent system⁴⁰¹ and the role of § 101. Many commentators have argued that § 101 should set a low bar to patentability⁴⁰² because §§ 102 and 103 theoretically filter out inventions that are not sufficiently new or nonobvious, and § 112 excludes inventions that are too abstract or involve too much individual discretion to be described adequately in the application.⁴⁰³ Other commentators argue, however, that § 101 can and should play a more active “gate-keeping” role to curb the issuance of patents covering certain subject matter.⁴⁰⁴ To the extent that patentable subject matter's increased scope reflects patents being issued in newly emerging fields, one might view the expansion as an encouraging development because it shows that the patent system indeed is able to “reconcile cutting-edge technologies with a statute [whose] language . . . dates back to the beginning of the Republic.”⁴⁰⁵ Alternatively, many civil libertarians fear that the expanding system increasingly issues patents that encroach on important contravening interests, such as free speech, privacy, and other individual liberties.⁴⁰⁶

399. See *In re Bilski*, No. 2007-1130, 2008 WL 417680, at *1 (Fed. Cir. Feb. 15, 2008); *supra* notes 221–23 and accompanying text (discussing *Bilski* and listing questions the court will address).

400. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989).

401. See *supra* notes 224, 371 and accompanying text.

402. See *supra* Part I.C.

403. See *supra* Part I.A.

404. See *supra* Part I.C.

405. *In re Nuijten*, 500 F.3d 1346, 1358 (Fed. Cir. 2007) (Linn, J., concurring in part and dissenting in part), *reh'g and reh'g en banc denied*, No. 2006-1371, 2008 WL 361044, at *1 (Fed. Cir. 2008).

406. See *supra* notes 224, 371 and accompanying text.

Recent criticism from several Supreme Court justices⁴⁰⁷ coupled with Congress's recent willingness to refine the scope of patentable subject matter via statute⁴⁰⁸ suggest that the scope of patentable subject matter, and patentable processes in particular, may be reined in either by the courts or by the legislature. The Federal Circuit stands poised to shed light on the proper scope of patentable processes in the upcoming en banc rehearing of *In re Bilski*.⁴⁰⁹ The following section walks through each of the four tensions discussed in Part II—the scope of statutory processes, the boundary of the “abstract idea” judicial exclusion, the proper use of the mental steps doctrine, and the relevance of the technological arts requirement—and makes recommendations about how the *Bilski* court should resolve each tension. It then analyzes Knight's storyline claims using the proposed framework and concludes that they should not be patentable.

1. The Proper Scope of Statutory Processes

The Federal Circuit held in *State Street* that a process employing a mathematical algorithm constitutes patentable subject matter if it produces a useful, concrete, and tangible result.⁴¹⁰ As a result, post-*State Street* patent applicants argue that any claim containing a series of actions that produce a useful result qualifies as a statutory process.⁴¹¹ This reasoning, aided by the *State Street* court's failure to articulate a distinct two-prong analysis, is not entirely consistent with Supreme Court precedent. The Court implicitly asks two distinct questions when it considers whether a process satisfies § 101, even where the Court focuses its attention on only one of these questions. Essentially, the Court considers (1) whether the claimed process is “the kind of ‘discover[y]’ that the statute was enacted to protect”⁴¹² and (2) whether the process claims any judicial exception, i.e., a law of nature, a natural phenomenon, or an abstract idea.⁴¹³ Using the useful, concrete, and tangible result test in isolation improperly merges these distinct inquiries.

407. See *supra* Part I.B.2.c.

408. See *supra* note 188 for a discussion of amending § 101 to exclude tax planning patents.

409. No. 2007-1130, 2008 WL 417680, at *1 (Fed. Cir. Feb. 15, 2008) (granting en banc rehearing sua sponte). See *supra* notes 221–23 and accompanying text for a discussion of the issues the court will address.

410. See *supra* notes 130–34 and accompanying text.

411. See Brief for Appellee, *supra* note 332 at 4 (noting that since *State Street* and *AT&T*, “many applicants appear to have assumed . . . that the sole test for patent eligibility is whether the invention produces a useful, concrete, and tangible result.”); Squires & Biemer, *supra* note 329, at 572 (“[T]he *State Street* Court properly focused the § 101 analysis . . . on whether the algorithm was being applied to produce a ‘useful, concrete and tangible result.’ If such a result is produced, the claimed invention is not an abstract idea and the § 101 test is satisfied.”).

412. *Parker v. Flook*, 437 U.S. 584, 593 (1978); see also *supra* text accompanying notes 112–14.

413. For example, the Court implicitly considered both questions in *Benson*, *Flook*, and *Diehr* but focused on whether the claimed process recites a patentable application of an

Merely claiming an invention as a series of steps does not ensure that the invention satisfies the Court's requirement that the process recites "the kind of 'discover[y]' that the statute was enacted to protect."⁴¹⁴ Congressional intent and the Court's jurisprudence cut against such a literal interpretation of the term "process." Although the *Chakrabarty* court noted that the history of § 101 supports a broad construction of the listed categories of patentable subject matter,⁴¹⁵ the Court subsequently clarified the scope of the process category in *Diehr*, noting that the term "process" had a specific meaning in the patent context even before it was added to the statute.⁴¹⁶ The Court suggested that Congress adopted this preexisting judicial definition when it amended the statute to include processes.⁴¹⁷ This conclusion is consistent with *Flook*, where the Court noted that "the holding that the discovery of [Benson's] method could not be patented as a 'process' forecloses a purely literal reading of § 101."⁴¹⁸

The Court consistently has held that two types of processes qualify as statutory subject matter. First, as the Court often recites, "Transformation and reduction of an article 'to a different state or thing' is the clue to the patentability of a process claim . . ."⁴¹⁹ Second, the Court also has allowed process claims that are tied to a specific apparatus or that are machine implemented.⁴²⁰ These types of processes appear to be a subset of those defined in § 100(b), which include "new use[s] of a known process, machine, manufacture, [or] composition of matter."⁴²¹ The Federal Circuit appears to have adopted this more inclusive conception in *Comiskey*, suggesting that processes that are "embodied in, operate[] on, transform[], or otherwise involve[] another class of statutory subject matter, i.e., a machine, manufacture, or composition of matter" constitute statutory subject matter.⁴²² Thus, under controlling Supreme Court precedent, statutory processes must either produce a transformation or recite a new method of using one of the other categories of statutory subject matter. To illustrate the breadth of this test, consider once again the "Method of Exercising a Cat" patent.⁴²³ The method arguably involves a

algorithm or an unpatentable algorithm. See *supra* Part I.B.2.a. The *Comiskey* court likewise suggested that the Federal Circuit implicitly considered both questions in prior cases like *Alappat*, *State Street*, and *AT&T*, noting the inventions in these cases were (1) tied to machines and (2) involved practical applications of mathematical algorithms. See *In re Comiskey*, 499 F.3d 1365, 1377 & n.14 (Fed. Cir. 2007).

414. *Flook*, 437 U.S. at 593; see also *supra* text accompanying notes 112–14.

415. See *supra* text accompanying notes 92–93.

416. See *supra* note 334 and accompanying text.

417. See *supra* note 334 and accompanying text.

418. *Flook*, 437 U.S. at 589.

419. See e.g., *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972).

420. The inventions in *Diehr*, *State Street*, and *AT&T* all satisfy this criteria. See *In re Comiskey*, 499 F.3d 1365, 1377 (Fed. Cir. 2007) (listing cases where the claimed computer technology claims were "tied to specific machines" and held allowable).

421. See 35 U.S.C. § 100(b) (2000).

422. *Comiskey*, 499 F.3d at 1376.

423. See *supra* text accompanying notes 59–63.

transformation—i.e., it produces an exercised cat from an unexercised one. Moreover, the process recites a new use of a known machine—a laser.⁴²⁴

Critics of the above approach argue that the Court has indicated that producing a transformation is not an “invariable requirement” but rather is merely one example of a statutory process.⁴²⁵ Indeed, the Court remarked in both *Benson* and *Flook* that a process may be patentable subject matter “even if it does not meet one of [the Court’s] earlier precedents.”⁴²⁶ However, the *Benson* court expressly reserved the possibility that it might articulate further eligibility requirements in the future, noting that it wished to avoid “freez[ing] process patents to old technologies, leaving no room for the revelations of . . . new, onrushing technology.”⁴²⁷ Neither Knight’s storyline methods nor *Bilski*’s hedging methods involve a hitherto-unknown type of technology that warrants deviating from the above test.

A statutory process test that requires a process to produce a transformation or use one of the other categories of statutory subject matter does raise a concern, however, that would benefit from the courts’ further guidance. As noted in Part III.A, process claims are susceptible to artful drafting.⁴²⁸ This problem may be compounded by a test that allows processes based on new uses of known machines, manufactures, and compositions of matter, as this standard may lead applicants to trivially incorporate one of these items into one of the claimed steps. For example, the court suggested that the arbitration claims in *Comiskey* that use a computer, for example, to enroll a person or document satisfy § 101—even though the computer might not be used to conduct any other step in the process or to perform the actual arbitration. Indeed, *Comiskey* articulates a very permissive standard for incorporating one of the other statutory categories into a process to meet the standard. The court first lists specific ways of incorporating the other classes of statutory subject matter—embodying in, operating on, or transforming.⁴²⁹ But the court ends this list with the catchall phrase “or otherwise involves.”⁴³⁰ The Federal Circuit needs to revisit this issue and clarify how the other classes of statutory subject matter should be incorporated into a process to make the process statutory subject matter.

424. Although it is beyond the scope of this Note, many software-based inventions should satisfy one or both of these criteria depending on whether “transformation” includes data transformation. See, e.g., Brief for Appellee, *supra* note 332, at 20 (suggesting that the Federal Circuit’s transformation test includes intangible subject matter such as signals, if the signal represents a real world activity, and noting that the USPTO also views data transformation as an appropriate way to evaluate subject matter eligibility).

425. See *supra* note 137 and accompanying text.

426. *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978).

427. *Gottschalk v. Benson*, 409 U.S. 63, 71 (1972).

428. See *supra* text accompanying notes 395–97.

429. See *In re Comiskey*, 499 F.3d 1365, 1376 (Fed. Cir. 2007).

430. *Id.*

2. The Proper Scope of Processes That Apply Judicial Exceptions

The second inquiry for determining subject matter eligibility involves assessing whether the process claims a judicial exception, i.e., a law of nature, a natural phenomenon, or an abstract idea.⁴³¹ While the purpose of these judicially created exclusions is to reserve certain subject matter to the public domain, identifying a judicial exception is not always straightforward.⁴³² For example, applying the abstract idea exclusion can be difficult because the Supreme Court has not provided adequate guidance regarding when a process actually is an unpatentable abstract idea. The Court has made clear that, though the judicial exclusions are not patentable subject matter, processes that are practical applications of these judicial exclusions may, in fact, be patentable subject matter.⁴³³

The courts should not simply adopt the approach that the applicant in *Bilski* advocated.⁴³⁴ The applicant argued that a process is not a mere abstract idea when it sets forth a series of specific, real world, physical acts for achieving a useful objective.⁴³⁵ The applicant suggested that examples of unpatentable abstract ideas include process claims that recite “somehow transmitting information with electromagnetism” or “somehow supplying a commodity at a fixed price.”⁴³⁶ This approach is unsuccessful because the applicant appears to be using “useful” in the term’s common parlance rather than to indicate the specific and substantial utility mandated by § 101.⁴³⁷ Furthermore, this approach is not productive because such nonspecific claims would fail the § 112 written description requirement.⁴³⁸ The Court has never suggested that the abstract ideas judicial exception merely serves as a proxy for § 112. Rather, this judicial exclusion is a separate element and should carry the same weight as the exclusions for the laws of nature and natural phenomena.

Judge Linn suggests that the judicial exceptions carve out and protect subject matter that is “part of the storehouse of knowledge of all men” and that is “free to all men and reserved exclusively to none” because “certain innovations, no matter how new to human thought, are not the type of technological invention to which Congress has extended patent protection, but instead are considered to be abstract truths that were not made by

431. While this Note performs the judicial exclusion analysis as the second step, the order of the steps does not matter as statutory subject matter must satisfy both requirements. *See supra* note 95.

432. *See Parker v. Flook*, 437 U.S. 584, 589 (1978) (“The line between a patentable ‘process’ and an unpatentable ‘principle’ is not always clear.”); *supra* Part I.B.3.

433. *See supra* Part II.B.2.a.

434. *See supra* notes 312–13 and accompanying text.

435. *See supra* notes 312–13 and accompanying text.

436. Brief of Appellants, *supra* note 312, at 9; *see also supra* text accompanying notes 312–13.

437. *See supra* notes 84, 183 and accompanying text.

438. *See supra* Part I.A.

man.”⁴³⁹ Judge Linn’s reasoning explains the basis of the laws of nature and natural phenomena exclusions, but the Court has suggested that the abstract ideas exception goes further than just prohibiting subject matter that is not “new” in the § 101 sense; instead, it seeks to reserve certain basic building blocks of invention to the public domain. For example, the Court articulates a concern that the ineligible claims in *Morse* and *Benson* are abstract ideas because they attempt to preempt a principle—e.g., electromagnetism or a mathematical algorithm.⁴⁴⁰

The Court suggests, however, that judicial exceptions such as those at issue in *Morse* and *Benson* may become eligible subject matter if the claimed process is an application of the principle rather than the principle itself.⁴⁴¹ Collectively, *Morse*, *The Telephone Cases*, *Benson*, *Flook*, and *Diehr* suggest that abstract ideas may cease to be abstract when adapted and applied to a particular end use claimed in a particular context.⁴⁴² *State Street*’s “useful, concrete, and tangible result” test may be a relevant tool for identifying acceptable processes;⁴⁴³ but, if the test is applied merely to filter out processes that are not “useful,” it is not sufficiently inclusive. This concern is at the heart of Justice Breyer’s criticism of the Federal Circuit’s “useful, concrete and tangible result” test in his *LabCorp* dissent.⁴⁴⁴ Justice Breyer believes that, while the method at issue in *LabCorp* ostensibly satisfies the *State Street* test, it nonetheless claims too much of a fundamental principle—in this case, a natural phenomenon.⁴⁴⁵

The Court created the judicial exceptions to statutory subject matter as a supplement to the other statutory requirements in order to reserve subject matter to the public domain that §§ 102, 103, and 112 do not adequately protect. Allowing patents on such basic building blocks of invention would

439. *In re Nuijten*, 500 F.3d 1346, 1364 (Fed. Cir. 2007) (Linn, J., concurring in part and dissenting in part) (internal quotation marks omitted); see *supra* notes 181–83 and accompanying text.

440. See *supra* note 111 and accompanying text (discussing *Benson*); *supra* notes 168–69 and accompanying text (discussing *Morse*).

441. See, e.g., *supra* Part I.B.2.a.

442. See *supra* Parts I.B.2.a, I.B.3. For example, compare *Morse*’s unpatentable claim 8 with Bell’s patentable method of using electricity to transmit speech. See *supra* notes 167–75 and accompanying text. The Court distinguished *Morse*’s patentable claims from his unpatentable claim 8 in the *Telephone Cases*, stating, “the use of magnetism as a motive power, without regard to the particular process with which it was connected in the patent, could not be claimed, but that its use in that connection could.” *The Telephone Cases*, 126 U.S. 1, 534 (1888). The Court again voiced its concern about processes claimed out of context in *Benson*, noting that *Benson*’s unpatentable claims “were not limited to any particular art or technology, to any particular apparatus or machinery, or to any particular end use.” *Gottschalk v. Benson*, 409 U.S. 63, 64 (1972).

443. See *supra* Part I.B.2.b.

444. See *supra* Part I.B.2.c.

445. *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 126 S. Ct. 2921, 2928 (2006) (“Even were I to assume (purely for argument’s sake) that [the claim] meets certain general definitions of process patentability, however, it still fails the one at issue here: the requirement that it not amount to a simple natural correlation, i.e., a ‘natural phenomenon.’”).

not “promote the Progress of . . . [the] useful Arts.”⁴⁴⁶ Due to the supplementary nature of the judicial exceptions, the scope of the abstract ideas exclusion must extend beyond the § 112 written description requirements, and the law of nature/natural phenomenon exclusion similarly must go beyond the § 102 novelty requirement. Some processes, even if described in enough detail to perform the claimed method, may still preempt a mere idea or a law of nature; however, claiming an application of the idea or principle in a particular context can ameliorate this concern. The *State Street* “useful, concrete, and tangible result”⁴⁴⁷ test provides a reasonable heuristic for distinguishing such applications from the underlying principle. But reducing the inquiry to an assessment of whether the process produces the indicated result and whether this result is “useful” in the nontechnical sense eviscerates the test and fails to protect the judicial exclusions. As discussed above, the Court has indicated that abstract ideas may cease to be abstract when adapted and applied to a particular end use claimed in a particular context.⁴⁴⁸ Thus, the proper test should require the process to claim an application that (1) has substantial utility,⁴⁴⁹ (2) is implemented in a specific fashion, and (3) has a specific end use.

3. The Proper Role of the Mental Steps Doctrine

As discussed above, courts previously have used the mental steps doctrine to exclude methods that contain steps involving human thinking or activity.⁴⁵⁰ This doctrine has a range of applications.⁴⁵¹ Courts sometimes invoked it to exclude methods that involved a “purely mental step” like correlating, even when the operator’s role was mainly manipulative and only required routine, nonsubjective mental activity.⁴⁵² On other occasions, courts used the doctrine to exclude methods that required the operator’s subjective judgment, interpretation, aesthetic input, or emotional response and whose operation thus varied unpredictably depending on the operator.⁴⁵³ In addition to having a range of applications, the mental steps exclusion can be applied to claims in numerous ways, further complicating use of the doctrine. The mental steps doctrine can be applied to (1) each step of a method, (2) only the steps pertaining to the “point of novelty,” or (3) the claim as a whole rather than any individual step.⁴⁵⁴

The mental steps limiting doctrine may not be necessary after applying the two-prong analysis discussed above. To the extent that the doctrine

446. U.S. Const. art. I, § 8, cl. 8; *see supra* Part I.A.

447. *See supra* Part I.B.2.b.

448. *See supra* note 442 and accompanying text.

449. *See supra* notes 84, 183 and accompanying text.

450. *See supra* Part I.B.4.a.

451. *See supra* Part I.B.4.a.

452. *See supra* text accompanying notes 196–97.

453. *See supra* Part I.B.4.a. These types of claims will fail the written description requirement. *See supra* notes 323–35 and accompanying text.

454. *See supra* notes 318–22 and accompanying text.

remains relevant, the courts first should articulate a rationale for needing to use the mental steps doctrine to limit the scope of patentable subject matter. The courts then must determine whether the written description requirement, the judicial exclusion of abstract ideas, and the test for statutory processes already satisfy these needs. While courts frequently invoked the mental steps doctrine when they were wrestling with the patentability of software claims, the doctrine fell out of vogue as software claims became accepted subject matter.⁴⁵⁵ In *Musgrave*, the court dismissed the notion that the case law “requires all steps of a statutory ‘process’ to be physical acts applied to physical things.”⁴⁵⁶ Thus, a process should not be per se unpatentable just because certain steps do not involve physical acts applied to physical things. Indeed, the approach the Federal Circuit recently used in *Comiskey* is quite narrow. The court held that a process of human thinking, standing alone—such as a method of arbitration—is not statutory subject matter.⁴⁵⁷ Inventors must be free to think in order to invent,⁴⁵⁸ and allowing patents on human thinking by itself will unacceptably limit invention. The court further held that “a claim that involves both a mental process and one of the other categories of statutory subject matter (i.e., a machine, manufacture, or composition) may be patentable under § 101.”⁴⁵⁹ This holding indicates that tying a process that contains mental steps to one of the other categories of statutory subject matter alleviates the concern about improperly patenting human thinking standing alone. The proposed two-prong test discussed above makes the mental steps test redundant because the first step requires that a statutory process produce a transformation or involve one of the other categories of statutory subject matter. To the extent that a “transforming” process that does not involve one of the other types of statutory subject matter raises a mental steps concern, the written description requirement and the judicial exceptions are sufficient tools to analyze the claimed invention.

Misapplication of *State Street* has created room for subject matter that conflicts with various external rights, including thinking and speech.⁴⁶⁰ Commentators have noted that “free speech issues arose only rarely with regard to the patent statute” prior to *State Street*.⁴⁶¹ Copyright protection historically has come into conflict with First Amendment concerns much more often than patent law.⁴⁶² Indeed, copyright law has developed a set of

455. See *supra* Part I.B.4.a.

456. See *supra* notes 205–07 and accompanying text.

457. See *supra* note 208 and accompanying text.

458. See *supra* notes 358–59 and accompanying text.

459. *In re Comiskey*, 499 F.3d 1365, 1377 (Fed. Cir. 2007).

460. See *supra* note 224 and accompanying text (discussing subject matter that conflicts with other rights); *supra* text accompanying note 371 (same).

461. See Thomas, *supra* note 224, at 588–89 (discussing the work of Mark Lemley and Eugene Volokh). This is because patentees receive the right to prohibit the use or sale of a claimed invention or process—an activity that usually does not impinge on others’ speech. See *id.*

462. See *id.* at 588–92 (comparing the potential conflict between speech/patent law and speech/copyright law).

doctrines to protect First Amendment rights, whereas patent law has had little impetus to do so.⁴⁶³ As discussed above, applying the proposed test along with the other statutory requirements make it unlikely that these conflicting types of processes will be patentable. To the extent that some impinging processes remain patentable, the patent regime, like copyright, may need to develop restraining doctrines. The mental steps exclusion is a likely candidate, and the courts should consider using the mental steps exclusion when the claims as a whole—despite satisfying the requirements of §§ 102, 103, and 112 and not implicating the judicial exceptions—substantially limit First Amendment rights. Alternatively, the courts could freely grant such patents but reduce the protections conveyed by such speech-limiting patents by borrowing and employing copyright law's restraining doctrines when assessing infringement.

4. The Proper Role of the Technological Arts Requirement

The Patent Clause, the patent statutes, and Supreme Court jurisprudence do not explicitly require patentable subject matter to be technological in nature;⁴⁶⁴ however, the potential reach of process patents to nontechnological fields after *Lundgren* has created much controversy.⁴⁶⁵ Prior to *State Street* and *AT&T*, statutory processes either produced a physical transformation or were tied to a particular apparatus.⁴⁶⁶ While an originalist interpretation of the term “useful Arts” in the Patent Clause could have served as a basis for an explicit technological arts requirement,⁴⁶⁷ the transformation and apparatus constraints kept statutory processes out of the cultural and liberal arts without formally requiring that a process be within the technological arts. Thus, prior to *State Street*, a technological arts test was unnecessary. After *State Street* and *AT&T* reduced the statutory process analysis to no more than a usefulness test, however, a technological arts requirement became a potentially important tool to control the scope of statutory processes.

While the courts have a constitutional basis for articulating a technological arts test,⁴⁶⁸ the better solution is to return to a more stringent analysis of subject matter eligibility. Limiting statutory processes to the “kind of ‘discoveries’ that the statute was enacted to protect”⁴⁶⁹ by requiring that processes involve a transformation or a new use of a known machine, manufacture, or composition of matter is more consistent with Supreme Court precedent than is creating a technological arts test. Moreover, the former also will effectively keep statutory processes out of the cultural and liberal arts. Even Judge Barrett, who argued in his

463. *See id.*

464. *See supra* text accompanying note 367.

465. *See, e.g., supra* note 371 and accompanying text.

466. *See supra* Part I.B.2.b.

467. *See supra* notes 368–69 and accompanying text.

468. *See supra* note 372 and accompanying text.

469. *Parker v. Flook*, 437 U.S. 584, 593 (1978).

Lundgren concurrence that a technological arts test is unworkable, proposed to limit the patentability of non-machine-implemented processes to those that involve a physical transformation.⁴⁷⁰ Thus, faithfully applying the two-prong test discussed above makes the technological arts test redundant and unnecessary.

5. Knight's Storyline Processes Should Not Be Patentable Subject Matter

Distilling Supreme Court precedent, this Note argues that statutory processes (1) must be "the kind of 'discover[y]' that the statute was enacted to protect,"⁴⁷¹ i.e., produce a transformation or use one of the other categories of statutory subject matter; and (2) must not claim a judicial exception, i.e., a law of nature, a natural phenomenon, or an abstract idea.⁴⁷² Applying this two-prong test, Knight's storyline process claims do not recite statutory processes. His claims neither produce a transformation nor encompass a new use of a known machine, manufacture, or composition of matter.⁴⁷³ Furthermore, his claims do not present a good case for departing from these well-established criteria because his inventions do not involve a hitherto-unknown type of technology that warrants developing a different test.⁴⁷⁴ In addition to failing the first prong of the analysis, Knight's claims in their current state are abstract ideas;⁴⁷⁵ they are disembodied concepts that preempt subsequent use of a mere idea because they are neither limited to any particular end use nor are claimed in a particular context.⁴⁷⁶ In other words, Knight's broad claims do not recite an application of an idea; rather, they attempt to claim the idea itself. This is not to say that a detailed, context-specific storyline claim embodying a single storyline will always constitute an abstract idea; however, that would look much like an actual novel or script and is not the problem Knight seeks to address.⁴⁷⁷ Finally, a mental steps analysis, particularly one that seeks to protect First Amendment speech interests, also would exclude Knight's claims.⁴⁷⁸ Ultimately, Knight's storyline process claims neither are patentable subject matter under current case law, nor should they be.

470. See *supra* note 217; *supra* text accompanying note 373.

471. See *supra* text accompanying notes 112–14.

472. See *supra* Part III.B.1–2.

473. See *supra* Part III.B.1.

474. See *supra* Part III.B.1.

475. See *supra* Part III.B.2 (discussing the rationale for the abstract idea judicial exclusion).

476. See *supra* Part III.B.2 (discussing the Court's concerns about allowing patents that preempt basic principles and mere ideas and noting that applying the principle in a specific manner may overcome this concern).

477. See *supra* Part I.D.

478. See *supra* Part III.B.3.

CONCLUSION

The boundaries of patentable subject matter expanded post-*State Street* to the point that Knight's proposed storyline process claims could plausibly be considered statutory subject matter. While Knight's applications were filed in a *State Street* world, the landscape has changed recently and likely will continue to change as the Federal Circuit addresses the proper scope of statutory processes in the upcoming en banc rehearing of *In re Bilski*, which should specifically address the scope of statutory processes, the boundaries of the abstract ideas judicial exclusion, and the role of the mental steps doctrine. This Note concludes that Knight's storyline applications are not patentable subject matter under the Federal Circuit's current binding precedent, *In re Comiskey*. Further, in light of principles distilled from controlling Supreme Court case law, this Note advocates a two-step approach for determining the subject matter eligibility of processes. First, unless a process involves hitherto-unknown technology, it must produce a transformation or be a new method of using one of the other statutory classes of subject matter—machines, manufactures, or compositions of matter. To improve the application of this test, the courts must clarify the nexus needed when a process uses one of the other classes of statutory subject matter. Further, processes may not claim a judicial exception—i.e., laws of nature, natural phenomena, and abstract ideas. A process applying a judicial exception does not impermissibly claim the judicial exception itself if it (1) has substantial utility, (2) is implemented in a specific fashion, and (3) has a specific end use. Proper use of this test should reduce or eliminate the need for other limiting doctrines. If, however, after applying the test articulated above, eligible processes remain that impinge on First Amendment rights, the courts should consider employing the mental steps test to protect these interests. Finally, given the above framework, there is no need for the courts to define and adopt a technological arts requirement at this time. Ultimately, Knight's storyline process claims fail several points of this suggested analysis and should not be eligible subject matter.

Notes & Observations