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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 Day2 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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American copyright law has protected the written expression of stories since the first Congress enacted the first copyright statute in 1790. Yet while the movie adaptation of a written work will itself qualify for copyright protection, it will infringe the source material only if it is substantially similar to the underlying work. Plaintiffs occasionally do succeed in demonstrating sufficient similarity between their work and an unauthorized derivation, but courts frequently reject these infringement claims, 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. Arden alleged that the film Groundhog Day copied several elements of his novel, including “the plot, mood, characters, pace, setting, and sequence of events.” 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.” 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.” 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.


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).


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 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).


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.”

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.” Arden noted that not receiving credit for commercial ideas has a particularly devastating impact because such ideas “put you on the map.” 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. 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.

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. Rather, noting that software can be protected by both patents and copyright, Knight argues that storylines also warrant dual protection. Whereas copyright only protects the written expression of a single embodiment of a storyline, Knight argues that patents can be used to protect the underlying storyline itself, separate from any particular written expression based on it. While patenting storylines may seem counterintuitive, 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.
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.”).
21. Id.
23. See Knight, supra note 20, at 859.
patent protection.\textsuperscript{25} In fact, Knight already has filed four such storyline patent applications,\textsuperscript{26} and he now advertises his services for preparing similar storyline applications for clients.\textsuperscript{27}

Knight suggests that because copyright protection is too limited and state law protections are too varied to be adequate,\textsuperscript{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.\textsuperscript{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.

\textsuperscript{25} See Knight, supra note 20, at 866–68.
\textsuperscript{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).
\textsuperscript{28} For an introduction to state law doctrines used to protect film and television show ideas, see Aileen Brophy, Note, \textit{Whose Idea Is It Anyway? Protecting Idea Purveyors and Media Producers\textsuperscript{29} after Grosso v. Miramax, 23 Cardozo Arts & Ent. L.J. 507 (2005).\textsuperscript{29} See infra Parts I.B, II.\textsuperscript{\textsuperscript{29}}
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. 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. 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." The monopoly period provides a financial incentive to make inventions public and to develop new inventions. 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.

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..." to promote the Progress of Science and useful Arts, by securing

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

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.”

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

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.

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. An invention is novel if it has not been previously disclosed in the prior art. An invention is nonobvious if a
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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. 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.

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

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. The following section traces the development of U.S. Supreme Court and Federal Circuit jurisprudence regarding patentable subject matter—particularly patentable processes.

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.


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.\(^{59}\)

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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." The rights granted to the patentees are limited "to the use of the entire series of actions that make up the recited method." Thus, a person who uses a flashlight to perform the claimed method does not infringe. Furthermore, the patentees do not have the right to exclude the public from "discussing, communicating, or thinking about the cat-exercising method."

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." 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." 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. 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."

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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 Halpem et al., supra note 37, at 281-83.
63. Collins, supra note 60, at 325.
64. U.S. Const. art. I, § 8, cl. 8.
66. See In re Nuijten, 500 F.3d 1346, 1348 (Fed. Cir. 2007), rehe'g and rehe'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. First, the court held that a signal is not a process because it does not "cover an act or series of acts." 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." 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." Finally, the court held that "Nuijten's signals, standing alone, are not 'manufacture[s]' under the meaning of that term in § 101."

Judge Richard Linn, in dissent, saw the case as an opportunity to confront an ongoing controversy regarding the scope of patentable subject matter. 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."'

Judge Linn's analysis focused on the textual requirements of § 101. 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.'" 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. He concluded that § 101 demands that an invention be a "new" creation, rather than the discovery of a preexisting principle. 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. 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."

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 idea—usually is "too attenuated from the subject of the claim to be 'useful.'" An invention satisfies this requirement if its "'currently available form' confers "'specific benefits." In other words, the claimed invention must have a "specific and substantial utility to satisfy § 101."

Judge Linn therefore ultimately framed the § 101 inquiry as (1) whether the invention is a "process," "machine," "manufacture," or "composition of
matter" and (2) whether it is "new" and "useful." Applying this framework, he concluded that the claimed signal was both "new" and "useful." The signal is "new" because it is "man-made," "artificial in character," and not "natural or pre-existing." 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. 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." Accordingly, Judge Linn concluded that the claimed signal was patentable subject matter.

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. 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.'" The Court cautioned, however, that this does not "suggest that § 101 has no limits or that it embraces every discovery."

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. This section discusses the scope of the process category of patentable subject matter.
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." Not surprisingly, courts have long experienced difficulties in defining the boundaries of patentable processes. Various Supreme Court interpretations include "a method of doing a thing," "a mode of treatment of certain materials to produce a given result," "some practical method or means of producing a beneficial result or effect," and "transform[ation] and reduc[tion] to a different state or thing." The Court’s guidance is particularly lacking with regard to processes that involve no "physical manipulations of physical items." 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. The following sections trace the Supreme Court and Federal Circuit jurisprudence regarding patentable processes, particularly processes that do not involve physical transformations.

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).
101. Cochrane, 94 U.S. at 788.
103. For examples of these types of patents, see infra notes 277–83 and accompanying text.
a. Supreme Court Tests for Inventions That Apply Algorithms

*Gottschalk v. Benson* marked the Supreme Court's first foray into an emerging software field as it considered whether computer-related methods are patentable subject matter. The claims were not limited to physical manipulations in a specific device or apparatus. 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."

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.’" But the Court failed to address whether this precedent applied. Instead, it expressed concern that allowing the patent would have the practical effect of granting a patent on a mere idea—a mathematical algorithm.

The Court revisited the scope of patentable processes in *Parker v. Flook*. 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...

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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").
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.
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the conditions of §§ 102 and 103." 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.”

The Court ruled on the merits “that the discovery of a novel and useful mathematical formula may not be patented” but distinguished the invention in Flook from that of Benson as a “useful, though conventional, post-solution application[] of [a mathematical] formula.” The Court stated that “a process is not unpatentable simply because it contains a law of nature or a mathematical algorithm,” but it held that the claimed process was not patentable because the postsolution step was “conventional or obvious.” 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.”

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

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.”

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." 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.'"

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." 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."

The Federal Circuit reaffirmed and clarified the "useful, concrete, and tangible result" test in AT&T Corp. v. Excel Communications, Inc. 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." 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." 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."
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. Commentators hoped that the Court would use this case as an opportunity to clarify its jurisprudence regarding patentable subject matter. Although the parties presented oral argument on this question in 2006, the Court ultimately dismissed the writ as improvidently granted. 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. 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.” 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.”

Given these remarks by two justices (with the support of two more), commentators

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.
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 Comiskey146 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

\[
\text{Comiskey, 499 F.3d at 1368 n.1 (quoting U.S. Patent No. 09/461,742).}
\]

\[
\text{id. at 1371 ("[The claims] neither were tied to a particular machine nor operated to change materials to a different state or thing.").}
\]

\[
\text{id. at 1375-76 (citing Parker v. Flook, 437 U.S. 584, 593 (1978)) (noting that it is incorrect to assume "that if a process application implements a principle in some specific fashion, it automatically falls within the patentable subject matter of § 101").}
\]
algorithms or abstract concepts in claims directed to "industrial processes."”\textsuperscript{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.’”\textsuperscript{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.”\textsuperscript{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.\textsuperscript{155}

While the scope of patentable processes seemed to be predictably expanding over the past decades, the Federal Circuit’s reaction to \textit{LabCorp} has generated uncertainty in this area of the law. \textit{Comiskey} and the split decision in \textit{Nuijten} “illustrate[] ongoing debate in the Federal Circuit over the fundamental issue of patentable subject matter”\textsuperscript{156}—a debate that will be further addressed by the Federal Circuit in the upcoming \textit{In re Bilski} en banc rehearing.\textsuperscript{157} While Andrew Knight filed his storyline applications in a \textit{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 \textit{Chakrabarty} Court expressed that the categories of patentable subject matter should be interpreted broadly, the Supreme Court has

\textsuperscript{152} \textit{Id.} at 1376.

\textsuperscript{153} \textit{Id.} (citing Supplemental Letter Brief of Appellee at 3, \textit{Comiskey}, 499 F.3d 1365 (No. 2006-1286)). This seems inconsistent with the Federal Circuit’s rationale in \textit{AT&T Corp. v. Excel Communications, Inc.} \textit{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 \textit{Alappat}, \textit{State Street}, and \textit{AT&T} by emphasizing that the claimed inventions in these prior cases all involved the use of a machine—a computer. \textit{See Comiskey}, 499 F.3d at 1377 n.14.

\textsuperscript{154} \textit{Comiskey}, 499 F.3d at 1376.

\textsuperscript{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.” \textit{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.” \textit{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. \textit{Id.} at 1380–81. The court suggested that the claims may not satisfy the other statutory requirements. \textit{Id.} at 1380 (“The routine addition of modern electronics to an otherwise unpatentable invention typically creates a prima facie case of obviousness.”).


\textsuperscript{157} \textit{See infra} notes 221–23 and accompanying text (discussing the upcoming rehearing in \textit{Bilski}).
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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.”

By way of example, the Court indicated that newly discovered mineral or plant species are not patentable because these are natural phenomena, as are things like “the heat of the sun, electricity, [and] the qualities of metals.” Examples of laws of nature include Sir Isaac Newton’s law of gravity and Albert Einstein’s mass-energy equation, while abstract ideas include “novel and useful mathematical formula[e].”

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. 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. 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. The landmark case on the issue of excluding principles from patent protection is *O’Reilly v. Morse*. 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


159. See id.

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


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

163. See supra Part I.B.3.


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).
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. 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.

The Court reversed course in the Telephone Cases, however, when it definitively addressed the issue of whether electricity could be patentable subject matter. Alexander Graham Bell's patent broadly claimed a method of and an apparatus for telegraphically transmitting sound using electrical vibrations. 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. The Court stated that unlike Morse, who claimed magnetism as a motive power without regard to process, Bell's "art consist[ed] in so controlling the force as to make it accomplish the purpose" of transmitting speech. 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.

Over the years, courts have particularly struggled with how to treat process patents that cover abstract instructions or software for running electronic equipment. 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.\textsuperscript{177} In \textit{Diehr}, the Court determined that processes applying mathematical algorithms may be patentable subject matter,\textsuperscript{178} and the Federal Circuit explained in \textit{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.’”\textsuperscript{179} \textit{State Street} paved the way for a growing tolerance for increasingly abstract processes, such as business methods, which have “useful” applications.\textsuperscript{180}

Returning to the electrical signal at issue in \textit{Nuijten}, Judge Linn addressed in his dissent whether such a signal falls within the judicial exception for abstract ideas.\textsuperscript{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:

\begin{quote}
[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.”\textsuperscript{182}
\end{quote}

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.\textsuperscript{183}

Judge Linn also clarified why the algorithm claims in \textit{Benson} were unpatentable abstract ideas that were not “new” whereas those in \textit{State Street} were patentable subject matter.\textsuperscript{184} He suggested that the method in \textit{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

\begin{thebibliography}{9}
\bibitem{178} See \textit{Diamond v. Diehr}, 450 U.S. 175, 184–87 (1981) (“[A]n \textit{application} of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”).
\bibitem{179} \textit{State St. Bank \\& Trust Co. v. Signature Fin. Group, Inc.}, 149 F.3d 1368, 1373 (Fed. Cir. 1998).
\bibitem{180} See infra notes 276–83 and accompanying text (discussing the expansion of patentable processes after \textit{State Street}).
\bibitem{181} \textit{In re Nuijten}, 500 F.3d 1346, 1363–67 (Fed. Cir. 2007) (Linn, J., concurring in part and dissenting in part).
\bibitem{182} \textit{id.} at 1364 (second and fourth alterations in original).
\bibitem{183} \textit{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.”).
\bibitem{184} \textit{id.} at 1364–67.
\end{thebibliography}
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

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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).
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printed matter doctrine\textsuperscript{189} 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."\textsuperscript{190} The following sections discuss the development and constriction of two of these doctrines, the mental steps doctrine and the technological arts requirement.

\textit{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.\textsuperscript{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."\textsuperscript{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."\textsuperscript{193} Patent applications containing these defects failed to satisfy § 112.\textsuperscript{194}

The Patent Office Board of Appeals first articulated a version of the mental steps doctrine in \textit{Ex parte Read.}\textsuperscript{195} The disputed claim recited a method of determining the speed of a vehicle using two logarithmic scales.\textsuperscript{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.\textsuperscript{197} Nonetheless, the board rejected the claim because it involved a "purely . . . mental act."\textsuperscript{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 \textit{Halliburton Oil Well Cementing Co. v. Walker.}\textsuperscript{199} The Court of Customs and Patent Appeals, the precursor to the Federal Circuit, also adopted this "purely mental act" standard in \textit{In re Heritage.}\textsuperscript{200} This line of cases, none of which cites any of the seminal Supreme Court cases regarding patentable subject

\begin{footnotes}
\footnote{190. Cotter, \textit{supra} note 128, at 859–60 & n.15.}
\footnote{191. \textit{See, e.g.,} McClaskey, \textit{supra} note 104, at 1148.}
\footnote{192. Ambrose, \textit{supra} note 48, at 906–07 & n.18 (listing cases).}
\footnote{193. \textit{Id.} at 906–07 & n.19 (listing cases).}
\footnote{194. \textit{See id.} at 905–07.}
\footnote{196. \textit{See id.} at 446–47.}
\footnote{197. \textit{Id.} at 447.}
\footnote{199. 146 F.2d 817, 821 (9th Cir. 1944).}
\footnote{200. 150 F.2d 554 (C.C.P.A. 1945).}
\end{footnotes}
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 misconception 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.
203. Greenewalt, 54 F.2d at 196.
204. See, e.g., id.
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.

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.” 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’).” 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.”

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. 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.

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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.


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. 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. 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?

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. 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
rights associated with granted patents." 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.

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." 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. 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. 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. Recent comments from Supreme Court justices suggest a willingness to

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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"]...}).


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,\textsuperscript{231} and, as noted above, an en banc Federal Circuit will confront the scope of § 101 head-on when it reherses \textit{Bilski} this year.\textsuperscript{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.\textsuperscript{233} While the business and legal communities were intrigued by this potentially new area of intellectual property,\textsuperscript{234} the patentability of Knight’s claims is controversial and unclear.\textsuperscript{235} At the time Knight filed his applications, the Federal Circuit’s decision in \textit{State Street} was the relevant precedent for defining the scope of patentable processes, and shortly thereafter, the \textit{Lundgren} court broadened the scope of patentable processes by denouncing the technological arts requirement. Since that time, however, the opinions in \textit{LabCorp}, \textit{Comiskey}, and \textit{Nuijten} have created doubt about the scope of patentable processes. As the USPTO has just begun examination of Knight’s patent applications,\textsuperscript{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 process\textsuperscript{237} 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.\textsuperscript{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.\textsuperscript{239}
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.  

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.
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.\textsuperscript{245} The specification describes various embodiments of this plot.\textsuperscript{246} The specification also provides a written description of a “point of view, characterization, setting, theme, and dialogue” and contains a full example story.\textsuperscript{247}

2. Legal Basis for Granting Patent Protection

Knight suggests that the amnesia-story application discussed above satisfies the statutory disclosure requirements, including enablement\textsuperscript{248} and definiteness.\textsuperscript{249} He also believes that his application satisfies the requirements of §§ 101, 102 and 103.\textsuperscript{250} Noting that § 101 has the lowest

\begin{quote}
\textit{Id.} at 6.
\end{quote}

\textsuperscript{245} See \textit{id.} at 4.

\textsuperscript{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.” \textit{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.


\textsuperscript{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. \textit{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.” \textit{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. \textit{See supra} note 244.

\textsuperscript{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. \textit{See supra} text accompanying note 240. Other steps, like indicating that the first character “desires said second character,” may initially seem problematic. \textit{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.” \textit{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 \textit{knows} what that looks like, particularly if the specification gives concrete examples of how one might indicate a desire . . . .”); \textit{see also} Knight, \textit{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”).

\textsuperscript{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.”\(^{254}\)


   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.”\(^{257}\)
b. Idea/Expression Dichotomy

Knight suggests that the current intellectual property regime already recognizes this dichotomy in the context of software. 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. 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.

Knight argues that a story may also comprise two such features: (1) a specific expression of the storyline and (2) the underlying story itself. 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.” 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, 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.” 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.” Knight proposes that these storylines should be protected by patents.

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. He argues that the value of a copyright depends on an artist’s ability as a performer and not as an inventor. For example, an artistic inventor may create an interesting and unique storyline but be such a poor writer that his
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. at 877.
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.”).
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...
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. 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. Knight argues that his storyline processes satisfy these requirements because they produce the "‘useful, concrete, tangible result’ of . . . valuable entertainment." 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.

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." 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."

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 Nuitjen, described above. 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. 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.\footnote{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."\footnote{300} Claims that improperly recite laws of nature, natural phenomena, and abstract ideas will not pass the "new" and "useful" tests.\footnote{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.\footnote{302} Therefore, it arguably passes the newness requirement.\footnote{303} Knight's storyline claims also ostensibly satisfy Judge Linn's "usefulness" test.\footnote{304} Knight's storyline claim confers a specific benefit—namely, the generation of a story comprising specific elements for the purpose of entertainment.\footnote{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.\footnote{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."\footnote{307} While the Court has consistently held that a mathematical algorithm, separate from its practical application, falls within the judicial exception

\begin{footnotes}
\footnotetext{299} Id. (quoting Tenn. Valley Auth. v. Hill, 437 U.S. 153, 195 (1978)).
\footnotetext{300} Id. at 1363.
\footnotetext{301} See id. at 1364.
\footnotetext{302} The § 102 novelty requirement will exclude any storyline claim that has already been performed and is part of the prior art.
\footnotetext{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.
\footnotetext{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.
\footnotetext{305} See Knight, supra note 20, at 867.
\footnotetext{306} See Nuijten, 500 F.3d at 1368 (discussing the usefulness of the claimed signal).
\end{footnotes}
and is not patentable.\textsuperscript{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.\textsuperscript{309}

The \textit{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.\textsuperscript{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.\textsuperscript{311} For instance, the applicant in \textit{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.\textsuperscript{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.”\textsuperscript{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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{316}

\textsuperscript{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 . . . .”).

\textsuperscript{309} Gruner, supra note 102, at 400.

\textsuperscript{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).

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

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

\textsuperscript{313} Id. (internal quotation marks omitted).

\textsuperscript{314} See Knight, supra note 20, at 867.

\textsuperscript{315} Cotter, supra note 128, at 860–61 & n.16.

\textsuperscript{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.\textsuperscript{317} Because the courts’ basis for applying the mental steps doctrine “has been somewhat ambiguous,” Cotter proposes four possible approaches to applying the doctrine.\textsuperscript{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.”\textsuperscript{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.\textsuperscript{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.”\textsuperscript{321} A fourth interpretation is that a process is unpatentable if the invention’s novel aspect depends on a mental step or steps.\textsuperscript{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.\textsuperscript{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); \textit{Ex parte Mayne}, 59 U.S.P.Q. 342 (Pat. Off. Bd. App. 1942)). McClaskey argues that \textit{Johnson}, \textit{Grenewalt}, and \textit{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.” \textit{Id.} at 1169. For example, in \textit{Grenewalt}, 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, \textit{supra} note 48, at 917.


319. \textit{Id.} at 861.

320. \textit{Id.} (emphasis omitted).

321. \textit{Id.}

322. \textit{Id.} This test is often called the “point of novelty test.” \textit{Id.} (internal quotation marks omitted).

323. \textit{In re Musgrave}, 431 F.2d 882, 893 (C.C.P.A. 1970); see also \textit{supra} note 316.
Greenewalt will vary depending on a person’s aesthetic judgment. Accordingly, these claims would fail § 112’s requirements and would not be patentable. 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.

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.

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. Critics of the technological arts requirement applauded this decision, noting that neither the Patent Act nor previous case law

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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.”).
supported the requirement. 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. 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. 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.” 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.” 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.

The USPTO argues that this judicial definition limits statutory processes to

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331. See supra notes 143–44 and accompanying text.
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."\textsuperscript{335}

Although the Supreme Court has declined to hold that statutory processes must involve a "transformation,"\textsuperscript{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.\textsuperscript{337} New eligibility tests may be required under such circumstances.\textsuperscript{338} While expansion of the scope of statutory processes may be needed to accommodate emerging technologies,\textsuperscript{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."\textsuperscript{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 \textit{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 \textit{Comiskey} may signal a turn away from this rather permissive standard toward a focus on more bright-line rules.

The \textit{Comiskey} test may prove to be a higher bar for Knight's storyline method claims than the \textit{State Street} test. The \textit{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.\textsuperscript{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.\textsuperscript{342} Knight's storyline process claims do not recite one of the three other types of statutory subject matter, do not involve a physical

\textsuperscript{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. \textit{See id.} at 20 ("[W]hile \textit{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.").

\textsuperscript{336} See supra notes 128, 137 and accompanying text.

\textsuperscript{337} See Brief for Appellee, \textit{supra} note 332, at 17 (emphasis omitted).

\textsuperscript{338} \textit{See id.} at 17–18.

\textsuperscript{339} \textit{See Harvard Note, supra} note 235, at 237.

\textsuperscript{340} \textit{Id.} at 238.

\textsuperscript{341} \textit{In re Comiskey}, 499 F.3d 1365, 1374–77 (Fed. Cir. 2007).

\textsuperscript{342} \textit{Id.} at 1377.
transformation, and are not tied to any particular apparatus.\textsuperscript{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.\textsuperscript{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.\textsuperscript{345}

Storyline processes would not be excluded under the first rationale articulated in the Flook opinion, which excludes preexisting principles and natural phenomena,\textsuperscript{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.\textsuperscript{347}

Following this reasoning, a general idea for a storyline, even when

\textsuperscript{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.

\textsuperscript{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”).

\textsuperscript{345} Gruner, supra note 102, at 407.

\textsuperscript{346} See id.

\textsuperscript{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.”).
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.”).
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.\textsuperscript{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.\textsuperscript{357} Patent attorney Cathy Cretsinger argues that the mental steps doctrine should be used to limit patents on thought processes.\textsuperscript{358} She argues that inventors must be free to think in order to invent.\textsuperscript{359} Used in this way, a broad mental steps doctrine may serve as a proxy for First Amendment considerations.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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,”\textsuperscript{363} the “Method for Swinging on a Swing,”\textsuperscript{364} and the “Method of Executing a Tennis Stroke,”\textsuperscript{365} “bear little if any relationship to what most people would think of as ‘technology.’”\textsuperscript{366} While the Patent Clause, the patent statutes, and Supreme Court jurisprudence do not explicitly require patentable subject matter to be technological,\textsuperscript{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

\textsuperscript{355} Id. at 1379.
\textsuperscript{356} See supra note 220 and the cases cited therein.
\textsuperscript{357} See supra notes 207, 323–26 and accompanying text.
\textsuperscript{358} See Cretsinger, supra note 317, at 178–79 (discussing the role of the mental steps doctrine in limiting patents on thought processes).
\textsuperscript{359} See id.
\textsuperscript{360} See id. at 178 n.120.
\textsuperscript{361} See Harvard Note, supra note 235, at 244–49 (discussing the First Amendment implications of storyline patents).
\textsuperscript{362} In re Comiskey, 499 F.3d 1365, 1379 (Fed. Cir. 2007).
\textsuperscript{363} See supra note 59 and accompanying text.
\textsuperscript{364} See supra note 279.
\textsuperscript{365} See supra note 282.
\textsuperscript{366} Cotter, supra note 128, at 869.
\textsuperscript{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." 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 . . . .'"

While critics of a technological arts requirement argue that it has no statutory basis and otherwise is unworkable, 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. He suggests that critics overstate the difficulty of defining the technological arts and of implementing the requirement. 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, essentially the same approach advanced by the Comiskey court.

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. In reviewing the board's

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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).
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." Professor Dennis Crouch takes this observation even further, suggesting that the USPTO is resurrecting the technological arts requirement rejected in Lundgren. Patent attorney Peter Zura characterizes the recent § 101 rejections as ranging "from the laughable to the outrageous," 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."

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.

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. 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.”.

377. Id.
378. Id.
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\textsuperscript{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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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."\textsuperscript{386}

Knight's storyline processes do not involve machines, articles of manufactures, or compositions of matter.\textsuperscript{387} Moreover, his claimed methods neither are tied to a particular apparatus nor produce a physical transformation of materials.\textsuperscript{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,"\textsuperscript{389} explaining that "the patent statute does not allow patents on

\textsuperscript{382} See Bilski, 2008 WL 417680, at *1.
\textsuperscript{383} See Part I.D.1 for a discussion of Knight's patent applications.
\textsuperscript{384} See supra notes 149–55 and accompanying text (discussing the test applied by the Comiskey court)
\textsuperscript{385} See Comiskey, 499 F.3d at 1376.
\textsuperscript{386} See id. (agreeing with the USPTO's argument).
\textsuperscript{387} See supra Part I.D.1 (discussing Knight's patent applications).
\textsuperscript{388} See supra Part I.D.1.
\textsuperscript{389} Comiskey, 499 F.3d at 1377.
particular systems that depend for their operation on human intelligence alone. 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. 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. 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. 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.

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. 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. The Court stated that this assumption is "unteachable" 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. Knight’s storyline processes likewise are an example of artful drafting. 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).
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.\textsuperscript{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."\textsuperscript{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 system\textsuperscript{401} and the role of § 101. Many commentators have argued that § 101 should set a low bar to patentability\textsuperscript{402} 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.\textsuperscript{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.\textsuperscript{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."\textsuperscript{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.\textsuperscript{406}

\textsuperscript{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).


\textsuperscript{401} See supra notes 224, 371 and accompanying text.

\textsuperscript{402} See supra Part I.C.

\textsuperscript{403} See supra Part I.A.

\textsuperscript{404} See supra Part I.C.

\textsuperscript{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).

\textsuperscript{406} See supra notes 224, 371 and accompanying text.
Recent criticism from several Supreme Court justices\textsuperscript{407} coupled with Congress's recent willingness to refine the scope of patentable subject matter via statute\textsuperscript{408} 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 \textit{In re Bilski}.

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 \textit{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 \textit{State Street} that a process employing a mathematical algorithm constitutes patentable subject matter if it produces a useful, concrete, and tangible result.\textsuperscript{410} As a result, post-\textit{State Street} patent applicants argue that any claim containing a series of actions that produce a useful result qualifies as a statutory process.\textsuperscript{411} This reasoning, aided by the \textit{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"\textsuperscript{412} and (2) whether the process claims any judicial exception, i.e., a law of nature, a natural phenomenon, or an abstract idea.\textsuperscript{413} Using the useful, concrete, and tangible result test in isolation improperly merges these distinct inquiries.

\begin{enumerate}
\item[407.] See supra Part I.B.2.c.
\item[408.] See supra note 188 for a discussion of amending § 101 to exclude tax planning patents.
\item[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.
\item[410.] See supra notes 130-34 and accompanying text.
\item[411.] See Brief for Appellee, supra note 332 at 4 (noting that since \textit{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 \textit{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.").
\item[412.] Parker v. Flook, 437 U.S. 584, 593 (1978); see also supra text accompanying notes 112-14.
\item[413.] For example, the Court implicitly considered both questions in \textit{Benson}, \textit{Flook}, and \textit{Diehr} but focused on whether the claimed process recites a patentable application of an
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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." 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, 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. The Court suggested that Congress adopted this preexisting judicial definition when it amended the statute to include processes. 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.

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 . . . ." Second, the Court also has allowed process claims that are tied to a specific apparatus or that are machine implemented. 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." 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. 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. 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).
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.
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. 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. 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.

The courts should not simply adopt the approach that the applicant in Bilski advocated. 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. 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.” 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. Furthermore, this approach is not productive because such nonspecific claims would fail the § 112 written description requirement. 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

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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.
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.” 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.

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. 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. State Street’s “useful, concrete, and tangible result” test may be a relevant tool for identifying acceptable processes; 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. 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.

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." 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" 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. Thus, the proper test should require the process to claim an application that (1) has substantial utility, (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. This doctrine has a range of applications. 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. 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. 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.

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

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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.
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.\(^4\) 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.’\(^5\) 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.\(^6\) Inventors must be free to think in order to invent,\(^7\) 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.”\(^8\) 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.\(^9\) Commentators have noted that “free speech issues arose only rarely with regard to the patent statute” prior to State Street.\(^9\) Copyright protection historically has come into conflict with First Amendment concerns much more often than patent law.\(^9\) 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.\textsuperscript{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;\textsuperscript{464} however, the potential reach of process patents to nontechnological fields after \textit{Lundgren} has created much controversy.\textsuperscript{465} Prior to \textit{State Street} and \textit{AT&T}, statutory processes either produced a physical transformation or were tied to a particular apparatus.\textsuperscript{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,\textsuperscript{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 \textit{State Street}, a technological arts test was unnecessary. After \textit{State Street} and \textit{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,\textsuperscript{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”\textsuperscript{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

\textsuperscript{463} See id.
\textsuperscript{464} See supra text accompanying note 367.
\textsuperscript{465} See, e.g., supra note 371 and accompanying text.
\textsuperscript{466} See supra Part I.B.2.b.
\textsuperscript{467} See supra notes 368–69 and accompanying text.
\textsuperscript{468} See supra note 372 and accompanying text.
\textsuperscript{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. 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,” 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. 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. 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. In addition to failing the first prong of the analysis, Knight’s claims in their current state are abstract ideas; 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. 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. Finally, a mental steps analysis, particularly one that seeks to protect First Amendment speech interests, also would exclude Knight’s claims. 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.