

BILSKI V. KAPPOS: SIDELINE ANALYSIS FROM THE FIRST INNING OF PLAY

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On June 28, 2010, the U.S. Supreme Court decided *Bilski v. Kappos*,¹ a case that some described as having “the makings of a landmark decision in patent law.”² The Supreme Court reviewed the scope of the word “process,” one of the four legislatively-enacted categories that are eligible for patent protection in § 101 of the Patent Act.³ A restrictive reading of the word “process” could curtail or eliminate the scope of patent protection for business method patents⁴ and information-intensive processes—namely software and diagnostic patents. But an expansive reading of the word “process” could ensure patent protection for “anything under the sun that is made by man.”⁵

When the decision arrived, business method patent owners narrowly avoided a strikeout. The Supreme Court held, by a scant 5–4 vote, that business methods were patent eligible. However, the decision also brought ominous news for business method patents.⁶ The Supreme Court held the particular business method at issue, the *Bilski* patent, unpatentable under § 101, thereby casting an invalidity shadow over many existing business method patents.⁷

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1. 130 S. Ct. 3218 (2010).

2. Adam Liptak, *New Court Term May Give Hints to Views on Regulating Business*, N.Y. TIMES, Oct. 5, 2009, at A1.

3. 35 U.S.C. § 101 (2006); *Bilski*, 130 S. Ct. at 3221.

4. There is not a clear definition for a business method patent, besides defining it tautologically—a patent claiming a method of doing business. See John W. Bagby, *Business Method Patent Proliferation: Convergence of Transactional Analytics and Technical Scientifics*, 56 BUS. LAW. 423, 423 (2000) (“[B]usiness methods have not been patentable, that is, methods of doing business.”); Bronwyn H. Hall, *Business and Financial Method Patents, Innovation, and Policy*, 56 SCOTTISH J. POL. ECON. 443, 445 (2009) (“There is no precise definition of . . . business method patents.”).

5. See S. REP. NO. 1979, at 5 (1952); H.R. REP. NO. 1923, at 6 (1952).

6. *Bilski v. Kappos*, 130 S. Ct. at 3220.

7. *Id.* at 3231.

The decision did not provide sweeping reform as predicted by many commentators, let alone provide guidance to courts to determine patent-eligibility for processes. Instead, the Court appeared only to reaffirm its traditional limits on patentability. As many commentators stated, the outcome from the decision might be described best as “business as usual.”⁸

But what exactly is business as usual? Over the course of multiple decades, several Supreme Court decisions and resulting lower court tests reshaped the legally recognized scope of patent protection.⁹ Does business as usual follow the scope of patent protection from the Supreme Court decisions in *Benson*,¹⁰ *Diehr*,¹¹ and *Flook*?¹² Does business as usual shadow the most permissive point of patent-eligibility in the useful, concrete, and tangible result test?¹³ Or does business as usual continue with the recently implemented Federal Circuit machine-or-transformation test?¹⁴

This Note charts the relative strictness of patent-eligibility across multiple Supreme Court and Federal Circuit decisions to provide a historical representation of patent-eligibility strictness in Part I. Further, in Parts II and III, this Note analyzes patterns evolving from recent Board of Patent Appeal and Interferences and Federal Circuit decisions to predict the new level of patent-eligibility severity stemming from the *Bilski v. Kappos* decision.

I. DEVELOPMENT OF THE BOUNDARIES OF PATENT-ELIGIBILITY

A. PATENTABLE SUBJECT MATTER

35 U.S.C. § 101 enumerates the types of patentable inventions that are valid in the United States.¹⁵ The statute provides that “[w]hoever invents or discovers any new and useful *process, machine, manufacture, or composition of matter*, or any new and useful improvement thereof, may obtain a patent thereof,

8. See, e.g., Dennis Crouch, *Bilski v. Kappos*, PATENTLY-O, Jun. 28, 2010, 2010 WLNR 13013837, available at <http://www.patentlyo.com/patent/2010/06/bilski-v-kappos-business-methods-out-software-still-patentable.html> (last visited Feb. 5, 2011) (“Rather, the outcome from the [*Bilski v. Kappos*] decision might be best stated as ‘business as usual.’”).

9. See *infra* Part II.

10. *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972).

11. *Diamond v. Diehr*, 450 U.S. 175, 191 (1981).

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

13. *Infra* Section I.F.2; see *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998).

14. *Infra* Section I.F.3; see *In re Bilski*, 545 F.3d 943, 952 (Fed. Cir. 2008), cert. granted, 129 S. Ct. 2735 (2009), and *aff’d but criticized sub nom. Bilski v. Kappos*, 130 S. Ct. 3218 (2010).

15. 35 U.S.C. § 101 (2006).

subject to the conditions and requirements of this title.”¹⁶ Judge Giles Rich in *In re Bergy* explained, “[a] person may have ‘invented’ a machine or a manufacture, which may include anything under the sun that is made by man, but it is not necessarily patentable under section 101 unless the conditions of the title are fulfilled.”¹⁷

35 U.S.C. § 101 is the gatekeeper to patentability: failing the requirements of § 101 bars a claim from advancing to the other considerations of patentability.¹⁸ To pass the standard of § 101, a claim must be directed towards one of the four statutory categories of patentable subject matter: a “process, machine, manufacture, or composition of matter.”¹⁹

B. PRACTICAL APPLICATION TEST

For as long as the United States granted patents for innovation, the courts have wrestled with the scope of patent-eligibility.²⁰ In 1852, the Supreme Court acknowledged in *Le Roy v. Tatham* that there were limits to patentability.²¹ Specifically, a fundamental principle—i.e., a law of nature, natural phenomenon, or abstract idea—is not patentable because these principles are the “basic tools of scientific and technological work.”²² Allowing individuals to patent these fundamental principles would pre-empt the public’s access to these basic tools, thus impeding future innovation.²³

Justice Nelson, dissenting in *Le Roy*, argued that an inventor deserves patent protection if the patent states a “new application of the principle or property of matter.”²⁴ This theory of practical application influenced the Court’s initial concept of patent-eligibility.²⁵ For many years, courts employed

16. *Id.* (emphasis added).

17. 596 F.2d 952 (C.C.P.A. 1979) (Rich, J.), *aff’d sub nom.* *Diamond v. Chakrabarty*, 447 U.S. 303 (1980).

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

19. 35 U.S.C. § 101.

20. See generally Jeremy J. Carney, *Retreat from the Brink of Clarity: Why the Federal Circuit Got In Re Bilski Wrong, and What Can Be Done About It*, 2009 U. ILL. J.L. TECH. & POL’Y 473, 475 (2009) (describing the history of patent-eligibility and Supreme Court’s interpretation of patent-eligibility throughout this process).

21. 55 U.S. 156, 174–75 (1852).

22. *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972); see *Le Roy*, 55 U.S. at 175.

23. *Gottschalk*, 409 U.S. at 67 (“Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”).

24. *Le Roy*, 55 U.S. at 187 (Nelson, J., dissenting).

25. See Sam Han, *Analyzing the Patentability of “Physical” Yet “Intangible” Subject Matter*, 3 COLUM. SCI. & TECH. L. REV. 2, 16–21 (2001) (tracing the emergence of the practical application framework across the court’s early patent case law); N. Scott Pierce, *Common*

the practical application framework to distinguish patentable and unpatentable subject matter.²⁶ The practical application framework distinguished claims that embodied a principle in the abstract as unpatentable from claims that employed a principle as patentable.²⁷

For example, the Supreme Court determined in *O'Reilly v. Morse* that Samuel Morse's claim for his telegraph invention was unpatentable.²⁸ The patent covered the use of electromagnetism to send intelligible characters across distances.²⁹ In finding the claim unpatentable, the Court explained that it pre-empted³⁰ any use of electro-magnetism.³¹

However, the Supreme Court upheld the patentability of Alexander Graham Bell's process for converting electric signals to audible speech in *Dolbear v. American Bell Telephone Co.*³² Bell claimed a "method of and apparatus for transmitting vocal or other sounds telegraphically."³³ The Court distinguished Bell's claim from Morse's claim by noting Bell's claim applied to transmitting voice, a particular process for the use of electricity.³⁴

Sense: Treating Statutory Non-Obviousness as a Novelty Issue, 25 SANTA CLARA COMPUTER & HIGH TECH. L.J. 539, 581–85 (2009) (discussing Justice Nelson embracing an English doctrine to develop the practical application concept).

26. *See* Mackay Radio & Tel. Co. v. Radio Corp. of Am., 306 U.S. 86, 94 (1939) ("[W]hile a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be."); Rubber-Tip Pencil Co. v. Howard, 87 U.S. 498, 507 (1874) ("[A]n idea of itself is not patentable."); *LeRoy*, 55 U.S. at 175 ("A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.").

27. *Le Roy*, 55 U.S. at 183 (Nelson, J., dissenting).

28. 56 U.S. 62, 113 (1853).

29. *Id.* at 112.

30. Courts apply the word pre-emption to establish that a claim covers the entirety of a principle such that it would preclude subsequent inventors. *See* *Bilski v. Kappos*, 130 S. Ct. 3218, 3231 (2010) ("Allowing petitioners to patent risk hedging would *pre-empt* use of this approach in all fields, and would effectively grant a monopoly over an abstract idea.") (emphasis added); *Gottschalk v. Benson*, 409 U.S. 63, 72 (1972) ("[I]f 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.") (emphasis added).

31. *O'Reilly*, 56 U.S. at 113 ("For aught that we now know some future inventor, in the onward march of science, may discover a mode of writing or printing at a distance by means of the electric or galvanic current, without using any part of the process or combination set forth in the plaintiff's specification.").

32. *Dolbear v. Am. Bell Tel. Co.*, 126 U.S. 1, 531 (1888).

33. *Id.*

34. *Id.* at 534 (holding that Bell's electric transmission of speech put electricity into "a certain specified condition," thereby making it patentable).

C. JUDICIALLY ESTABLISHED EXCEPTIONS TO PATENT-ELIGIBILITY:
LAWS OF NATURE, PHYSICAL PHENOMENA, AND ABSTRACT IDEAS

Eventually, the court excluded “laws of nature, physical phenomena, and abstract ideas” from patentability.³⁵ The judicially created exceptions to patentability furthered the practical application approach because it illustrated the Court’s willingness to grant patent protection only to inventions that produce a useful physical manifestation, and not simply for innovative ideas.

As previously discussed,³⁶ *O’Reilly v. Morse* initiated the laws of nature exception to patentable subject matter.³⁷ In *O’Reilly*, the Court held Morse’s claim invalid because it attempted to claim the concept of electronic communications, which the Court deemed to be a law of nature.³⁸

The Court derived the physical phenomena exception in *Funk Brothers Seed Co. v. Kalo Inoculant Co.*, when it declared a mixture of naturally occurring bacteria unpatentable because it was a product of nature.³⁹ According to the Court, the patentee did not invent anything; therefore, he did not deserve patent protection for his discovery.⁴⁰

Finally, the abstract idea exception arose out of the Court’s decision in *Rubber Tip Pencil Co. v. Howard*.⁴¹ The inventor in *Rubber Tip Pencil* claimed an attachment of a small piece of rubber eraser to the blunt end of a pencil.⁴² The Court held that “[a]n idea of itself is not patentable, but a new device by

35. *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980); see *Parker v. Flook*, 437 U.S. 584, 593 (1978); *Gottschalk*, 409 U.S. at 67; *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948); *Rubber-Tip Pencil Co. v. Howard*, 87 U.S. 498, 507 (1874) (“An idea of itself is not patentable.”); *Le Roy v. Tatham*, 14 U.S. 156, 175 (1853) (“A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.”).

36. *Supra* Section I.B.

37. 56 U.S. at 132–33 (Grier, J., concurring) (“The mere discovery of a new element, or law, or principle of nature, without any valuable application of it to the arts, is not the subject of a patent. But he who takes this new element or power, as yet useless, from the laboratory of the philosopher, and makes it the servant of man; who applies it to the perfecting of a new and useful art, or to the improvement of one already known, is the benefactor to whom the patent law tenders its protection.”).

38. *Id.* at 113.

39. 333 U.S. at 130 (“He who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. If there is to be invention from such a discovery, it must come from the application of the law of nature to a new and useful end.”).

40. *See id.* at 130–32.

41. 87 U.S. 498, 502 (1874).

42. *Id.* at 500.

which it may be made practically useful is.”⁴³ The Court determined that the only novel aspect of the invention was the idea that a pencil would cling to an enclosed piece of rubber.⁴⁴ Therefore, the Court held that the invention did not deserve patent protection.⁴⁵

D. CONGRESS CHANGED THE TEXT OF § 100 IN THE 1952 PATENT ACT BUT DID NOT CHANGE PATENT-ELIGIBILITY ITSELF

Congress enacted the 1952 Patent Act to codify the revisions in patent law established by court decisions and to implement certain substantive amendments.⁴⁶ The 1952 Patent Act changed certain language pertaining to patent-eligibility without changing its scope.⁴⁷ Congress changed the definition of “invention” in § 100 of the Patent Act to include “invention or discovery,” simplifying the statute’s language.⁴⁸ Moreover, Congress changed the term “art” in § 101 to “process,” and defined “process” to include both “method” and “new uses of a known” product or process.⁴⁹ Congress thus intended to clarify the current scope of patent-eligibility subject matter without altering it.⁵⁰

E. EVOLUTION OF PATENT-ELIGIBILITY: *BENSON*, *FLOOK*, AND *DIEHR*

A trilogy of Supreme Court cases (*Gottschalk v. Benson*,⁵¹ *Parker v. Flook*,⁵² *Diamond v. Diehr*⁵³) further defined the bounds of patent-eligibility.

43. *Id.* at 507.

44. *Id.*

45. *Id.*

46. See Brief Amici Curiae of Professors Peter S. Menell and Michael J. Meurer In Support of Respondent at 9–29, *Bilski v. Kappos* 130 S. Ct. 3218 (2010) (No. 08-964) (discussing the subject matter provision of the 1952 Patent Act); see also Kimberly M. Ruch-Alegant, *Markman: In Light of De Novo Review, Parties to Patent Infringement Litigation Should Consider the ADR Option*, 16 TEMP. ENVTL. L. & TECH. J. 307, 312–13 (1998) (arguing that Congress enacted the 1952 Patent Act in response to an anti-patent bias developed by court decisions).

47. For information regarding the impetus behind the 1952 Patent Act, see Brief Amici Curiae of Professors Peter S. Menell and Michael J. Meurer In Support of Respondent, *supra* note 46.

48. P.J. Federico, *Commentary on the New Patent Act*, 35 U.S.C.A. 1 (West 1954), reprinted in 75 J. PAT. & TRADEMARK OFF. SOC’Y 161 (1993). (explaining that the old statute used “invention or discovery” in many places; the new definition allowed use of the singular “invention”).

49. 35 U.S.C. §§ 100(a), (b), 101 (2006); see H.R. REP. NO. 82-1928, at 6 (1952).

50. See *Bilski v. Kappos*, 130 S. Ct. 3218, 3247 (2010); *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); accord H.R. REP. NO. 1923, at 17 (1952) (explaining that “the word ‘art’ ” in § 101 “has been interpreted by the courts as being practically synonymous with process or method,” and that the switch to the word “[p]rocess” was intended only for clarity).

51. 409 U.S. 63 (1972).

1. Gottschalk v. Benson

The first case in the trilogy addressing the scope of patent-eligibility was *Gottschalk v. Benson*, decided in 1972.⁵⁴ The claim at issue was a computer-implemented algorithm for converting numbers from binary coded decimal form to pure binary form.⁵⁵

The Supreme Court rejected the claim as unpatentable because allowing the claim would pre-empt the algorithm itself.⁵⁶ The Court considered the algorithm an abstract principle.⁵⁷ The Court defined “algorithm” as a “procedure for solving a given type of mathematical problem” and concluded that such an algorithm is not eligible for patent protection.⁵⁸

2. Parker v. Flook

The Supreme Court again confronted the patent-eligibility of a method claim in *Parker v. Flook*.⁵⁹ The claims in *Flook* described a method for updating alarm limits used for governing the catalytic chemical conversion of hydrocarbons.⁶⁰

52. 437 U.S. 584 (1978).

53. 450 U.S. 175 (1981).

54. 409 U.S. at 63; see *In re Bilski*, 545 F.3d 943, 956 (Fed. Cir. 2008).

55. *Gottschalk*, 409 U.S. at 64.

The claim at issue in *Gottschalk* reads:

The method of converting signals from binary coded decimal form into binary which comprises the steps of:

- (1) storing the binary coded decimal signals in a recentrant shift register,
- (2) shifting the signals to the right by at least three places, until there is a binary ‘1’ in the second position of said register,
- (3) masking out said binary ‘1’ in said second position of said register,
- (4) adding a binary ‘1’ to the first position of said register,
- (5) shifting the signals to the left by two positions,
- (6) adding a ‘1’ to said first position, and
- (7) shifting the signals to the right by at least three positions in preparation for a succeeding binary ‘1’ in the second position of said register.

Id. at 73 (App.).

56. *Id.* at 72.

57. *Id.*

58. *Id.* at 65.

59. 437 U.S. 584 (1978).

60. *Id.* at 585–86.

The claim at issue in *Flook* reads:

A method for updating the value of at least one alarm limit on at least one process variable involved in a process comprising the catalytic chemical conversion of hydrocarbons wherein said alarm limit has a current value

Flook argued that his method was patentable because it did not pre-empt all uses of the algorithm contained in the claim; instead it only covered the algorithm applied to a catalytic chemical conversion of hydrocarbons.⁶¹ The Court did not accept Flook's argument.⁶² The Court emphasized that an unpatentable algorithm does not become patentable by adding post-solution activity.⁶³ However, the Court explained that a claim involving an algorithm is patentable only when the application of the principle is inventive.⁶⁴ Thus, the Court found the invention unpatentable, emphasizing that the process applying the fundamental principle was not new or useful.⁶⁵

3. *Diamond v. Diehr*

In *Diamond v. Diehr*, the Supreme Court further refined the scope of process claim patent-eligibility, but in this instance, did so to validate the patent-eligibility of a claim.⁶⁶ Here, the Court upheld the patentability of a computer program controlling a physical process.⁶⁷ The claim at issue in *Diehr* involved a method in which a computer controlled the curing of synthetic rubber according to a mathematical equation.⁶⁸

of $Bo + K$ wherein Bo is the current alarm base and K is a predetermined alarm offset which comprises:

(A) Determining the present value of said process variable, said present value being defined as PVL ;

(B) Determining a new alarm base $B1$, using the following equation: $B1 = Bo(1.0-F) + PVL(F)$ where F is a predetermined number greater than zero and less than 1.0;

(C) Determining an updated alarm limit which is defined as $B1 + K$; and there-after

(D) Adjusting said alarm limit to said updated alarm limit value.

Id. at 596–97 (App.).

61. *Id.* at 589–90.

62. *Id.*

63. *Id.* at 590.

64. *Id.* at 594 (“Even though a phenomenon of nature or mathematical formula may be well known, an inventive application of the principle may be patented. Conversely, the discovery of such a phenomenon cannot support a patent unless there is some other inventive concept in its application.”).

65. *Id.* at 591.

66. 450 U.S. 175, 192–93 (1981).

67. *Id.*

68. *Id.* at 177.

The claim at issue in *Diehr* reads:

A method of operating a rubber-molding press for precision molded compounds with the aid of a digital computer, comprising:
 providing said computer with a data base for said press including at least, natural logarithm conversion data (\ln),

Although the claim contained a well-known mathematical algorithm, the Court held that the claim was patentable.⁶⁹ The claim did not pre-empt all uses of the mathematical fundamental principle; rather, the claim limited its use with the steps for curing rubber process.⁷⁰

4. *Relative Strictness of the Supreme Court Patent-Eligibility Trilogy*

Benson and *Flook* employed similar reasoning to determine that the claims in question were not patent eligible.⁷¹ Both cases fundamentally involved methods that recalculated input data.⁷² Moreover, in both cases the Supreme Court affirmed mathematical algorithms as nonstatutory to determine that neither claims were patentable.⁷³ In *Benson*, the Court held that a stand-alone mathematical algorithm such as a conversion of binary-coded decimals into

the activation energy constant (C) unique to each batch of said compound being molded, and
 a constant (x) dependent upon the geometry of the particular mold of the press,
 initiating an interval timer in said computer upon the closure of the press for monitoring the elapsed time of said closure,
 constantly determining the temperature (Z) of the mold at a location closely adjacent to the mold cavity in the press during molding,
 constantly providing the computer with the temperature (Z),
 repetitively calculating in the computer, at frequent intervals during each cure, the Arrhenius equation for reaction time during the cure, which is

$$\ln v = CZ + x$$

where *v* is the total required cure time,
 repetitively comparing in the computer at said frequent intervals during the cure each said calculation of the total required cure time calculated with the Arrhenius equation and said elapsed time, and
 opening the press automatically when a said comparison indicates equivalence.

See id. at 179 n. 5.

69. *Id.* at 187.

70. *Id.* at 192–93.

71. Ben Klemens, *The Rise of the Information Processing Patent*, 14 B.U.J. SCI. & TECH. L. 1, 13 n.44 (2008) (“The discussions of both *Benson* and *Flook* were similar.”).

72. *Compare* Gottschalk v. Benson, 409 U.S. 63, 65 (1972) (“The patent sought is on a method of programming a general-purpose digital computer to convert signals from binary-coded decimal form into pure binary form.”), *with* Parker v. Flook, 437 U.S. 584, 585 (1978) (“Respondent’s patent application describes a method of updating alarm limits.”). *See also* *In re* Walter, 618 F.2d 758, 767 (C.C.P.A. 1980), *abrogated by* *In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008) (“If, however, the mathematical algorithm is merely presented and solved by the claimed invention, as was the case in *Benson* and *Flook* . . .”).

73. *Flook*, 437 U.S. at 590; *Benson*, 409 U.S. at 72; *see In re* Walter, 618 F.2d at 766 (“It is well-settled that a statutory invention will result from the application of a scientific truth (law of nature) to an otherwise statutory structure or process In both *Benson* and *Flook*, the Court again relied on this well-settled precedent.”).

pure binary numbers was not patent eligible.⁷⁴ In *Flook*, the Supreme Court reaffirmed that a stand-alone mathematical algorithm for a process that updated alarm limits in a catalytic converter was not patent eligible.⁷⁵

On the other hand, the *Diehr* decision relaxed the patent-eligibility standard from the previous *Benson* and *Flook* decisions.⁷⁶ The Court in *Diehr* retreated from its previous absolute prohibition of mathematical algorithms.⁷⁷ After *Diehr*, if an algorithm was a component of a larger process, the process itself may be patentable. Some commentators even found the decisions in *Diehr* and *Flook* so contrasting that their holdings were irreconcilably inconsistent.⁷⁸

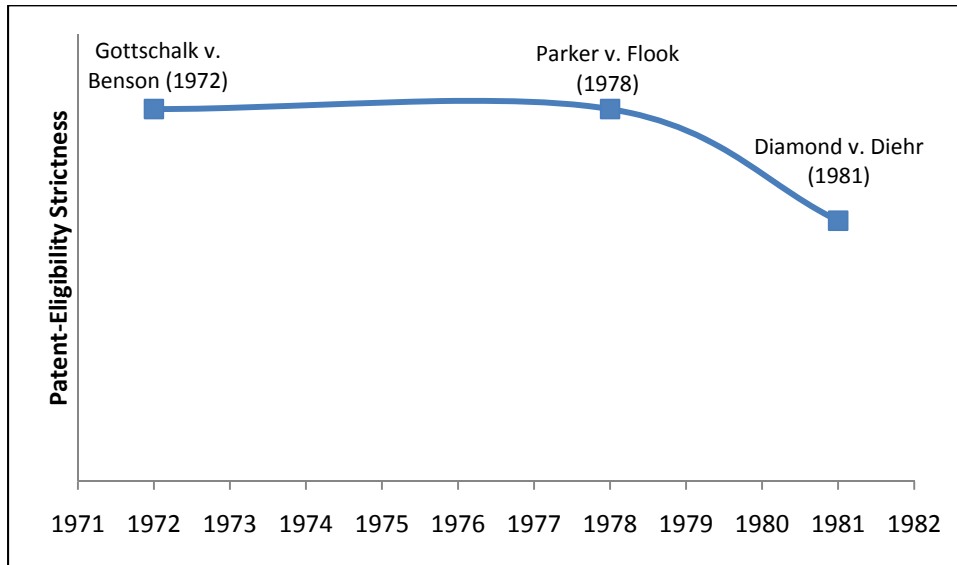
74. *Benson*, 409 U.S. at 72.

75. *Flook*, 437 U.S. at 590.

76. David Abraham, *Suggestions for Improved Intellectual Property Protection of Software, or Where is Alexander When You Really Need Him?*, 23 S.U. L. REV. 293, 305 n.29 (1996) (“Judge Rader also states that he believes the Supreme Court, in *Diamond v. Diehr*, to have cut the ‘Gordian Knot’ surrounding the algorithm exclusion through the strict limitation of *Benson*, thus allowing for a more liberal interpretation of 35 U.S.C. § 101.”); Shawn McDonald, *Patenting Floppy Disks, or How the Federal Circuit’s Acquiescence has Filled the Void Left by Legislative Inaction*, 3 VA. J.L. & TECH. 9, 29 (1998) (“The Supreme Court’s most recent opinion addressing the patent eligibility of software inventions, *Diamond v. Diehr*, expressed a view fundamentally different from its *Benson* and *Flook* decisions. With *Diehr* the Court began a process of invalidating the bars to § 101 eligibility that it had announced in *Flook*. This weakening of *Flook* continued unabated in the CAFC’s subsequent decisions.”).

77. See *In re Taner*, 681 F.2d 787, 791 (C.C.P.A. 1982) (“Most recently in *Diehr*, the Supreme Court made clear that *Benson* stands for no more than the long-established principle that laws of nature, natural phenomena, and abstract ideas are excluded from patent protection.”).

78. See Jur Strobos, *Stalking the Elusive Patentable Software: Are There Still Diehr or Was it Just a Flook?*, 6 HARV. J.L. & TECH. 364, 387–93 (examining the irreconcilable holdings of *Flook* and *Diehr*); cf. David Schumann, *Obviousness With Business Methods*, 56 U. MIAMI L. REV. 727, 741–43 (2002) (contending that *Flook* and *Diehr* are not inconsistent decisions).

Figure 1: Scope of Patent-Eligibility from 1972 to 1982⁷⁹

F. THE FEDERAL CIRCUIT’S RESPONSE TO THE PATENT-ELIGIBILITY TRILOGY

As seen in *Diehr*, a claim may include a fundamental principle so long as the claim as a whole is restricted to a particular application of that fundamental principle.⁸⁰ However, to determine if a claim restricts a fundamental principle to a particular application is “hardly straightforward.”⁸¹ Therefore, the Federal Circuit and its predecessor court attempted to more concretely define the boundaries of patent-eligibility by creating tests to determine if a claim pre-empted “substantially all” uses of a fundamental principle or if it was sufficiently restrictive.⁸²

79. Methodology of Graphs: These charts are a historical representation of the patent-eligibility cases and their relative strictness. The points representing the cases are placed on a relative scale based on the preceding explanation. The actual marking and distance between the points are arbitrary, only used to reference which test has a more limited scope of patent protection to another. Again, the distance between the points is not reflective of a metric of severity; instead, it is meant to be used as a guide to determine which test is more stringent in patent-eligibility relative to other tests. For a head-to-head comparison of the claims in the cases, see *infra* App. IV.C. App. IV.C is a table consisting of the case, year, summary of the process claim, the process input and output, and whether the claim was statutory.

80. See *Diamond v. Diehr*, 450 U.S. 175, 187 (1981).

81. *In re Bilski*, 545 F.3d 943, 954 (Fed. Cir. 2008); see *Diehr*, 450 U.S. at 187.

82. See *Diehr*, 450 U.S. at 187.

1. *Freeman-Walter-Abele Test and Subsequent Cases*
 a) Freeman-Walter-Abele Test Overview

The Freeman-Walter-Abele test emerged from three Court of Customs and Patent Appeals⁸³ decisions: *In re Freeman*,⁸⁴ *In re Walter*,⁸⁵ and *In re Abele*.⁸⁶ The test contained two steps: “(1) determining whether the claim recites an ‘algorithm within the meaning of *Benson*’, then (2) determining whether the algorithm is applied in any manner to physical elements or process steps.”⁸⁷

The Federal Circuit formulated and applied the Freeman-Walter-Abele test in *In re Abele* to evaluate the patentability of a computer-related process.⁸⁸ The patent at issue in *Abele* claimed an improvement in the reliability of CAT scans.⁸⁹ The court particularly focused on a broad process claim and its dependent claim.⁹⁰ Applying the Freeman-Walter-Abele test, the court specified that a mathematical algorithm was present in the both of the claims, because the independent claim at issue required “calculating [a] difference.”⁹¹

83. The Court of Customs and Patent Appeals is the predecessor court to the Federal Circuit. In 1982, Congress passed The Federal Courts Improvement Act, which abolished the Court of Customs and Patent Appeals and transferred the court’s jurisdiction, docket and judges to the United States Court of Appeals for the Federal Circuit. Federal Courts Improvement Act, Pub. L. No. 97-164, 96 Stat. 25 (1982). In the Federal Circuit’s first opinion, *South Corp. v. United States*, 690 F.2d 1368, 1370 (Fed. Cir. 1982) (en banc), the Federal Circuit adopted the precedents of the Court of Customs and Patent Appeals.

84. 573 F.2d 1237 (C.C.P.A. 1978).

85. 618 F.2d 758 (C.C.P.A. 1980).

86. 684 F.2d 902 (C.C.P.A. 1982).

87. *In re Bilski*, 545 F.3d 943, 958–59 (Fed. Cir. 2008) (citing *In re Abele*, 684 F.2d at 905–07).

88. *In re Abele*, 684 F.2d at 903.

89. *Id.*

90. *Id.*

The broad process claim at issue in *In re Abele* reads:

5. A method of displaying data in a field comprising the steps of calculating the difference between the local value of the data at a data point in the field and the average value of the data in a region of the field which surrounds said point for each point in said field, and displaying the value of said difference as a signed gray scale at a point in a picture which corresponds to said data point.

Id. at 908.

The dependent claim at issue in *In re Abele* reads:

6. The method of claim 5 wherein said data is X-ray attenuation data produced in a two dimensional field by a computed tomography scanner.

Id.

91. *Id.* at 907.

This finding necessitated the second stage of analysis: determining whether the claimed process applied to any physical element or process step.⁹²

The court in *Abele* applied the second step to independent claim 5, an algorithm for processing and displaying undefined “data,” and dependent claim 6, where the “data” is limited to CAT-scan data.⁹³ The court held that claim 5 was not patent eligible because it did not apply to a certain process and, instead, applied only to a mathematical formula.⁹⁴ In contrast, the court determined that claim 6 was patent eligible because it required the performance of a CAT-scan, even absent the algorithm.⁹⁵

b) Subsequent Decisions Post-Freeman-Walter-Abele: *In re Alappat* and *In re Warmerdam*

In the first decade of the Federal Circuit’s existence, patent-eligibility remained unchanged after the Court of Customs and Patent Appeals’ holding in *Abele*. However, in 1994, the Federal Circuit decided several cases involving computer-implemented inventions. The two most significant decisions were the en banc decision, *In re Alappat*,⁹⁶ and the decision promptly thereafter, *In re Warmerdam*.⁹⁷

The Federal Circuit in *Alappat* upheld the patent for a machine that created a smooth waveform display in a digital oscilloscope.⁹⁸ Specifically, by

92. *Arrhythmia Research Tech., Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1059 (Fed. Cir. 1992).

93. *In re Abele*, 684 F.2d at 907–08.

94. *Id.* at 909.

95. *Id.* at 908.

96. 33 F.3d 1526, 1537 (Fed. Cir. 1994).

97. 33 F.3d 1354, 1355 (Fed. Cir. 1994); see Suzanne Swanson, *The Patentability of Business Methods, Mathematical Algorithms and Computer-Related Inventions After the Decision by the Court of Appeals for the Federal Circuit in State Street*, 8 FED. CIR. B.J. 153, 171 (1999) (“Then in 1994, five cases were decided including the long awaited decision in *In re Alappat*.”).

98. *In re Alappat*, 33 F.3d at 1545.

The claim at issue in *In re Alappat* reads:

A rasterizer for converting vector list data representing sample magnitudes of an input waveform into anti-aliased pixel illumination intensity data to be displayed on a display means comprising:

- (a) means for determining the vertical distance between the endpoints of each of the vectors in the data list;
- (b) means for determining the elevation of a row of pixels that is spanned by the vector;
- (c) means for normalizing the vertical distance and elevation; and
- (d) means for outputting illumination intensity data as a predetermined function of the normalized vertical distance and elevation.

Id. at 1538–39.

regulating the degree of illumination of the pixels, the machine would diminish any oscillation, resulting in a smooth continuous waveform.⁹⁹ The Federal Circuit reasoned that the machine was not a “disembodied mathematical concept,” but rather “a specific machine” that “produce[d] a useful, concrete, and tangible result.”¹⁰⁰

According to the court in *Alappat*, implementing a program on a general-purpose computer creates a new machine because it programs the general-purpose computer to perform particular useful functions.¹⁰¹ Accordingly, a person wishing to obtain patent protection in software can claim the software algorithm in connection with any known hardware.

Less than a month after *Alappat*, the Federal Circuit again evaluated computer-implemented claims in *In re Warmerdam*.¹⁰² The Warmerdam patent claimed a method and a machine for using a mathematical concept called “bubble hierarchy.”¹⁰³ The autonomous machines implemented bubble hierarchy to avoid collisions with other objects.¹⁰⁴ The Federal Circuit determined that the method claim in the Warmerdam patent was not patentable because it only contained the manipulation of abstract ideas.¹⁰⁵ However, the court decided that the machine claim, wherein the machine processed and stored the rejected method claim, was “clearly patentable subject matter” because it was “for a machine.”¹⁰⁶ Thus, the court—similar to its holding in *Alappat*—recognized that claims directed at programming a computer to accomplish a specific result were patent eligible.¹⁰⁷

99. *Id.*

100. *Id.*

101. *Id.* at 1549.

102. *In re Warmerdam*, 33 F.3d 1354, 1355 (Fed. Cir. 1994).

103. *Id.*

One of the method claims at issue in *In re Warmerdam* reads:

1. A method for generating a data structure which represents the shape of [sic] physical object in a position and/or motion control machine as a hierarchy of bubbles, comprising the steps of:
first locating the medial axis of the object and
then creating a hierarchy of bubbles on the medial axis.

Id. at 1358.

One of the machine claims at issue in *In re Warmerdam* reads:

5. A machine having a memory which contains data representing a bubble hierarchy generated by the method of any of Claims 1 through 4.

Id.

104. *Id.* at 1360.

105. *Id.* (“[T]he claim involves no more than the manipulation of abstract ideas.”).

106. *Id.*

107. *Id.*

c) Relative Strictness of the Freeman-Walter-Abele Test and
Ensnuing Cases

The Court of Customs and Patent Appeals designed the Freeman-Walter-Abele test to identify unpatentable mathematical algorithms in the wake of *Benson* and *Flook*.¹⁰⁸ However, the Freeman-Walter-Abele test loosened the blanket prohibition of mathematical algorithms in *Benson* and *Flook* by providing patentability exceptions if the mathematical algorithm applied to a physical element or process step.¹⁰⁹

Despite being more permissive than *Benson* and *Flook*, the Freeman-Walter-Abele test was a stricter test for patent-eligibility than the holding in *Diehr*.¹¹⁰ Even the Federal Circuit in *AT&T Corp. v. Excel Commc'ns, Inc.* acknowledged that the Freeman-Walter-Abele test added an additional unfounded limitation—a structural limitation—to establish patentability of abstract claims.¹¹¹ Because the Freeman-Walter-Abele test added an unsupported structural limitation, scholars argue that the Freeman-Walter-Abele test is a more severe patent-eligibility standard than the holding in *Diehr*.¹¹² One scholar noted that the computerized calculation at issue in *Diehr* would not be patentable under the Freeman-Walter-Abele test, even though the Supreme Court found the computerized calculation patentable.¹¹³ In

108. *See* State St. Bank & Trust Co. v. Signature Fin. Grp., Inc, 149 F.3d 1368, 1373–74 (Fed. Cir. 1998), *abrogated by* *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (“The Freeman-Walter-Abele test was designed by the Court of Customs and Patent Appeals, and subsequently adopted by this court, to extract and identify unpatentable mathematical algorithms in the aftermath of *Benson* and *Flook*.”).

109. *See* Vincent Chiappetta, *Patentability of Computer Software Instruction as an “Article of Manufacture.” Software as Such as the Right Stuff*, 17 J. MARSHALL J. COMPUTER & INFO. L. 89, 125 n.81 (1998) (“Arguably, the development of the Freeman-Walter-Abele two step-test is more about limiting the unfortunate effects of *Benson* and *Flook* than the development of a rational approach to the patentability of computer software.”).

110. *In re Bilski*, 545 F.3d 943, 958–59 (citing *In re Abele*, 684 F.2d 902, 905–07 (C.C.P.A. 1982)); *see also* Sandra Szczerbicki, *The Shakedown on State Street*, 79 OR. L. REV. 253, 264 (2000) (“While quite strict, the Freeman-Walter-Abele test suggested that some computer software was patentable subject matter.”).

111. 172 F.3d 1352, 1359–60 (Fed. Cir. 1999), *abrogated by* *In re Bilski*, 545 F.3d 943.

112. *See, e.g.*, David S. Olson, *Taking the Utilitarian Basis for Patent Law Seriously: The Case for Restricting Patentable Subject Matter*, 82 TEMP. L. REV. 181, 217 (2009) (“In the case of *In re Alappat*, the Federal Circuit further expanded the patentability of algorithms.”); J.D. Roberts, *Presidents and Mummies and Patents, Oh My: Why Patenting Special Effects Technology is Like a Box of Chocolates, You Never Know What You’re Going to Get*, 7 VILL. SPORTS & ENT. L.J. 237, 243 (2000) (“The next significant case after *Diehr* is *In Re Warmerdam* Thus, [after *In re Warmerdam*] the standard under § 101 became less and less strict.”).

113. Arti Rai, *Addressing the Patent Gold Rush: The Role of Deference to PTO Patent Denials*, 2 WASH. U. J.L. & POL’Y 199, 209 (2000).

addition, the Federal Circuit in *In re Bilski* concluded the Freeman-Walter-Abele test did not exhaustively include all patent eligible inventions.¹¹⁴

On the other hand, the Federal Circuit in *Alappat* greatly reduced the Court of Customs and Patent Appeals' strict stance on patent-eligibility.¹¹⁵ The Federal Circuit considered the machine in *Alappat* a "new machine" because "it is programmed to perform particular functions pursuant to instructions from program software."¹¹⁶ Based on the *Alappat* decision, the Federal Circuit effectively held software claims patentable as long as the claim recited hardware capable of running the software program.

The *Alappat* holding expanded the patentability of algorithms beyond the initial physical element requirement devised by the Freeman-Walter-Abele test.¹¹⁷ After *Alappat*, the use of a general purpose computer was sufficient to render any algorithm patentable.¹¹⁸

Similarly, the *Alappat* holding expanded patent-eligibility from the previous Supreme Court holding in *Diehr*.¹¹⁹ After *Diehr*, if an algorithm was a component of a larger process, the process itself may be patentable.¹²⁰ But after *Alappat*, a program solely consisting of a mathematical algorithm may be patentable if implemented on a general purpose computer.¹²¹

114. *In re Bilski*, 545 F.3d 943, 159 (Fed. Cir. 2008), *cert. granted*, 129 S. Ct. 2735 (2009), and *aff'd but criticized sub nom.* *Bilski v. Kappos*, 130 S. Ct. 3218 (2010).

115. *See In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994) ("[A] computer operating pursuant to software *may* represent patentable subject matter, provided, of course, that the claimed subject matter meets all of the other requirements of Title 35.>").

116. *Id.* ("The unfounded suggestion that abstract claims require structural limitations may stem from the antiquated Freeman-Walter-Abele test.>").

117. *See Olson*, *supra* note 112, at 217 ("In the case of *In re Alappat*, the Federal Circuit further expanded the patentability of algorithms.>").

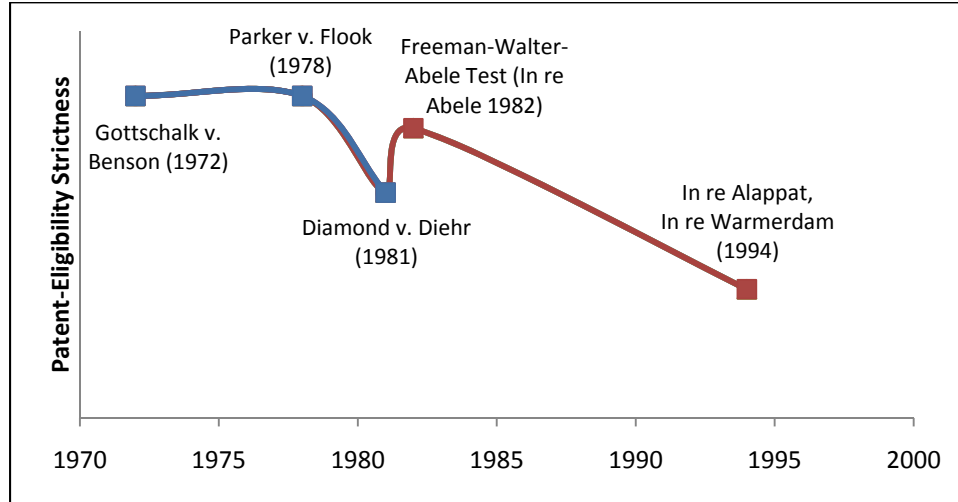
118. *Alappat*, 33 F.3d at 1544–45 (finding the computer a "specific machine to produce a useful, concrete, and tangible result").

119. *See Debra Greenfield*, *Intangible or Embodied Information: The Non-Statutory Nature of Human Genetic Material*, 25 SANTA CLARA COMPUTER & HIGH TECH. L.J. 467, 504 (2009) ("Lower courts after *Diehr* expanded the patentability of algorithms embedded within process claims, but only when the process had a similarly transformative result."); Roberts, *supra* note 112, at 243 ("The next significant case after *Diehr* is *In Re Warmerdam* . . . Thus, [after *In re Warmerdam*] the standard under § 101 became less and less strict.>").

120. *See Diamond v. Diehr*, 450 U.S. 175, 187 (1981) (finding an inventive application of a fundamental principle statutory because it was embodied in an otherwise patentable process).

121. *Alappat*, 33 F.3d at 1549.

Figure 2: Scope of Patent-Eligibility from 1972 to 1998



d) Downfall of the Freeman-Walter-Abele Test

The Federal Circuit rejected the Freeman-Walter-Abele test in two stages. First, the court adopted a more liberal viewpoint toward subject-matter eligibility with its en banc decision in *In re Alappat*.¹²² Second, the Federal Circuit explicitly repudiated the Freeman-Walter-Abele test in *State Street*, describing the test as having “little, if any, applicability in determining the presence of statutory subject matter.”¹²³

2. *Useful, Concrete, and Tangible Result Test and Ensuing Cases*

a) Overview of the Useful, Concrete, and Tangible Result Test

After rejecting the Freeman-Walter-Abele test, the Federal Circuit attempted to hold abstract claims patent eligible if the claim provided useful, concrete, and tangible results—the Federal Circuit’s definition of a practical application.¹²⁴ In *State Street*, the Federal Circuit determined that that the patent in question, a data processing system for managing mutual funds to determine a share price, was patentable subject matter because it produced “a

122. *Id.* at 1526; see ROGER E. SCHECHTER & JOHN R. THOMAS, INTELLECTUAL PROPERTY: THE LAW OF COPYRIGHTS, PATENTS AND TRADEMARKS 395 (2003) (addressing *In re Alappat* as major turning point in the Federal Circuit’s approach to computer-related inventions impacting the subject-matter eligibility of processes as well as machines).

123. *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1375 (Fed. Cir. 1998).

124. *Id.* at 1373 (“In *Diehr*, the Court explained that certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, i.e., ‘a useful, concrete and tangible result.’”).

useful, concrete and tangible result—a final share price momentarily fixed.”¹²⁵

Moreover, the Federal Circuit overruled the district court’s holding that business methods were unpatentable.¹²⁶ Currently, there is not a clear definition for a business method, besides defining it tautologically as a method of doing business.¹²⁷ Business method patents were not patentable prior to *State Street* because courts believed there was a judicially-created

125. *Id.*

The claim at issue in *State Street* reads:

1. A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:
 - (a) computer processor means [a personal computer including a CPU] for processing data;
 - (b) storage means [a data disk] for storing data on a storage medium;
 - (c) first means [an arithmetic logic circuit configured to prepare the data disk to magnetically store selected data] for initializing the storage medium;
 - (d) second means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases or decreases based on specific input, allocate the results on a percentage basis, and store the output in a separate file] for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds [sic], assets and for allocating the percentage share that each fund holds in the portfolio;
 - (e) third means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis, and store the output in a separate file] for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;
 - (f) fourth means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis, and store the output in a separate file] for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and
 - (g) fifth means [an arithmetic logic circuit configured to retrieve information from specific files, calculate that information on an aggregate basis, and store the output in a separate file] for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

Id. at 1371–72.

126. *Id.* at 1375.

127. *Supra* note 4.

business method exemption from patentability.¹²⁸ The Federal Circuit rejected the idea that business methods are nonstatutory, holding that “§ 101 should not turn on whether the claimed subject matter does ‘business’ as opposed to something else.”¹²⁹

b) Subsequent Decisions Post-Useful, Concrete, and Tangible Result Test: *In re Comiskey* and *In re Nuijten*

After the Federal Circuit’s *State Street* decision, several Supreme Court Justices expressed reservations about the appropriateness of the useful, concrete, and tangible result test. In *Laboratory Corp. v. American Holdings*, Justice Breyer, in a dissent joined by Justices Stevens and Souter, 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.”¹³⁰

In a possible response to this statement, the Federal Circuit tightened its patent-eligibility approach in several subsequent decisions. The Federal Circuit in *In re Comiskey*¹³¹ and *In re Nuijten*¹³² reigned in the permissibility of patent-eligibility under the useful, concrete, and tangible result test.

The Federal Circuit in *Comiskey* rejected the patent-eligibility of a claim to a legal arbitration process, but held a method claim, which contained a physical component, patentable.¹³³ The claim in *Comiskey* covered a method and system for mandatory arbitration involving legal documents, such as wills or contracts.¹³⁴ The patent examiner and the BPAI rejected the claims on § 103 obviousness grounds.¹³⁵

128. See Emir Aly Crowne Mohammed, *What is an Invention? A Review of the Literature on Patentable Subject Matter*, 15 RICH. J.L. & TECH. 2, 39 (2008) (“[T]he court in *State Street Bank & Trust Company v. Signature Financial Group, Inc.* put the ‘ill-conceived’ business method exemption aside.”).

129. *State St. Bank*, 149 F.3d at 1376.

130. *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 548 U.S. 124, 136 (2006).

131. 499 F.3d 1365, 1368 (Fed. Cir. 2007), *opinion revised and superseded*, 554 F.3d 967 (Fed. Cir. 2009).

132. 500 F.3d 1346, 1348–51 (Fed. Cir. 2007).

133. *Comiskey*, F.3d at 981–82.

134. *Id.* at 1368.

The claim not requiring a machine at issue in *In re Comiskey* reads:

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

enrolling a person and one or more unilateral documents associated with the person in a mandatory arbitration system at a time prior to or as of the time of creation of or execution of the one or more unilateral documents; incorporating arbitration language, that is specific to the enrolled person, in the previously enrolled unilateral document wherein the arbitration language provides that any contested issue related to the unilateral document must be presented to the mandatory arbitration system, in which the person and the one or more unilateral documents are enrolled, for binding arbitration wherein the contested issue comprises one or more of a challenge to the documents, interpretation of the documents, interpretation or application of terms of the documents and execution of the documents or terms of the documents;

requiring a complainant to submit a request for arbitration resolution to the mandatory arbitration system wherein the request is directed to the contested issue related to the unilateral document containing the arbitration language;

conducting arbitration resolution for the contested issue related to the unilateral document in response to the request for arbitration resolution;

providing support to the arbitration; and

determining an award or a decision for the contested issue related to the unilateral document in accordance with the incorporated arbitration language, wherein the award or the decision is final and binding with respect to the complainant.

Id. at n.1.

The claim requiring a machine at issue in *In re Comiskey* reads:

A system for mandatory arbitration resolution regarding one or more unilateral documents comprising:

a registration module for enrolling a person who is executing and one or more unilateral documents associated with the person in a mandatory arbitration system at a time prior to or as of the time of creation of or execution of the one or more unilateral documents;

an arbitration module for incorporating arbitration language, that is specific to the enrolled person, in the previously enrolled unilateral document wherein the arbitration language provides that any contested issue related to the unilateral document must be presented to the mandatory arbitration system, in which the person and the one or more unilateral documents are enrolled, for binding arbitration wherein the contested issue comprises one or more of a challenge to the documents, interpretation of the documents, interpretation or application of terms of the documents and execution of the documents or terms of the documents; and for providing this arbitration language to the enrolled person;

an arbitration resolution module for requiring a complainant to submit a request for arbitration resolution to the mandatory arbitration system wherein the request is directed to the contested issue related to the unilateral document containing the arbitration language; and

a means for selecting an arbitrator from an arbitrator database to conduct an arbitration resolution for the contested issue related to the unilateral

The Federal Circuit, however, held that the method claims, which required use of a mechanical device, were patentable, whereas similar claims that did not specifically require the use of a mechanical device were unpatentable.¹³⁶ The Federal Circuit explained that an abstract idea or mental process is only patent eligible to the extent that it embodies statutory subject matter.¹³⁷ Therefore, the court decided that the claims solely reciting the legal arbitration process were unpatentable.¹³⁸ However, the *Comiskey* claims reciting the legal arbitration process implemented within a machine constituted patent-eligible subject matter.¹³⁹

On the same day the Federal Circuit decided *Comiskey*, the court addressed the patent-eligibility of electrical signals in *In re Nuijten*.¹⁴⁰ The Federal Circuit denied patentability for (1) claims drawn to a method of embedding supplemental data, or “watermarks,” in an electromagnetic signal; and (2) claims drawn to the signals with embedded supplemental data themselves.¹⁴¹ The Federal Circuit reasoned that an electrical signal does not fit within a statutory patentable subject matter—a process, machine, manufacture, or composition of matter.¹⁴²

document in response to the request for arbitration resolution, for providing support to the arbitrator, and where the arbitrator determines an award or a decision for the contested issue related to the unilateral document in accordance with the incorporated arbitration language, wherein the award or the decision is final and binding with respect to the complainant.

Id. at n.3.

135. *Id.* at 1369.

136. *Id.* at 1377.

137. *Id.*

138. *Id.*

139. *Id.*

140. *In re Nuijten*, 500 F.3d 1346, 1348 (Fed. Cir. 2007).

141. *Id.*

The claim at issue in *In re Nuijten* reads:

A method of embedding supplemental data in a signal, comprising the steps of:

encoding the signal in accordance with an encoding process which includes the step of feeding back the encoded signal to control the encoding; and modifying selected samples of the encoded signal to represent the supplemental data prior to the feedback of the encoded signal and including the modifying of at least one further sample of the encoded signal preceding the selected sample if the further sample modification is found to improve the quality of the encoding process.

Id. at 1351.

142. *Id.*

c) Relative Strictness of the Useful, Concrete, and Tangible Result Test and Ensuing Cases

The Federal Circuit's holding in *State Street* presented a more permissive test to patent-eligibility than its subsequent *Alappat* holding.¹⁴³ In *State Street*, the Federal Circuit allowed any algorithm that produced a "useful, concrete, and tangible result" to be patent eligible.¹⁴⁴ Additionally, the *State Street* test led to the Federal Circuit considering business methods as patentable subject matter so long as the claim produced useful, concrete, and tangible results.¹⁴⁵ In contrast, after *Alappat*, the Federal Circuit only allowed computer software claims to be patent eligible if they produced a "useful, concrete, and tangible result."¹⁴⁶

The useful, concrete, and tangible test represents the most permissive point of patent-eligibility history. Many commentators criticized this test for focusing on the utility of an invention, a requirement analyzed as a separate inquiry under § 101 of the Patent Act.¹⁴⁷ Because the test analyzed the utility requirement instead of patent-eligibility, the useful, concrete, and tangible result test rendered the patent-eligibility requirement of § 101 pointless.

As explained above, the Federal Circuit responded to the critiques by tightening its patent-eligibility approach in *Comiskey* and *Nuijten*.¹⁴⁸ In particular, in *Nuijten*, the Federal Circuit further limited patent-eligibility compared to both the previous useful, concrete, and tangible result test and

143. See Andrew Patrick, *Patent Eligibility and Computer-Related Processes: A Critique of In Re Bilski and the Machine-or-Transformation Test*, 14 VA. J.L. & TECH. 181, 196 (2009) ("The Federal Circuit gradually turned away from the FWA [Freeman-Walter-Abele] test, adopting a more permissive stance toward subject-matter eligibility with its en banc decision in *In re Alappat*.").

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

145. *State St. Bank*, 149 F.3d at 1375–76.

146. See *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994) ("[A] general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.").

147. William Michael Schuster, *Predictability and Patentable Processes: The Federal Circuit's In Re Bilski Decision and its Effect on the Incentive to Invent*, 11 COLUM. SCI. & TECH. L. REV. 1, 7 (2009) ("The Federal Circuit has recognized the utility and subject matter requirements as distinct inquiries under § 101. As such, it is necessarily an improper statutory interpretation to define patentable subject matter in terms of a useful, concrete, and tangible result when the utility requirement of § 101 already requires such results.").

148. *Supra* Section I.F.2.b); see *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 548 U.S. 124, 136 (2006) ("[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.").

the *Alappat* decision.¹⁴⁹ Even though the court found the Nuijten patent “useful to publishers of sound and video recordings,” the court concluded that an electrical signal was not patentable because the electrical signals were not statutory subject matter.¹⁵⁰ This is opposite from the useful, concrete, and tangible result test, which allowed patentability for all algorithms that produced a useful, concrete, and tangible result.

However, the holding in *Comiskey* and *Nuijten* is still more permissive to patent-eligibility than the Supreme Court holding in *Diehr*. In particular, the *Comiskey* holding is a mere formality.¹⁵¹ The *Comiskey* rule places only a few practical limitations upon the scope of patent-eligibility.¹⁵² Proper drafting techniques can qualify otherwise unpatentable subject matter as patent eligible.¹⁵³ *Diehr*, on the other hand, determined whether the process that claimed a fundamental principle pre-empted substantially all uses of that fundamental principle.¹⁵⁴ The *Diehr* holding, unlike the *Comiskey* rule, is a more substantive, and thus stricter, test for patent-eligibility.

149. See *supra* Section I.F.2.b).

150. *In re Nuijten*, 500 F.3d 1346, 1349 (Fed. Cir. 2007).

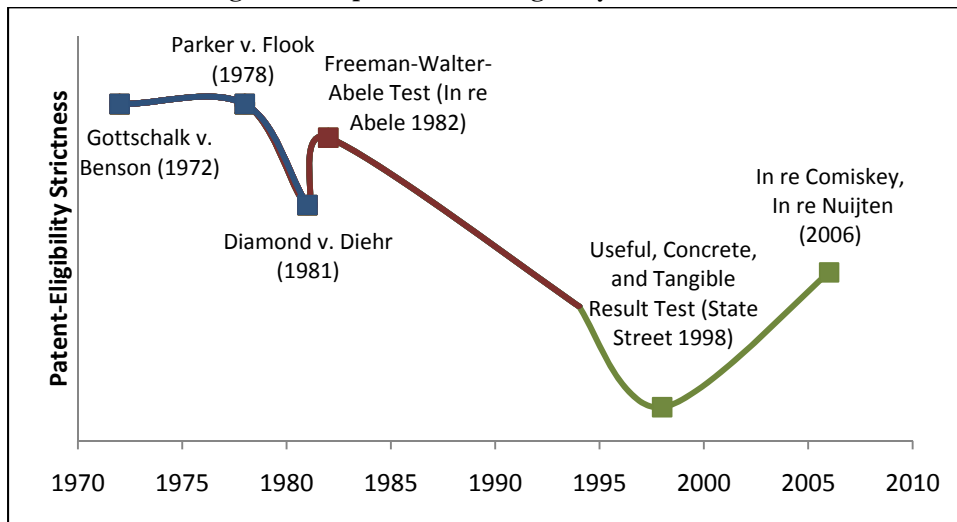
151. David J. Kappos *et al.*, *A Technological Contribution Requirement for Patentable Subject Matter: Supreme Court Precedent and Policy*, 6 NW. J. TECH. & INTELL. PROP. 152 (2008) (“The *Comiskey* rule is one of mere formality, for such drafting techniques qualify otherwise unpatentable methods as statutory subject matter, yet place few practical limitations upon the scope of the claims.”); see *In re Comiskey*, 499 F.3d 1365, 1380 (Fed. Cir. 2007) *opinion revised and superseded*, 554 F.3d 967 (Fed. Cir. 2009) (“While the mere use of the machine to collect data necessary for application of the mental process may not make the claim patentable subject matter, these claims in combining the use of machines with a mental process, claim patentable subject matter.”).

152. *Id.*

153. *Id.* (“Under the *Comiskey* rule, the patent drafter need merely claim an invention in terms of a ‘system’ or ‘machine’ for accomplishing a particular method.”).

154. See *Diamond v. Diehr*, 450 U.S. 175, 187 (1981) (finding an inventive application of a fundamental principle statutory because it was embodied in an otherwise patentable process).

Figure 3: Scope of Patent-Eligibility from 1972 to 2008



3. Machine-or-Transformation Test and Ensuing Cases

a) Machine-or-Transformation Test Overview

Continuing the trend from *Comiskey* and *Nuijten* to make patent-eligibility more stringent, the Federal Circuit in *In re Bilski* devised a “machine-or-transformation” test to solely govern “whether a claim to a process is patentable under § 101, or conversely, is drawn to unpatentable subject matter because it claims only a fundamental principle.”¹⁵⁵ The Federal Circuit established that “[a] claimed process is surely patent eligible under § 101 if (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.”¹⁵⁶

The Federal Circuit drew its test primarily from two Supreme Court decisions, *Gottschalk v. Benson*¹⁵⁷ and *Diamond v. Diebr*.¹⁵⁸ In *Benson*, the Supreme Court stated, “[a] transformation and reduction of an article ‘to a different state or thing’ is the clue to the patentability of a process claim that does not include particular machines.”¹⁵⁹ The Court in *Diebr* held that

155. *In re Bilski*, 545 F.3d 943, 952 (Fed. Cir. 2008), cert. granted, 129 S. Ct. 2735 (2009), and *aff’d but criticized sub nom.* *Bilski v. Kappos*, 130 S. Ct. 3218 (2010).

156. *Id.* at 954.

157. 409 U.S. 63 (1972).

158. 450 U.S. 175 (1981).

159. *Bilski*, 545 F.3d at 954 (citing *Benson*, 409 U.S. at 70).

“use of mathematical formula in process ‘transforming or reducing an article to a different state or thing’ constitutes patent eligible subject matter.”¹⁶⁰

Based on the application of this new test, the Federal Circuit in *In re Bilski* determined that the Bilski claims were unpatentable because they failed to satisfy the machine or transformation prong.¹⁶¹ The patent at issue covered a method for hedging risks in commodities trading.¹⁶² The Federal Circuit held that the process at issue “[did] not transform any article to a different state or thing.”¹⁶³ As the applicants conceded the process was not tied to a specified machine, the patent claims met neither prong of the test.¹⁶⁴

b) Relative Strictness of the Machine-or-Transformation Test

The machine-or-transformation test is a more severe standard for patentability than the holding in *Comiskey*.¹⁶⁵ The majority opinion in *In re Bilski* recasted *Comiskey* under the light of the new machine-or-transformation test and, by doing so, illustrated the difference between the two opinions.¹⁶⁶ Chief Judge Michel, writing the majority opinion in *In re*

160. *Id.* (citing *Diehr*, 450 U.S. at 192).

161. *Id.* at 963–64.

162. *Id.* at 964.

Claim 1 of the Bilski patent reads:

A method for managing the consumption risk costs of a commodity sold be a commodity provided at a fixed price comprising the steps of:
 initiating a series of transactions between said commodity provider and consumers of said commodity wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumer;
 identifying market participants for said commodity having a counter-risk position to said consumers; and
 initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk positions of said series of consumer transactions.

Id.

163. *Id.*

164. *Id.*

165. See Matthew Moore, *In Re Bilski and the “Machine-or-Transformation” Test: Receding Boundaries for Patent eligible Subject Matter*, 2010 DUKE L. & TECH. REV. 5, 42 (2010) (analyzing cases prior and post *In re Bilski* to determine that the machine-or-transformation test significantly reduced the scope of § 101’s coverage); see also *Fort Props., Inc. v. Am. Master Lease, LLC*, 609 F. Supp. 2d 1052 (C.D. Cal. 2009) (reversing district court decision that claims were patent-eligible under the useful, concrete, tangible result test because claim did not pass the machine-or-transformation test).

166. *Bilski*, 545 F.3d at 961 (“Because [the *Comiskey*] claims failed the machine-or-transformation test, we held that they were drawn solely to a fundamental principle . . . and were thus not patent-eligible under § 101.”).

Bilski, stated that the holding in *Comiskey* implicitly utilized the machine-or-transformation test to determine the ineligibility of the *Comiskey* claim.¹⁶⁷ However, since the Federal Circuit in *Comiskey* did not explicitly state the machine-or-transformation test, the court still abided by the more lenient useful, concrete, and tangible result test.¹⁶⁸

It is difficult to compare the machine-or-transformation test to the Freeman-Walter-Abele test because the tests did not coincide in time.¹⁶⁹ The Federal Circuit overruled the Freeman-Walter-Abele test prior to the implementation of the machine-or-transformation test.¹⁷⁰ Therefore, no case compares the two tests directly.

Theoretically, the machine-or-transformation test is a more permissive test than Freeman-Walter-Abele test. Both tests begin similarly by analyzing if the claim contains nonstatutory subject matter.¹⁷¹ If so, both tests allow the claim to be patent eligible if the claim is tied to a physical structure.¹⁷² The machine-or-transformation test differs by also allowing a claim to be patent eligible if it transforms “a particular article into a different state or thing.”¹⁷³ Therefore, by creating another path to establish patent-eligibility for a claim containing a fundamental principle, the machine-or-transformation test appears to be more permissive than the Freeman-Walter-Abele test.

At the same time, the machine-or-transformation test is a more restrictive patent-eligibility test than the holding in *Diehr*. The Federal Circuit looked to the Supreme Court statement in *Diehr*—“[t]ransformation and reduction of an article ‘to a different state or thing is *the clue* to the patentability of a

167. *Id.* (observing that the applicants in *Comiskey* “conceded that [the *Comiskey*] claims do not require a machine, and [the *Comiskey*] claims evidently do not describe a process of manufacture or a process for the alteration of a composition of matter”).

168. *See id.* at 959 (stating that even though “a process tied to a particular machine, or transforming or reducing a particular article into a different state or thing, will generally produce a ‘concrete’ and ‘tangible’ result,” the useful, concrete, and tangible result test was still “inadequate”); *In re Comiskey*, 554 F.3d 967 (Fed. Cir. 2009).

169. *Compare* *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1374 (Fed. Cir. 1998) (rejecting the Freeman-Walter-Abele test in 1998), *with Bilski*, 545 F.3d at 954 (implementing the machine-or-transformation test as the sole test for patent eligibility in 2008).

170. *Id.*

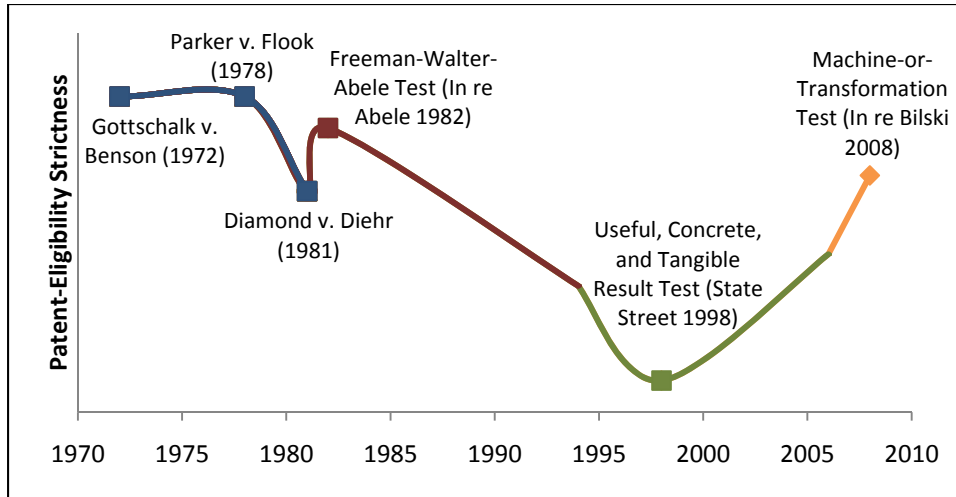
171. Moore, *supra* note 165, at 28 (“While the court [in *In re Bilski*] rejected the ‘Freeman-Walter-Abele’ test, which required that a mathematical algorithm be connected to physical elements or process steps, the ‘machine-or-transformation’ test, nonetheless, seems to require an algorithm to be grounded in some physical element, at least in most cases.”).

172. *Id.*

173. *Bilski*, 545 F.3d at 954.

process claim’ ”—to establish the machine-or-transformation test.¹⁷⁴ However, unlike the Supreme Court considering the test as a “clue” to patent-eligibility, the Federal Circuit relied exclusively on the machine-or-transformation test.¹⁷⁵

Figure 4: Scope of Patent-Eligibility from 1972 to 2008



G. SUPREME COURT PUTS THE BRAKES ON THE FEDERAL CIRCUIT’S PROCESS CLAIM PATENT-ELIGIBILITY EXPERIMENT

1. *Bilski v. Kappos Overview*

In *Bilski v. Kappos*, Justice Kennedy’s opinion, joined by Chief Justice Roberts, Justice Thomas, Justice Alito, and in-part by Justice Scalia, affirmed the Federal Circuit judgment.¹⁷⁶ The Supreme Court also held that the machine-or-transformation test was not the sole test for patent-eligibility, but rather “may be a useful and important clue, an investigative tool, for determining whether some claimed inventions are processes under § 101.”¹⁷⁷ Instead, the Court re-established their previous decisions in *Benson*, *Flook*, and *Diehr* as “the guideposts” for patent-eligibility for processes under § 101.¹⁷⁸

The Court also rejected the categorical exclusion of business method patents from eligibility, noting the definition of process in § 100(b) “may

174. *Id.* at 955 (citing *Diamond v. Diehr*, 450 U.S. 175, 184 (1981)).

175. *Id.* at 956.

176. 130 S. Ct. 3218 (2010).

177. *Id.* at 3227 (2010).

178. *Id.* at 3222 (“The Court need not define further what constitutes a patentable ‘process,’ beyond pointing to the definition of that term provided in § 100(b) and looking to the guideposts in *Benson*, *Flook*, and *Diehr*.”).

include at least some methods of doing business.”¹⁷⁹ Moreover, the Court found support for business method patents in the U.S. Patent Code, which acknowledged the possibility of business patents.¹⁸⁰ Further, the Court found that 35 U.S.C. § 273(b)(1) provides a defense to patent infringement for prior use of a “method of conducting or doing business.”¹⁸¹

Finally, the Court noted that it did not want to preclude the Federal Circuit from developing other limiting criteria, so long as it “further[s] the purposes of the Patent Act and [is] not inconsistent with its text.”¹⁸²

2. *Variability Within the Supreme Court Decision*

Commentators lamented over the generality of the Supreme Court decision.¹⁸³ Many found that the Supreme Court did not provide guidance to determine patent-eligibility for patents claiming a fundamental principle.¹⁸⁴ This generality set the stage for lower courts to establish a new phase of patent-eligibility strictness for the upcoming years.

Lower courts can continue to utilize the machine-or-transformation test to establish patent-eligibility. The lower courts could interpret the Supreme Court statement that the machine-or-transformation test “may be a useful and important clue” as affirmation by the Supreme Court of the validity of the machine-or-transformation test.

In addition, lower courts can interpret the Supreme Court decision as a strict patent-eligibility standard by emphasizing *Benson*, *Flook*, and *Diehr* as the sole guideposts for patent-eligibility. By doing so, the lower courts would essentially rewind and re-establish the patent-eligibility standard to the *Diehr* decision (circa 1982). Many scholars interpreted the Supreme Court’s decision as doing just that.¹⁸⁵

179. *Id.* at 3228.

180. *Id.* (citing 35 U.S.C. § 273(b)(1) (2006)).

181. *Id.*

182. *Id.* at 3231.

183. See, e.g., Douglas J. Levy, *U.S. Patent Attorneys Say ‘Bilski’ Ruling Didn’t Give Necessary Guidance*, Michigan Lawyer’s Weekly (Feb. 5, 2010, 10:04 PM), <http://www.allbusiness.com/legal/trial-procedure-decisions-rulings/14825834-1.html>.

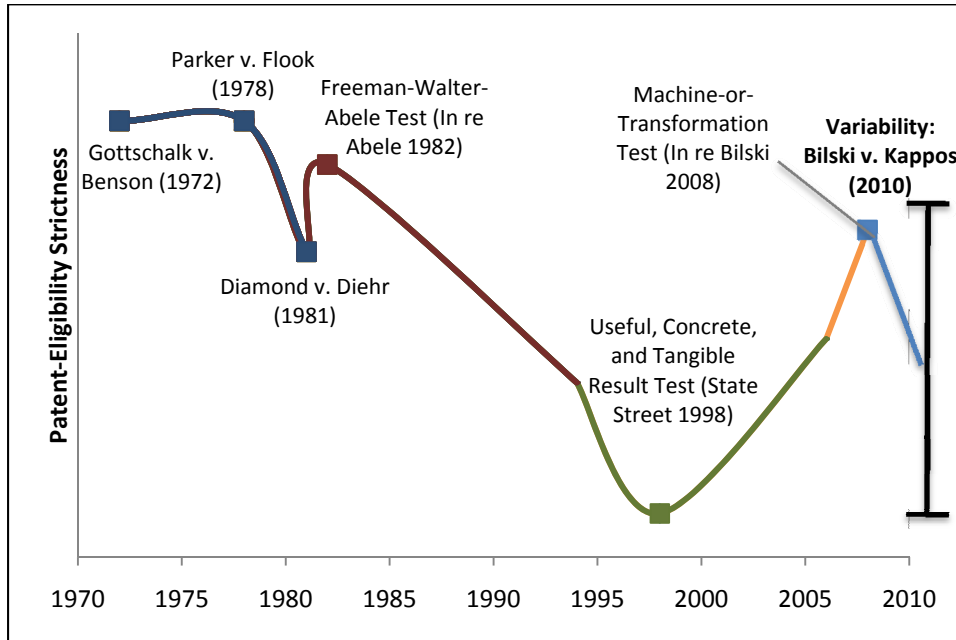
184. See Crouch, *supra* note 8 (“In general, the opinion offers no clarity or aid for those tasked with determining whether a particular innovation falls within Section 101. The opinion provides no new lines to be avoided. Rather, the outcome from the decision might be best stated as ‘business as usual.’”).

185. See, e.g., Shubha Ghosh, *Guest Post on Bilski: Throwing Back the Gauntlet*, PATENTLY-O, June 29, 2010, 2010 WLNR 13077294, available at <http://www.patentlyo.com/patent/2010/06/guest-post-on-bilski-throwing-back-the-gauntlet.html> (last visited Feb. 5, 2011).

Because the Supreme Court rejected the machine-or-transformation test as the sole test for patent-eligibility, lower courts can also interpret the Supreme Court decision to allow the development of more relaxed patent-eligibility standards than the machine-or-transformation test. The two lowest patent-eligibility thresholds established in *Bilski v. Kappos* were the overruling of the useful, concrete, and tangible result test,¹⁸⁶ and the finding of the Bilski claim as abstract.¹⁸⁷

Therefore, patent-eligibility strictness post-*Bilski v. Kappos* ranges from the useful, concrete, and tangible result test as a lower bound to the machine-or-transformation test as the upper bound.

Figure 5: Variability of Patent-Eligibility Strictness Post-*Bilski v. Kappos*



(“By setting the clock back to 1982, the Supreme Court is telling the Federal Circuit to try again in devising workable rules for patent law.”).

186. *Bilski*, 130 S. Ct. at 3259 (Stevens, J., concurring) (“[I]t would be a grave mistake to assume that anything with a ‘useful, concrete and tangible result,’ may be patented.”).

187. *Id.* at 3230 (“[A]ll members of the Court agree that the patent application at issue here falls outside of § 101 because it claims an abstract idea.”).

II. SIDELINE ANALYSIS FROM THE FIRST INNING OF POST-BILSKI

The Board of Patent Appeal and Interferences (BPAI) presided over thirty-six process patent-eligibility decisions since the *Bilski v. Kappos* ruling.¹⁸⁸ Moreover, the U.S. Patent and Trademark Office (PTO) released a memorandum discussing the changes to their patent examinations due to the *Bilski v. Kappos* decision.¹⁸⁹ This Part discusses trends evolving from the BPAI decisions, the PTO memorandum, and the most recent Federal Circuit decision, and compares these trends with past patent-eligibility landmarks.

A. PTO AND BPAI DECISIONS

An analysis of the most recent process patent-eligibility BPAI cases reveals a very interesting evolution of patent-eligibility post-*Bilski v. Kappos*. At present, there is no consistent test set forth by the BPAI, even with the PTO memorandum.¹⁹⁰ It may take several cases in the Federal Circuit to determine the true scope of patent-eligibility post-*Bilski v. Kappos*. However, there are several trends emerging from these initial forty-one cases.¹⁹¹

First, the BPAI patent-eligibility tests are technology-specific. For software-related patents, the BPAI implemented a software per se rejection.¹⁹² For patents that are not software-related, the BPAI utilized the

188. See *infra* Apps. IV.A & IV.B; BPAI Final Decisions Search, UNITED STATES PATENT AND TRADEMARK OFFICE, http://des.uspto.gov/Foia/DispatchBPAIServlet?Objtype=ser&SearchId=&SearchRng=decDt&txtInput_StartDate=06%2F28%2F2010&txtInput_EndDate=&docTextSearch=Bilski&page=60 (last visited Feb. 5, 2011). Note *Ex parte* Stein and *Ex parte* Hung are not patent-eligibility cases. These cases cite *Bilski v. Kappos* for other reasons.

189. Memorandum from Robert W. Babr, Acting Assoc. Comm'r for Patent Examination Pol'y, on Supreme Court Decision in *Bilski v. Kappos* to Patent Examining Corp. (June 28, 2010), available at http://ipwatchdog.com/blog/USPTO_bilski_memo_6-28-2010.PDF (last visited Dec. 24, 2010).

190. Compare *Ex parte* Elkins *et al.*, No. 2009-006190, 2010 WL 3017285 (B.P.A.I. July 30, 2010) (analogizing claim at issue with *Flook* to establish patent claims are not patentable), with *Ex parte* Moore *et al.*, No. 2009-005163, 2010 WL 3903327 (B.P.A.I. Sept. 28, 2010) (“The factors relevant in this case are the lack of an expressed recitation in the claims to a particular machine or transformation and that the claims are mere statements of a general concept.”).

191. See *infra* Apps. IV.A & IV.B. The overall number of cases results from a combination of cases in App. A and cases in App. B.

192. See *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 449 (2007) (“Abstract software code is an idea without physical embodiment.”); *Ex parte* Forman *et al.*, No. 2007-1546, 2007 WL 4480714 (B.P.A.I. Dec. 21, 2007) (“The claims are not drawn to a process (*cf.* instant claim 17). The claims do not appear to be drawn to a machine (e.g., a computer), but to software that may have functionality if embodied in a computer or a computer readable

previous machine-or-transformation test as the initial guidepost and as a sufficient condition to patent-eligibility.¹⁹³

B. TRANSFORMED BPAI SOFTWARE PER SE REJECTION SURFACING
FROM *BILSKI V. KAPPOS*

The BPAI started issuing software per se rejections in 2007, before *In re Bilski*.¹⁹⁴ The software per se rejection stemmed from an addition in the Manual of Patent Examining Procedure (MPEP) stating that “[d]ata structures not claimed as embodied in computer-readable media are descriptive material per se.”¹⁹⁵ The BPAI refers to these data structures as software per se.¹⁹⁶ The MPEP also spells out how to avoid writing a software per se claim: “a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program’s functionality to be realized, and is thus statutory.”¹⁹⁷ In other words, to escape a software per se designation, a claim must “recite language that limits the product to executing the code on a computer readable medium that can perform the procedural steps.”¹⁹⁸

Currently, there is no standard for what constitutes a software per se rejection. For instance, the BPAI did not issue a software per se rejection for a claim consisting of software that encodes and decodes an XML-based document.¹⁹⁹ Instead of the per se rejection, in *Ex parte Heuer*, the BPAI rejected the claim using the machine-or-transformation test.²⁰⁰ However, the BPAI has yet to find a software claim patent eligible when the claim does not limit the code on a computer readable medium, regardless of whether the

medium.”); MPEP § 2106.01 (8th ed., Rev. 6, Sept. 2007) (“Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer.”).

193. *See infra* App. IV.B. Note that the BPAI deems any claim that passes the machine-or-transformation test as patent eligible.

194. *Ex parte* Siew-Hong Yang-Huffman, No. 2007-2130, 2007 WL 2899992 (B.P.A.I. Oct. 4, 2007) (rejecting a claim because of a software per se reason for the first time).

195. MPEP, *supra* note 192, § 2106.01.

196. *Id.* (“USPTO personnel should treat a claim for a computer program, without the computer-readable medium needed to realize the computer program’s functionality, as nonstatutory functional descriptive material.”).

197. *Id.*

198. *Ex parte* Kouznetsov, No. 2007-3470, 2008 WL 2622337 (B.P.A.I. June 30, 2008).

199. *Ex parte* Heuer, No. 2009-004590, 2010 WL 3072973 (B.P.A.I. Aug. 4, 2010).

200. *Id.*

BPAI deemed the claim software per se or rejected it using the machine-or-transformation test.²⁰¹

Before *Bilski v. Kappos*, the BPAI utilized the Federal Circuit holding in *In re Warmerdam* to establish the unpatentability of software per se claims.²⁰² The BPAI interpreted *In re Warmerdam* such that “[c]laims directed to data structures per se are nonstatutory.”²⁰³ Because the BPAI defined software without tangible limitations as data structures, the BPAI found all software claims not embodied in a computer-readable media as nonstatutory. However, with *In re Bilski* and *Bilski v. Kappos* establishing a new standard of patent-eligibility, the BPAI does not need to rely on *In re Warmerdam*.

Now, the software per se rejection contains a stronger doctrinal grounding from the MPEP, *AT&T v. Microsoft*, and *Bilski v. Kappos*. According to MPEP section 2106.01, the PTO considers a pure software claim—not embodied in computer-readable media—as software per se.²⁰⁴ In *Microsoft Corp. v. AT&T*, the Supreme Court explicitly declared that “[a]bstract software code is an idea without physical embodiment,” thereby making software per se claims abstract.²⁰⁵ Finally, in *Bilski v. Kappos*, the Court confirmed the unpatentability of abstract ideas.²⁰⁶ As a result, the BPAI continues to hold that all software per se claims are unpatentable.

The software per se rejection came about in the BPAI’s first post-*Bilski v. Kappos* patent-eligibility decision, *Ex parte Proudler*.²⁰⁷ In *Proudler*, the BPAI rejected a computer apparatus claim because the claim “[was] directed to software per se.”²⁰⁸ The BPAI looked to the specification and the claim, and noted “no true hardware structure is recited.”²⁰⁹ Moreover, the BPAI did not mention the machine-or-transformation test in its § 101 analysis.²¹⁰

The software per se rejection falls in line with the previous Freeman-Walter-Abele test.²¹¹ The BPAI indicated that the software claim must contain a “physical embodiment” or else the claim is abstract.²¹² This is

201. *See infra* Apps. IV.A & IV.B.

202. *Ex parte* Kriechbaum, No. 2009-001354, 2009 WL 3030322 (B.P.A.I. Sept. 21, 2009).

203. *Id.* at *3.

204. MPEP, *supra* note 192, § 2106.01.

205. 550 U.S. 437, 449 (2007).

206. 130 S. Ct. 3218, 3227 (2010).

207. No. 2009-006599, 2010 WL 2727840 (B.P.A.I. July 8, 2010).

208. *Id.*

209. *Id.*

210. *Id.*

211. *Id.*

212. *Id.* (quoting *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 449 (2007)).

similar to the machine prong of the machine-or-transformation test proposed by the Federal Circuit in *In re Bilski*: “A claimed process is surely patent eligible under § 101 if: (1) it is tied to a particular machine or apparatus”²¹³ This is also similar to the second step of the Freeman-Walter-Abele test: is the claim “applied in any manner to physical elements or process steps[?]”²¹⁴ As explained earlier, the machine prong of the machine-or-transformation test is similar to the Freeman-Walter-Abele test.²¹⁵ Consequently, the software per se rejection is a stricter test to patent-eligibility than the machine-or-transformation test. Unlike the machine-or-transformation test, a software claim must pass the transformation prong to be patent eligible.

C. MACHINE-OR-TRANSFORMATION IS STILL KING FOR BPAI PROCESS PATENT-ELIGIBILITY CONCERNING NON-SOFTWARE CLAIMS

Of the thirty-six cases appealed to the BPAI for patent-eligibility, twenty-four were non-software per se claims.²¹⁶ These cases varied from a method of analyzing an electric generator for use by a customer to a method of providing tax-related information pertinent to investment transactions.²¹⁷ The BPAI significantly or exclusively utilized the machine-or-transformation test to decide patent-eligibility in twenty-six of those decisions, and concluded that the remaining two cases were abstract because the claims attempted to cover mental concepts.²¹⁸

The BPAI’s analysis of the non-software claims is not consistent across cases.²¹⁹ However, the trend appears to utilize the machine-or-transformation

213. *In re Bilski*, 545 F.3d 943, 954 (Fed. Cir. 2008); cf. *Ex parte Britt*, No. 2009-006557, 2010 WL 2070567, at *4 (B.P.A.I. May 21, 2010) (deciding that an examiner does not have to use the machine-or-transformation test after finding the claims software per se because “software per se is non-statutory subject matter”).

214. *Bilski*, 545 F.3d at 958–59 (citing *In re Abele*, 684 F.2d 902, 905–07 (C.C.P.A. 1982)).

215. See *supra* Section I.F.3.b); Moore, *supra* note 165, at 28 (“While the court [in *In re Bilski*] rejected the ‘*Freeman-Walter-Abele*’ test, which required that a mathematical algorithm be connected to physical elements or process steps, the ‘machine-or-transformation’ test, nonetheless, seems to require an algorithm to be grounded in some physical element, at least in most cases.”).

216. See *infra* Apps. IV.A and IV.B.

217. *Ex parte Cherkas*, No. 2009-011287, 2010 WL 4219765 (B.P.A.I. Oct. 25, 2010); *Ex parte Elkins*, No. 2009-006190, 2010 WL 3017285 (B.P.A.I. July 30, 2010).

218. See *infra* App. IV.B.

219. Compare *Elkins*, 2010 WL 3017285 (analogizing claim at issue with Flook to establish patent claims are not patentable), with *Ex parte Moore*, No. 2009-005163, 2010 WL 3903327 (B.P.A.I. Sept. 28, 2010) (“The factors relevant in this case are the lack of an expressed recitation in the claims to a particular machine or transformation and that the claims are mere statements of a general concept.”).

test as the initial guidepost and as a sufficient condition to patent-eligibility.²²⁰ BPAI determined the patent-eligibility of 88 percent of process claim patent-eligibility cases by utilizing the machine-or-transformation test first.²²¹ Eleven of these cases scrutinized the patentability of the claim in question through the machine-or-transformation test without analyzing the claim under *Benson*, *Flook*, or *Diehr*.²²² In three cases, the BPAI did not reference the machine-or-transformation test.²²³ In the remaining ten cases, the BPAI analyzed the patentability of claim first by the machine-or-transformation test and then under the meaning of *Benson*, *Flook*, or *Diehr*.²²⁴ Currently, there is no case where the BPAI found an invention patentable under *Benson*, *Flook*, or *Diehr* despite failing the machine-or-transformation test.²²⁵

However, the BPAI analysis is consistent in that it follows the PTO memorandum regarding *Bilski v. Kappos*, which incorporates both the Federal Circuit's machine-or-transformation test and the abstract idea concept derived from the Supreme Court.²²⁶ This memorandum states that if a method passes the machine-or-transformation test, it is "likely" okay under § 101 absent a "clear indication" that it is directed to an abstract idea.²²⁷ However, if a method fails the machine-or-transformation test, it should be rejected under § 101 absent a "clear indication" that it is not directed to an abstract idea.²²⁸ As described above, the BPAI utilizes the machine-or-transformation test as a strong indicator of the patent-eligibility of process claims.²²⁹ The BPAI has not overturned a claim that passed the machine-or-transformation test.²³⁰ For example, in *Ex parte Ulf*, the BPAI decided a claim was patentable solely because "it pass[ed] muster under the 'machine' prong of the *Bilski* test."²³¹

The most telling example of the BPAI's mentality towards the machine-or-transformation test is *Ex parte Russo*.²³² The patent in *Russo* covers a

220. *See infra* App. IV.B.

221. *See infra* App. IV.B.

222. *See infra* App. IV.B.

223. *See infra* App. IV.B.

224. *See infra* App. IV.B.

225. *See infra* App. IV.B.

226. Memorandum from Bahr, *supra* note 189.

227. *Id.*

228. *Id.*

229. *See infra* App. IV.B.

230. *See infra* App. IV.B.

231. No. 2009-008071, 2010 WL 3611779 (B.P.A.I. Sept. 7, 2010).

232. No. 2009-001876, 2010 WL 3441058 (B.P.A.I. Aug. 30, 2010).

system for grouping a community of users within a directory structure.²³³ The examiner rejected the claims because it did not produce a useful, tangible, and concrete result.²³⁴ The BPAI noted that the Supreme Court superseded the useful, concrete, and tangible result in *Bilski v. Kappos*, thereby allowing the BPAI to start its patent-eligibility analysis anew.²³⁵ Because several of the claims were “not tied to a particular machine, nor [acting] to transform a material to a different state,” the BPAI ruled those method claims were non-statutory.²³⁶ For a separate claim in the same patent, the BPAI accepted the appellant’s argument that the claim was “drawn to a ‘machine readable storage,’ ” thereby making it patent eligible.²³⁷ Hence, the BPAI allowed the machine-or-transformation test to act as the exclusive test of patentability in *RUSO*.²³⁸

In the three non-software BPAI cases, the BPAI did not reference the machine-or-transformation test and instead decided the claims were unpatentable because the claims attempted to cover methods that could be accomplished by human activity alone.²³⁹ In *Ex parte Elkins*, the BPAI concluded that, after stripping away insignificant post-solution activity, the claim recited a “mathematical modeling functionality”—a concept that is a mental process.²⁴⁰ Similarly, the BPAI in *Ex parte Birle* rejected the claim at issue because the patent directed its claim towards converting money paid to a company for value in shares of stock—another mental process.²⁴¹ Finally, the BPAI in *Ex parte Bonstetter* declared that a method for identifying soft skills for a job was solely a “subjective mental interpretation.”²⁴²

D. THE FEDERAL CIRCUIT RELAXED THE PATENT-ELIGIBILITY STANDARD CLOSE TO ITS PREVIOUS USEFUL, CONCRETE, AND TANGIBLE RESULT TEST

The Federal Circuit issued its first post-*Bilski* method patent decision in *Research Corp. Tech., Inc. v. Microsoft Corp.*²⁴³ Research Corp. held several patents

233. *Id.*

234. *Id.*

235. *Id.*

236. *Id.*

237. *Id.*

238. *Id.*

239. *Ex parte Birle et al.*, No. 2009-010659, 2010 WL 4366518 (B.P.A.I. Nov. 1, 2010); *Ex parte Elkins*, No. 2009-006190, 2010 WL 3017285 (B.P.A.I. July 30, 2010).

240. 2010 WL 3017285.

241. 2010 WL 4366518.

242. No. 2009-009600, 2011 WL 285168 (B.P.A.I. Jan. 25, 2011).

243. 627 F.3d 859 (Fed. Cir. 2010).

covering digital image half-toning,²⁴⁴ which they asserted against Microsoft.²⁴⁵ In response, Microsoft contended that these patents were invalid for claiming unpatentable subject matter.²⁴⁶ The Federal Circuit reversed the lower court ruling that Research Corp.'s claim did not encompass statutory subject matter.²⁴⁷

In the decision, the Federal Circuit lowered the threshold for patent-eligibility. The Federal Circuit reviewed the Supreme Court's critical analysis in *Bilski v. Kappos* of the machine-or-transformation test overreaching past the statutory framework of § 101.²⁴⁸ Drawing upon this decision, the Federal Circuit reiterated that any "process, machine, manufacture, or composition of matter" is patentable subject matter under § 101 unless the patent claims "laws of nature, natural phenomena, or abstract ideas."²⁴⁹ Further, the Federal Circuit emphasized that the "disqualifying characteristic should exhibit itself *so manifestly* as to override the broad statutory categories of eligible subject matter."²⁵⁰

In particular, the Federal Circuit lowered the threshold for abstractness closer to its previous useful, concrete, and tangible result test. The court rejected Microsoft's argument that the claim merely covered an abstract idea. The Federal Circuit instead established that a patent with "specific applications or improvements" to the marketplace is likely to be patentable under § 101.²⁵¹ This primarily deviates from the previous useful, concrete, and tangible result test in that it is not a bright-line test, thus providing the

244. *Id.* at 862.

245. Digital image half-toning is a process of improving the representation of color pictures on computer screens and printouts.

246. *Research Corp. Techs.*, 627 F.3d at 866.

One of the claims at issue in *Research Corp Technologies* reads:

1. A method for the half-toning of gray scale images by utilizing a pixel-by-pixel comparison of the image against a blue noise mask in which the blue noise mask is comprised of a random nondeterministic, non-white noise single valued function which is designed to produce visually pleasing dot profiles when thresholded at any level of said gray scale images.

Id. at 865.

247. *Id.*

248. *Id.* at 868 (citing *Bilski v. Kappos*, 130 S. Ct. 3218, 3227 (2010)) ("[T]he Supreme Court recently emphasized this statutory framework and faulted this court's 'machine or transformation' test for eligibility as nonstatutory.").

249. *Id.* at 865.

250. *Id.* (emphasis added).

251. *Id.* at 868–69 ("The invention presents functional and palpable applications in the field of computer technology Indeed, this court notes that inventions with specific applications or improvements to technologies in the marketplace are not likely to be so abstract that they override the statutory language and framework of the Patent Act.").

Federal Circuit and lower courts a buffer to handle exceptional cases. Consequently, the Federal Circuit determined that the Research Corp.'s patent was patent eligible under § 101 because the patent provided a tangible improvement in the technological field.²⁵²

However, the Federal Circuit emphasized that lowering the threshold for patent-eligibility under § 101 does not lower the threshold for patent-eligibility itself.²⁵³ The Federal Circuit noted that § 112²⁵⁴ provides “powerful tools” to “weed out” unpatentable claims.²⁵⁵ Patentability challenges like claiming fundamental principles would arise under § 112 even when the requirements of § 101 are met.²⁵⁶ For example, a patentee cannot define the claim limits for an abstract claim, thereby failing § 112.²⁵⁷

Using *Research Corp. Tech.* as a reference point, it appears the Federal Circuit will apply a more permissive test for patent-eligibility under § 101. However, this does not mean the courts will ultimately hold these claims patentable. It may be that the Federal Circuit will counter the relaxed § 101 standard with a tightening of other patent-eligibility requirements like § 112.

E. WHERE THIS NEW ANALYSIS LIES IN PATENT-ELIGIBILITY HISTORY

The Supreme Court lowered the patent-eligibility requirement from the Federal Circuit's test in *In re Bilski*. But the Court did not provide clear guidance for what is the new standard of patent-eligibility. This uncertainty caused divergent implementations among the Federal Circuit and the BPAI. The machine-or-transformation test is still the prevalent and sometimes exclusive test in BPAI decisions.²⁵⁸ Moreover, the machine-or-transformation test is treated in numerous cases as a sufficient condition of patent-eligibility, not an investigative clue.²⁵⁹ However, the Federal Circuit post-*Bilski v. Kappos*

252. *Id.*

253. *Research Corp.*, 627 F.3d at 869 (“[T]his court notes that an invention which is not so manifestly abstract as to override the statutory language of section 101 may nonetheless lack sufficient concrete disclosure to warrant a patent.”).

254. Written description requirement for patentability. 35 U.S.C. § 112 (2006).

255. *Research Corp.*, 627 F.3d at 869 (“In section 112, the Patent Act provides powerful tools to weed out claims that may present a vague or indefinite disclosure of the invention.”).

256. *Id.* (“[A] patent that presents a process sufficient to pass the coarse eligibility filter may nonetheless be invalid as indefinite . . .”).

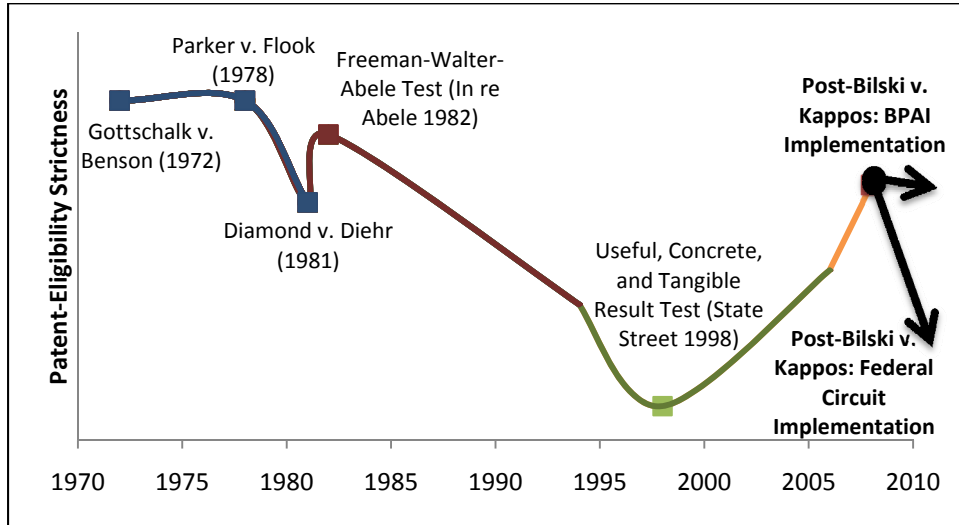
257. *See* *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1371 (Fed.Cir.2008) (“[I]f reasonable efforts at claim construction result in a definition that does not provide sufficient particularity and clarity to inform skilled artisans of the bounds of the claim, the claim is insolubly ambiguous and invalid for indefiniteness.”).

258. *Supra* Section II.C.

259. *Id.*

brought the patent-eligibility standard closer to its previous useful, concrete, and tangible result test.

Figure 6: Lower Court's Implementation of *Bilski v. Kappos* to Patent-Eligibility

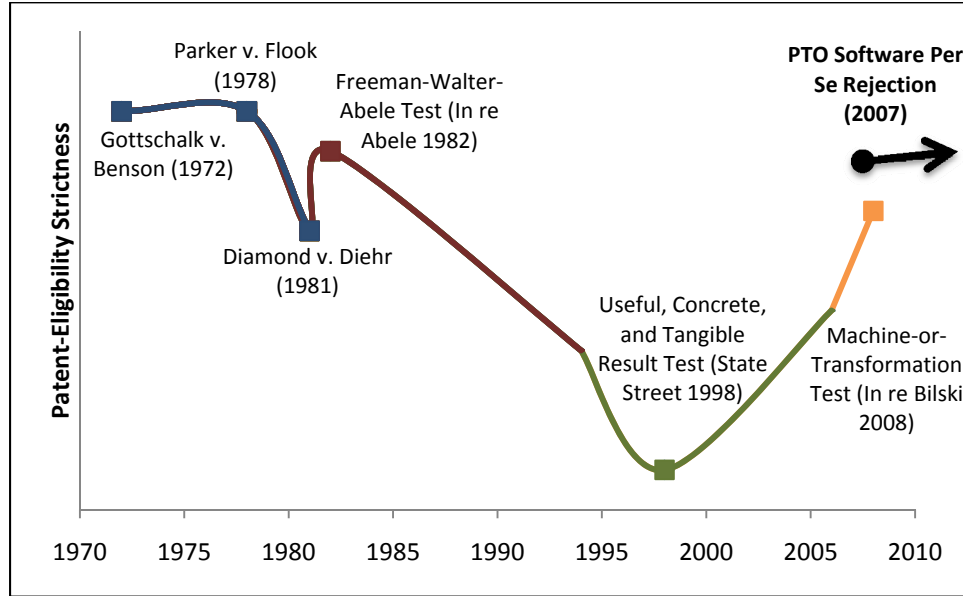


For software claims since 2007, the software-per-se rejection appears to be a reincarnation of the Freeman-Walter-Abele test.²⁶⁰ The BPAI indicated that the software claim must contain some type of physical embodiment or else the claim is abstract—similar to the second step of the Freeman-Walter-Abele test.²⁶¹

260. *Supra* Section II.B.

261. *In re Bilski*, 545 F.3d 943, 958–59 (Fed. Cir. 2008) (citing *In re Abele*, 684 F.2d 902, 905–07 (C.C.P.A. 1982)) (“(1) determining whether the claim recites an ‘algorithm within the meaning of *Benson*’, then (2) determining whether the algorithm is applied in any manner to physical elements or process steps.”); *Ex parte Proudler*, No. 2009-006599, 2010 WL 2727840 (B.P.A.I. July 8, 2010).

Figure 7: Patent-Eligibility Strictness of PTO's Software Per Se Rejection



III. THE NEXT INNING POST-*BILSKI*

Although the Supreme Court relegated the machine-or-transformation test to an investigative clue to patent-eligibility in *Bilski v. Kappos*, passing the machine-or-transformation test at the PTO-level resulted in a patent-eligibility home run for non-software claims in the first inning of post-*Bilski*. For software claims, the PTO pulled the home run fence much farther back. To avoid an instant strikeout, owners of software patents must contain some type of physical embodiment. At the Federal Circuit level, the court reduced the home run derby to its previous t-ball setup by relaxing the patent-eligibility threshold closer to its previous useful, concrete, and tangible result test.

However, this is only the first inning of the *Bilski* game. Subsequent innings will continue to establish the new boundaries of patent-eligibility. In particular, there is discussion of patent-reform legislation that would overhaul the business-method patent system.²⁶² Senator Charles Schumer proposed an amendment allowing companies accused of infringing a

262. U.S. Senate Panel Backs Patent Overhaul Bill, REUTERS, Feb. 3, 2011, available at <http://www.reuters.com/article/2011/02/03/patent-congress-idUKN0319492620110203?pageNumber=1>.

business method patent to request an expedited review of the validity of that patent before the PTO.²⁶³

Finally, even though the lack of guidance reflected in the *Bilski v. Kappos* decision may appear initially harmful to patent law and its progress, it is actually ideally suited for the situation. The machine-or-transformation test, like any bright-line test for patent-eligibility, faces the danger of establishing standards for an industry known for thriving on the boundaries. If inventors were not pushing boundaries, their inventions would not offer anything new. Instead, the test for patent-eligibility needs to develop and transform alongside innovations, transforming its contours with each new wave of advancements. To do otherwise would inhibit patent law's fundamental purpose, "to promote the Progress of Science and useful Arts."²⁶⁴

IV. APPENDIX

A. CLAIMS REGARDING SOFTWARE PER SE

Table A1: Post-*Bilski v. Kappos* BPAI Decisions Regarding Software Per Se²⁶⁵

| Name | Decision Date | Appeal No. | Summary of Claim | BPAI Ruling |
|-----------------------------|---------------|-------------|--|---|
| <i>Ex parte Proudler</i> | 7/7/2010 | 2009-006599 | "A method of controlling processing of data . . ." | Vacated PTO ruling. Entered new § 101 rejection of claim. |
| <i>Ex parte Birger</i> | 7/12/2010 | 2009-006556 | "A method for communicating between two endpoints connected to a network . . ." | Vacated PTO ruling. Entered new § 101 rejection of claim. |
| <i>Ex parte Fellenstein</i> | 7/26/2010 | 2009-006595 | "A method of identifying optimal times for an end user to contact a target user of a messaging system . . ." | Vacated PTO ruling. Entered new § 101 rejection of claim. |
| <i>Ex parte Choo</i> | 7/27/2010 | 2009-006352 | "A computer system for controlling access to certain files by processes" | Affirmed. Sustained § 101 rejection. |

263. *Id.*

264. U.S. CONST. art. I, § 8, cl. 8.

265. This is a compiled list of all final BPAI software per se decisions that cited *Bilski v. Kappos*. This list is current as of Feb. 5, 2011.

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| Name | Decision Date | Appeal No. | Summary of Claim | BPAI Ruling |
|----------------------------|---------------|-------------|---|---|
| <i>Ex parte Johnson</i> | 7/28/2010 | 2009-006718 | “A method for authenticating a Web session” | Affirmed. Sustained § 101 rejection. |
| <i>Ex parte Ramanujam</i> | 8/11/2010 | 2009-002483 | “[A] system and method for processing apparatus and associated software and software sequences that perform mathematical operations.” | Affirmed. Sustained § 101 rejection. |
| <i>Ex parte Christian</i> | 8/22/2010 | 2009-006589 | “Systems and methods . . . for declarative client input security screening.” | Vacated PTO ruling. Entered new § 101 rejection of claim. |
| <i>Ex parte Fatula</i> | 9/7/2010 | 2009-007432 | “A method for autonomic management of system resources on a grid computing system” | Vacated PTO ruling. Entered new § 101 rejection of claim. |
| <i>Ex parte Dettinger</i> | 9/23/2010 | 2009-006998 | “A data processing system for retrieving data” | Vacated PTO ruling. Entered new § 101 rejection of claim. |
| <i>Ex parte MacKenzie</i> | 10/4/2010 | 2009-007332 | A method “provid[ing] techniques for sharing the DSA signature function” | Vacated PTO ruling. Entered new § 101 rejection of claim. |
| <i>Ex parte Kropaczek</i> | 10/12/2010 | 2009-006499 | “A method of evaluating a proposed solution to a constraint problem” | Affirmed. Sustained § 101 rejection. |
| <i>Ex parte Martin</i> | 11/14/2010 | 2009-004223 | “A memory storing program instructions for causing a data processor” | Vacated PTO ruling. Entered new § 101 rejection of claim. |
| <i>Ex parte Zakrzewski</i> | 11/15/2010 | 2009-005745 | “A method for verifying accuracy of a component that is implemented from a model” | Affirmed. Sustained § 101 rejection. |
| <i>Ex parte Jain</i> | 12/16/2010 | 2011-000827 | “An interactive viewer to view interactively a multimedia program derived from a real-world environment” | Affirmed. Sustained § 101 rejection. |

| Name | Decision Date | Appeal No. | Summary of Claim | BPAI Ruling |
|------------------------------|---------------|-------------|--|--------------------------------------|
| <i>Ex parte Klein</i> | 12/21/2010 | 2009-006727 | “a method of efficiently and reliably name searching within an employee database” | Affirmed. Sustained § 101 rejection. |
| <i>Ex parte Vishnubhotla</i> | 1/13/2011 | 2009-008510 | “a method, system, and program product that integrates file system events into a database management system” | Affirmed. Sustained § 101 rejection. |

B. NON-SOFTWARE PROCESS CLAIMS

Table A2: BPAI Decisions Regarding Non-Software Process Claims²⁶⁶

| Name, Decision Date, & Appeal No. | Summary of Claim | BPAI Ruling | | |
|---|--|--|------------------------------------|---------|
| <i>Ex parte Caccavale</i> 7/22/10 2009-006026 | “[A] method of assessing the performance of distributed processing units that involves collecting performance parameters from the units” | Affirmed. Sustained § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson</i> ? | Yes. |
| | | | Used <i>Diamond v. Flook</i> ? | |
| | | | Used <i>Diamond v. Diebr</i> ? | |
| <i>Ex parte Elkins</i> 7/29/10 2009-006190 | “A method for modeling distributed generation for a customer” | Vacated PTO ruling. Entered new § 101 rejection of claim. | Machine-or-Transformation Test | |
| | | | Used <i>Gottschalk v. Benson</i> ? | |
| | | | Used <i>Diamond v. Flook</i> ? | Yes. |
| | | | Used <i>Diamond v. Diebr</i> ? | Yes. |

266. This is a compiled list of all final BPAI decisions involving non-software per se process claims that cited *Bilski v. Kappos*. This list is current as of Feb. 5, 2011.

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| Name, Decision Date, & Appeal No. | Summary of Claim | BPAI Ruling | | |
|---|--|--|-----------------------------------|--|
| <i>Ex Parte Heuer</i> 8/3/10 2009-004590 | “A method for improved decoding of a binary representation of a[n] XML-based document” | Affirmed. Sustained § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | Yes. |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diehr?</i> | |
| <i>Ex parte Estrada</i> 8/25/10 2009-012192 | “A method for managing membership in a collaborative computing environment community” | Affirmed. Sustained § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | Yes. |
| | | | Used <i>Diamond v. Diehr?</i> | |
| <i>Ex parte Russo</i> 8/29/10 2009-001876 | “[A] system and method supporting collaborative work by a community of users” | Affirmed-in-part. Sustained § 101 rejection. Reversed-in-part. | Machine-or-Transformation Test | Some claims passed. Some claims failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diehr?</i> | |

| Name, Decision Date, & Appeal No. | Summary of Claim | BPAI Ruling | | |
|---|---|--|--|--|
| <i>Ex parte Ulf</i> 9/6/10 2009-008071 | “[A] method and system for maximizing sales opportunities. . . .” | Affirmed-in- part. Some claims sustained § 101 rejection. Reversed-in- part. Some claims held patent eligible. | Machine-or- Transformation Test | Some claims passed. Some claims failed. |
| | | | <i>Used Gottschalk v. Benson?</i> | |
| | | | <i>Used Diamond v. Flook?</i> | |
| | | | <i>Used Diamond v. Diehr?</i> | |
| <i>Ex parte Comer</i> 9/15/10 2009-006782 | “A fine-grain scalable video data apparatus for receiving encoded video macroblock data” | Reversed. Held patent- eligible. | Machine-or- Transformation Test | Passed. |
| | | | <i>Used Gottschalk v. Benson?</i> | |
| | | | <i>Used Diamond v. Flook?</i> | |
| | | | <i>Used Diamond v. Diehr?</i> | |
| <i>Ex parte Jung</i> 9/16/10 2009-008915 | “Method for purchasing and authenticating an electronic ticket” | Reversed. Held patent- eligible. | Machine-or- Transformation Test | Passed. |
| | | | <i>Used Gottschalk v. Benson?</i> | |
| | | | <i>Used Diamond v. Flook?</i> | |
| | | | <i>Used Diamond v. Diehr?</i> | |
| <i>Ex parte Darrell</i> 9/19/10 2009-006757 | “A method of presenting an image of a receipt to a consumer” | Reversed. Held patent- eligible. | Machine-or- Transformation Test | Passed. |
| | | | <i>Used Gottschalk v. Benson?</i> | |
| | | | <i>Used Diamond v. Flook?</i> | |
| | | | <i>Used Diamond v. Diehr?</i> | |

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| Name, Decision Date, & Appeal No. | Summary of Claim | BPAI Ruling | | |
|---|---|--|------------------------------------|---------|
| <i>Ex parte Hong</i> 9/20/10 2010-005214 | “A method of filtering an image” | Affirmed. Sustained § 101 rejection. | Machine-or- Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diebr?</i> | |
| <i>Ex parte Burkhardt</i> 9/21/10 2009-008220 | “A computer- implemented method for creating rules for the administration of end- user license agreements” | Vacated PTO ruling. Entered new § 101 rejection of claim. | Machine-or- Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | Yes. |
| | | | Used <i>Diamond v. Diebr?</i> | |
| <i>Ex parte Kelkar</i> 9/23/10 2009-004635 | “[A] method for determining similarity between portions of gene expression profiles or genes” | Affirmed. Sustained § 101 rejection. | Machine-or- Transformation Test | Failed |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | Yes. |
| | | | Used <i>Diamond v. Diebr?</i> | |
| <i>Ex parte Moore</i> 9/27/10 2009-005163 | “A method for processing a life insurance facultative case summary submission over a network” | Vacated PTO ruling. Entered new § 101 rejection of claim. | Machine-or- Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | Yes. |
| | | | Used <i>Diamond v. Diebr?</i> | |

| Name, Decision Date, & Appeal No. | Summary of Claim | BPAI Ruling | | |
|---|--|---|---------------------------------------|---------|
| <i>Ex parte Volcani</i> 10/17/10 2009-004790 | “[I]nvention relates to determining the emotional impact of words upon a reader” | Affirmed. Sustained § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson</i> ? | Yes. |
| | | | Used <i>Diamond v. Flook</i> ? | Yes. |
| | | | Used <i>Diamond v. Diehr</i> ? | |
| <i>Ex parte Cherkaas</i> 10/24/10 2009-011287 | “A computer implemented method of determining the consequences of an investment transaction to a potential total future tax liability of a user” | Affirmed. Sustained § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson</i> ? | |
| | | | Used <i>Diamond v. Flook</i> ? | |
| | | | Used <i>Diamond v. Diehr</i> ? | |
| <i>Ex parte Whitson</i> 10/26/10 2009-009599 | “A method for ensuring airline safety while safeguarding personal passenger information” | Affirmed. Sustained § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson</i> ? | |
| | | | Used <i>Diamond v. Flook</i> ? | |
| | | | Used <i>Diamond v. Diehr</i> ? | |
| <i>Ex parte Aklilu</i> 10/28/10 2009-007075 | “[A] method for generating object classification models.” | Affirmed-in-part. Reversed-in-part. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson</i> ? | Yes. |
| | | | Used <i>Diamond v. Flook</i> ? | |
| | | | Used <i>Diamond v. Diehr</i> ? | |

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| Name, Decision Date, & Appeal No. | Summary of Claim | BPAI Ruling | | |
|---|--|---|---------------------------------------|---------|
| <i>Ex parte Birle</i> 10/31/10 2009-010659 | “A financial instrument issued by a stock company and held by a holder” | Affirmed. Sustained § 101 rejection. | Machine-or-Transformation Test | |
| | | | Used <i>Gottschalk v. Benson</i> ? | Yes. |
| | | | Used <i>Diamond v. Flook</i> ? | |
| | | | Used <i>Diamond v. Diehr</i> ? | Yes. |
| <i>Ex parte Kohda</i> 11/21/10 2009-006262 | “An online sales promotion method used in a system to purchase a product over a network” | Reversed. Held patent-eligible. | Machine-or-Transformation Test | Passed. |
| | | | Used <i>Gottschalk v. Benson</i> ? | |
| | | | Used <i>Diamond v. Flook</i> ? | |
| | | | Used <i>Diamond v. Diehr</i> ? | |
| <i>Ex parte Alden</i> 11/21/10 2010-001298 | “A method of analyzing a sub-model of a full system model” | Affirmed. Sustained § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson</i> ? | |
| | | | Used <i>Diamond v. Flook</i> ? | |
| | | | Used <i>Diamond v. Diehr</i> ? | |
| <i>Ex parte Graham</i> 11/21/10 2009-010005 | “A computerized method for measuring a consumer’s perception of a commercial entity’s brand equity, logo, trademark, tradename, tag line, product name and the like” | Affirmed. Sustained § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson</i> ? | Yes. |
| | | | Used <i>Diamond v. Flook</i> ? | Yes. |
| | | | Used <i>Diamond v. Diehr</i> ? | |

| Name, Decision Date, & Appeal No. | Summary of Claim | BPAI Ruling | | |
|---|--|---|---------------------------------------|---------|
| <i>Ex parte Ward</i> 12/5/10 2010-005500 | “A method of playing a game” | Affirmed. Sustained § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diebr?</i> | |
| <i>Ex parte Fliess</i> 12/9/10 2009-009726 | “A method of presenting data relating to skills distribution in an enterprise” | Affirmed. Sustained § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | Yes. |
| | | | Used <i>Diamond v. Diebr?</i> | |
| <i>Ex parte Kuno</i> 12/12/10 2009-006896 | “A processor-based method of applying a policy” | Affirmed. Entered new grounds of § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diebr?</i> | |
| <i>Ex parte Forman</i> 12/12/10 2009-013620 | “A method of reporting the presentation of data” | Affirmed. Entered new grounds of § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diebr?</i> | |
| <i>Ex parte Youngil Ha</i> 12/13/10 2009-008031 | “A method for frequency planning in a wireless cell network” | Reversed. Entered new grounds of § 101 rejection. | Machine-or-Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diebr?</i> | Yes. |

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| Name, Decision Date, & Appeal No. | Summary of Claim | BPAI Ruling | | |
|--|---|---|---------------------------------------|---------|
| <i>Ex parte Foulger</i> 12/21/10 2009-007619 | “A method of generating employment market statistics from a network” | Affirmed. Sustained § 101 rejection. | Machine-or- Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | Yes. |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diehr?</i> | |
| <i>Ex parte Monk</i> 12/30/10 2009-013250 | “[S]ystems and methods of fraud management in relation to stored value cards” | Affirmed. Sustained § 101 rejection. | Machine-or- Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | Yes. |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diehr?</i> | |
| <i>Ex Parte Arnoldy</i> 1/10/11 2009-010008 | “[A] program for passing on a person’s legacy to descendants” | Affirmed. Sustained § 101 rejection. | Machine-or- Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diehr?</i> | |
| <i>Ex Parte Bonstetter</i> 1/25/11 2009-009600 | “A method for identifying competencies (soft skills) required for superior performance for a given job” | Affirmed. Sustained § 101 rejection. | Machine-or- Transformation Test | |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diehr?</i> | |
| <i>Ex Parte Backman</i> 1/26/11 2010-000610 | “[A] method of informing a potential customer of the merits of a new product” | Affirmed. Entered new grounds of § 101 rejection. | Machine-or- Transformation Test | Failed. |
| | | | Used <i>Gottschalk v. Benson?</i> | |
| | | | Used <i>Diamond v. Flook?</i> | |
| | | | Used <i>Diamond v. Diehr?</i> | |

| Name, Decision Date, & Appeal No. | Summary of Claim | BPAI Ruling | | |
|---|--|------------------------------------|---------------------------------------|---------|
| <i>Ex Parte Ng-Thow-Hing</i> 2/1/11 2009-009095 | "[A] method and apparatus for producing a subject specific skeleton" | Reversed. Held patent-eligible. | Machine-or-Transformation Test | Passed. |
| | | | Used <i>Gottschalk v. Benson</i> ? | |
| | | | Used <i>Diamond v. Flook</i> ? | |
| | | | Used <i>Diamond v. Diehr</i> ? | |

C. COMPILATION OF PATENT-ELIGIBILITY DECISIONS

Table A3: Major Patent-Eligibility Decisions from 1972–2008

| Case | Year | Attempted Process | Process Input | Process Output | Statutory? |
|---|------|--------------------------|--|--|------------|
| <i>Gottschalk v. Benson</i> ²⁶⁷ | 1972 | numerical conversion | binary-coded decimal numerals | pure binary numerals | No |
| <i>Parker v. Flook</i> ²⁶⁸ | 1978 | updating alarm limits | process variables (operating conditions such as temperature, pressure, and flow rates) | an updated alarm limit | No |
| <i>Diamond v. Diehr</i> ²⁶⁹ | 1981 | curing synthetic rubber | temperature | opening the molding press and removing the cured product | Yes |
| <i>Freeman-Walter-Abele Test (In re Abel)</i> ²⁷⁰ (Claim 5) | 1982 | displaying data | data points | displaying value as a gray scale | No |
| <i>Freeman-Walter-Abele Test (In re Abel)</i> ²⁷¹ (Claim 6) | 1982 | displaying CAT scan data | X-ray attenuation data | display for CAT scanner | Yes |

267. 409 U.S. 63 (1972).

268. 437 U.S. 584 (1978).

269. 450 U.S. 175 (1981).

270. 684 F.2d 902 (C.C.P.A. 1982).

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SIDELINE ANALYSIS OF *BILSKI*

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| Case | Year | Attempted Process | Process Input | Process Output | Statutory? |
|---|------|---|------------------|--|------------|
| <i>In re Alappat</i> ²⁷² | 1994 | rasterizer for converting vector list data | vector list data | outputting illumination intensity data on a rasterizer | Yes |
| <i>In re Warmerdam</i> ²⁷³ (Claim 1) | 1994 | creating a hierarchy of bubbles | medial axis | generating a data structure | No |
| <i>In re Warmerdam</i> ²⁷⁴ (Claim 5) | 1994 | machine storing a hierarchy of bubbles | medial axis | a machine storing bubble hierarchy | Yes |
| Useful, Concrete, and Tangible Result Test (<i>State Street Bank and Trust Co. v. Signature Financial Group, Inc.</i> ²⁷⁵) | 1998 | system for managing a portfolio's financial service configuration | processing data | calculation results | Yes |

271. *Id.*

272. 33 F.3d 1526 (Fed. Cir. 1994).

273. 33 F.3d 1354, 1355 (Fed. Cir. 1994).

274. *Id.*

275. 149 F.3d 1368, 1375 (Fed. Cir. 1998).

