

# **THE FEDERAL CIRCUIT'S CRUISE TO UNCHARTED WATERS: HOW PATENT PROTECTION FOR ALGORITHMS AND BUSINESS METHODS MAY SINK THE UCITA AND STATE INTELLECTUAL PROPERTY PROTECTION**

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## **INTRODUCTION**

The realm of intellectual property law now changes at an incredible pace, with the courts discarding venerable concepts rapidly. This is not surprising as the transition from a goods-based society to one based on information increases the importance of intellectual property law. Nowhere has this been more apparent than the Federal Circuit's recent reworking of the scope of federal patent law. Today, it is difficult to imagine anything for which a patent cannot be sought and received. Furthermore, the expansion of the patent law's scope has a corresponding impact on state powers. Because the patent law serves to implicitly preempt inconsistent state intellectual property protections, if patent law is expanded, state protection shrinks.

This Article, in two parts, examines the expansion of the patent laws and the consequential preemptive limitations on state power. Part I will explain how recent Federal Circuit cases have expanded the types of inventions that can be protected under the patent laws. Then, Part II will discuss the adverse impacts this expansion will have on state intellectual property law using a mass-marketed computer program as the principal example.

## **I. THE FEDERAL CIRCUIT INITIATES A REVOLUTION IN THE SCOPE OF SECTION 101 OF THE PATENT ACT**

One of the most significant changes in intellectual property law over the past few years has been the scope of inventions that are now patentable in the United States.<sup>1</sup> The Federal Circuit has recently announced the elimination of

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1. The principle case triggering the revolution, *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), cert. denied 525 U.S. 1093 (1999), was decided on July 23, 1998. It was followed by *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 (Fed.

two long-standing judicial limitations on an invention being patentable—the “mathematical algorithm” exception<sup>2</sup> and the “business method” exception.<sup>3</sup> With these removed, processes and methodologies long thought to be unpatentable become eligible for this strongest form of intellectual property protection. Indeed, because the change is potentially so profound,<sup>4</sup> non-intellectual property attorneys—particularly those who advise businesses—must become conscious of the potential of patent protection for their clients’ methods of operation.

To appreciate the revolution that has occurred, this Article will discuss the scope of the traditional exceptions and the two cases that abolished them. Then, the likely consequences of the change will be explored.

#### A. *The Creation, History, and Demise of the Mathematical Algorithm Exception*

##### 1. A Battle Between Courts—The United States Supreme Court and the Lower Courts Debate the Existence and Scope of the Mathematical Algorithm Exception

The “mathematical algorithm” exception to the scope of section 101 of the Patent Act originated<sup>5</sup> with a 1972 Supreme Court case, *Gottschalk v. Benson*.<sup>6</sup>

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Cir. 1999), *cert. denied* 528 U.S. 946 (1999), which was decided on April 14, 1999. As with most changes in the law, the trend of increasing the scope of section 101 of the Patent Act was established well before the actual revolution occurred. See, e.g., *Arrhythmia Research Tech., Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1056 (Fed. Cir. 1992) (noting that United States Supreme Court has interpreted “that Congress intended section 101 to include ‘anything under the sun that is made by man’”).

2. See *Excel*, 172 F.3d at 1355-58 (limiting algorithm doctrine severely).

3. See *State St. Bank*, 149 F.3d at 1375-77 (noting that whether claimed subject matter falls within section 101 should not terminate on whether it does “business”). See also *Excel*, 172 F.3d at 1356 (addressing business method exception).

4. See Rochelle Cooper Dreyfuss, *Are Business Method Patents Bad for Business?*, 16 SANTA CLARA COMPUTER & HIGH TECH. L.J. 263, 267-80 (2000) (discussing implications and consequences of allowing business method patents).

5. As with any legal doctrine, earlier cases can be read to have created—or at least have predicted—the development of the mathematical algorithm exception. See, e.g., *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948) (noting that discoveries of phenomena of nature are not patentable because they are not applications of law to new and useful end); *Mackay Radio & Telegraph Co. v. Radio Corp. of America*, 306 U.S. 86, 94 (1939) (stating that “a scientific truth, or the mathematical expression of it, is not patentable”); *Cochrane v. Deener*, 94 U.S. 780, 791-92 (1876) (Clifford, J., dissenting) (arguing that broad processes should not be patented separately from mechanism used to implement process); *O’Reilly v. Morse*, 56 U.S. 62, 112-17 (1853) (finding that defendant could not receive patent for electromagnetism generally, but only as it is used in the invention). These cases required, for a patent to issue, that “a process [be] a mode of treatment of certain materials to produce a given result. It [must be] an act, or series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing.” *Cochrane*, 94 U.S. at 788. Many of the earlier cases refer to the mathematical algorithm exception as part of a larger “mental steps” exception. See DONALD S. CHISUM, *PATENTS* § 1.03[6] (2000) (discussing relationship between mental steps doctrine and computer software).

6. 409 U.S. 63 (1972).

In *Benson*, a "process" patent<sup>7</sup> was sought for "[a] method for converting binary-coded decimal (BCD) numerals into pure binary numerals."<sup>8</sup> The Patent Office rejected the claims in the patent application for the BCD to binary conversion algorithm for being outside the scope of section 101.<sup>9</sup> This rejection was overturned by the Court of Customs and Patent Appeals ("C.C.P.A.").<sup>10</sup>

The Supreme Court agreed with the Patent Office. The core of the Court's argument, presented as its central premise, defined the mathematical algorithm exception:

"[W]hile a scientific truth, or the mathematical expression of it, is not patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be. . . ." "[A]n idea of itself is not patentable." "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." 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. . . . "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."<sup>11</sup>

Unfortunately for the clarity of the law, the Court did not seem to apply this exception as it had just defined it; rather, the Court used a much broader exception. The disallowed claims in *Benson*'s patent application were not "a scientific truth, or the mathematical expression of it."<sup>12</sup> Rather, they described a computer algorithm for performing base conversion from base ten to base two.<sup>13</sup> The Court apparently found that this computer algorithm was the functional

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7. See 35 U.S.C. § 101 (1994) ("Whoever invents or discovers any new and useful *process* . . .") (emphasis added). The term "process" is defined to mean "a process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material." *Id.* at § 100(b).

8. *Benson*, 409 U.S. at 64. A "binary-coded decimal" number is one where each decimal digit is encoded in its binary form. *Id.* at 66-67. "The BCD system using decimal numerals replaces the character for each component decimal digit in the decimal numeral with the corresponding four digit binary numeral . . . ." *Id.* For example, the decimal number "3659" would be encoded as "0011 0110 0101 1001" as a decimal "3" is equivalent to a binary "0011," a decimal "6" is equivalent to a binary "0110," etc. A "binary number," however, is obtained by a number base translation of the original decimal number. *Id.* at 66. Using the same example, the decimal number "3659" would be expressed as "111001001011" or  $1 \times 2^{11} + 1 \times 2^{10} + 1 \times 2^9 + 1 \times 2^8 + \dots + 1 \times 2^0$ . See generally PETER FREEMAN, SOFTWARE SYSTEMS PRINCIPLES 27-31 (1975) (setting forth methods of data representations).

9. *Benson*, 409 U.S. at 64.

10. *In re Benson*, 441 F.2d 682, 688 (1971), *rev'd sub nom. Gottschalk v. Benson*, 409 U.S. 63 (1972).

11. *Benson*, 409 U.S. at 67 (citations omitted).

12. *Id.*

13. *Cf. id.* at 71-72 (recognizing disallowed claims expressed algorithm for converting from BCD to binary using shifting).

equivalent of a mathematical formula.<sup>14</sup> "Here the 'process' claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion."<sup>15</sup> By referring to the claim as "the" method of conversion, the Court assumed that no other method of conversion was available except the one claimed in Benson's patent application. This was simply untrue as there is a long-existing alternative algorithm.<sup>16</sup>

Thus, because of the Supreme Court's ruling in *Benson*, at least some computer algorithms were deemed unpatentable—the "mathematical algorithm" exception. Establishing what was included within the exception, however, triggered significant litigation and ultimately caused a seesaw battle between the C.C.P.A. (and later the Federal Circuit) and the Supreme Court. Indeed, the two cases being discussed in this Article may merely be the latest engagement in this ongoing war.

The battle between the C.C.P.A. and the Supreme Court started soon after the high Court decided *Benson*. In a series of opinions issued immediately

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14. Within computer science there are almost always multiple algorithms to achieve any given task. Sorting—the process of placing data items into order—for example, is the subject of scores, if not hundreds, of different algorithms. See, e.g., DONALD E. KNUTH, *THE ART OF COMPUTER PROGRAMMING: SORTING AND SEARCHING* 73-379 (1973) (setting forth multiple algorithms for sorting data divided into approximately twenty different categories of sorting algorithms). The choice of which algorithm to use depends on each algorithm's relative speed which, in turn, is often based on the nature of the data to be sorted. *Id.*

15. *Benson*, 409 U.S. at 68 (emphasis added). Later in the opinion, the Court repeats its assertion that the Benson formula is the only formula:

It is conceded that one may not patent an idea. But in practical effect that would be the result if the formula for converting BCD numerals to pure binary numerals were patented in this case. The mathematical formula involved here has no substantial practical application except in connection with a digital computer, which means that if the judgment below is affirmed, the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself.

*Id.* at 71-72 (emphasis added).

16. For example, it is possible to convert a binary coded decimal number to a pure binary number by using multiplication and addition:

1. Set the running total to zero.
2. Extract the current right-most BCD digit and use it as a binary number.
3. Perform a binary multiplication of the extracted number by the appropriate power of ten based on its position within the original BCD number.
4. Add the resulting product to the running total.

Remove the right-most BCD digit and repeat from step two with the next BCD digit on the left.

Once all BCD digits are processed, the running total will be the binary version of the original BCD number.

Of course, Benson's algorithm has a great advantage in speed over the one given above. Multiplication on a computer is a relatively slow process in comparison to the shifts, masks, and additions required by the Benson method. See, e.g., DAVID GRIES, *COMPILER CONSTRUCTION FOR DIGITAL COMPUTERS* 411 (1971) (noting compiled program can be time-optimized by changing multiplication by a constant into repeated additions). Often, however, determining the relative efficiencies of two algorithms can be quite complicated. See generally KNUTH, *supra* note 14, at 94-102 (setting forth mathematical analysis of algorithms).

thereafter, the C.C.P.A. attempted to limit the scope of the exception announced in *Benson*. In *In re Johnson*,<sup>17</sup> for example, the lower court limited *Benson* to algorithms included in process patents and held that apparatus claims<sup>18</sup> could be based on an algorithm.<sup>19</sup> Further, even for process claims containing an algorithm, the lower court limited *Benson* to those that sought to preempt all uses of the particular algorithm.<sup>20</sup> Based on these two limitations of *Benson*, the lower court developed a two-step analysis for determining whether a process patent containing an algorithm was patentable: (1) the invention must be examined to determine if it claims a mathematical algorithm<sup>21</sup> and, if so, (2) a patent cannot issue if the claim "wholly preempts that algorithm."<sup>22</sup>

In 1978, the Supreme Court reentered the debate in *Parker v. Flook*.<sup>23</sup> The invention in *Flook* involved:

[A] method of updating alarm limits. In essence, the method consists of three steps: an initial step which merely measures the present value of the process variable (e.g., the temperature); an intermediate step which uses an algorithm to calculate an updated alarm-limit value; and a final step in which the actual alarm limit is adjusted to the updated

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17. 502 F.2d 765 (C.C.P.A. 1974).

18. An apparatus claim is one trying to patent a "machine" under section 101 of the Patent Act. See CHISUM, *supra* note 5, § 1.02[1] (defining apparatus claim).

19. *Johnson*, 502 F.2d at 771 ("The issue considered by the Supreme Court in *Benson* was a narrow one, namely, is a formula for converting binary coded decimal numerals into pure binary numerals by a series of mathematical calculations a patentable process?"). Accord, *In re Noll*, 545 F.2d 141, 148-49 (C.C.P.A. 1976) (finding apparatus claims could be based on algorithm).

20. *In re Chatfield*, 545 F.2d 152, 156, 158-59 (C.C.P.A. 1976).

21. *In re Freeman*, 573 F.2d 1237, 1245 (C.C.P.A. 1978). The C.C.P.A. also suggested that the nature of the algorithm within the patent claim must be mathematical in nature:

Over-concentration on the word "algorithm" alone, for example, may mislead. The Supreme Court carefully supplied a definition of the particular algorithm before it, i.e., "[a] procedure for solving a given type of mathematical problem." The broader definition of algorithm is "a step-by-step procedure for solving a problem or accomplishing some end." It is axiomatic that inventive minds seek and develop solutions to problems and step-by-step solutions often attain the status of patentable invention. It would be unnecessarily detrimental to our patent system to deny inventors patent protection on the sole ground that their contribution could be broadly termed an "algorithm."

*Id.* (citation omitted).

The problem with the C.C.P.A.'s analysis of *Benson* is that the BCD to binary algorithm set forth in *Benson*'s application is not a mathematical algorithm; it is one based on data conversion. See WEBSTER'S NEW WORLD DICTIONARY OF COMPUTER TERMS 148 (5th ed. 1994) (defining "data conversion" as "the process of changing the form of data representation"). This difference is one generally recognized within computer science, even at the time of the *Benson* decision. See e.g., C. WILLIAM GEAR, COMPUTER ORGANIZATION AND PROGRAMMING 59-61 (2d ed. 1974) (outlining mathematical steps by which binary numbers are converted). This difference has been acknowledged by at least one judge on the Federal Circuit. See *Arrhythmia Research Tech. Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1062 n.2 (Fed. Cir. 1992) (Rader, J., concurring) ("For instance, the *Benson*-Tabbot algorithm worked with numbers, but 'solved' a 'mathematical problem' only in a very loose sense. Rather, the *Benson*-Tabbot algorithm translated symbols from one numerical system to another.").

22. *Freeman*, 573 F.2d at 1245.

23. 437 U.S. 584 (1978).

value.<sup>24</sup>

The difference between Flook's process and the pre-existing art was contained totally in the algorithm used to calculate the updated alarm-limit.<sup>25</sup>

The Patent Office again rejected the claim as attempting to preempt the algorithm in toto as violating the Supreme Court's holding in *Benson*.<sup>26</sup> This was reversed by the C.C.P.A., holding that the Flook patent was sufficiently limited to not preempt all uses of the algorithm.<sup>27</sup>

The Supreme Court reversed and rejected the C.C.P.A.'s concept that merely limiting the patent containing the algorithm in order to leave non-infringing uses was sufficient to allow the patent to issue.<sup>28</sup> The Court chided the lower court for turning *Benson* into a requirement for patent applicants to engage in meaningless extra drafting.<sup>29</sup> Instead, the Court indicated that the algorithm contained in the patent application must be ignored:

The process itself, not merely the mathematical algorithm, must be new and useful. Indeed, the novelty of the mathematical algorithm is not a determining factor at all. Whether the algorithm was in fact known or unknown at the time of the claimed invention, as one of the "basic tools of scientific and technological work," it is treated as though it were a familiar part of the prior art.<sup>30</sup>

The resulting analysis was clearly stated by the Court:

Our approach to respondent's application is, however, not at all inconsistent with the view that a patent claim must be considered as a whole. Respondent's process is unpatentable under § 101, not because it contains a mathematical algorithm as one component, but because once that algorithm is assumed to be within the prior art, the application, considered as a whole, contains no patentable invention.<sup>31</sup>

Unlike in *Benson*, however, three Justices dissented from the opinion in

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24. *Parker v. Flook*, 437 U.S. 584, 585 (1978) ("*Flook I*") (footnote omitted).

25. *Flook II*, 437 U.S. at 585-86.

26. *Id.* at 587.

27. *In re Flook*, 559 F.2d 21, 23 (C.C.P.A. 1977) ("*Flook I*"); *rev'd sub nom.* *Parker v. Flook*, 437 U.S. 584 (1978) ("*Flook II*"). The C.C.P.A., relying on its earlier opinions in *In re Deutsch*, 553 F.2d 689 (C.C.P.A. 1977) and *In re Chatfield*, 545 F.2d 152 (C.C.P.A. 1976), held:

We must then consider whether *Benson* itself excludes the present claims from patentability. *Benson*'s proscription was limited by its words to claims which involve a "mathematical formula" and which "would wholly pre-empt the mathematical formula." The present claims do not preempt the formula or algorithm contained therein, because solution of the algorithm, per se, would not infringe the claims. Thus, *Benson*'s holding does not render the claims before us unpatentable.

*Flook I*, 559 F.2d at 23 (citations and footnote omitted).

28. *Flook II*, 437 U.S. at 589-90.

29. *Id.* ("A competent draftsman could attach some form of post-solution activity to almost any mathematical formula . . . . The concept of patentable subject matter under § 101 is not 'like a nose of wax which may be turned and twisted in any direction . . . .'" (quoting *White v. Dunbar*, 119 U.S. 47, 51 (1886))).

30. *Id.* at 591-92 (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)).

31. *Id.* at 594.

*Flook*.<sup>32</sup> The dissenting Justices' position was expressly consistent with the C.C.P.A.'s statement of the law.<sup>33</sup> For the dissenters, the fact that Flook had limited his algorithm to a particular set of uses was sufficient to bestow patentability.<sup>34</sup>

Although the Supreme Court had ruled twice that a novel algorithm within an invention could not be the only point of novelty to secure a patent, the C.C.P.A. apparently still disagreed with the Supreme Court. In *In re Johnson*,<sup>35</sup> for example, the C.C.P.A. failed to implement the Supreme Court's directive to assume that the mathematical algorithm is within the prior art. Instead, the lower court relied on the analysis discredited in *Parker v. Flook*.<sup>36</sup> The refusal of the C.C.P.A. to adopt the Supreme Court's reasoning is blatantly clear in *In re Sherwood*.<sup>37</sup>

In any event, . . . the analysis of the claims should start with the two-pronged test accepted by the full court in *In re Freeman*, i.e., first, determine whether the claims directly or indirectly recite process steps which are themselves calculations, formulae or equations, and; secondly, determine whether the claims taken in their entirety wholly preempt these calculations, formulae or equations.<sup>38</sup>

Absent from the C.C.P.A.'s opinion is the Supreme Court's directive to nullify the algorithm to determine if the remaining process steps are patentable.

The C.C.P.A. continued to ignore the high Court in *In re Diehr*.<sup>39</sup>

Thus, the fact that certain limitations in a claim may be novel and certain others may be old is irrelevant to the outcome of this case. The focus of the inquiry should be whether the claim, *as a whole*, is directed essentially to a method of calculation or mathematical formula. No one step or subgroup of steps determines whether the entire claim defines statutory subject matter. We are concerned only with what *entire* claims define and with whether that falls within § 101.<sup>40</sup>

Even more illuminating evidence of the C.C.P.A.'s hostility to the Supreme

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32. *Id.* at 598-600 (Stewart, J., dissenting). Justice Stewart wrote the dissenting opinion in *Flook II* and was joined by Chief Justice Burger and Justice Rehnquist. It must be noted, however, that three justices did not participate in the consideration or decision in *Benson*: Justices Stewart, Blackmun and Powell. *Gottschalk v. Benson*, 409 U.S. 63, 73 (1972).

33. *Flook II*, 437 U.S. at 600 (Stewart, J., dissenting) ("In short, I agree with the Court of Customs and Patent Appeals in this case, and with the carefully considered opinions of that court in other cases presenting the same basic issue.").

34. *Id.* at 599 (Stewart, J., dissenting).

35. 589 F.2d 1070 (C.C.P.A. 1978).

36. *In re Johnson*, 589 F.2d at 1078-81 ("The claims in their entireties are not, however, mere procedures for solving mathematical problems."). The analysis required by the Supreme Court requires that the "solving of mathematical problems" be made irrelevant. "Whether the algorithm was, in fact known or unknown at the time of the claimed invention . . . it is treated as though it were a familiar part of the prior art." *Flook II*, 437 U.S. at 591-92 (citation omitted).

37. 613 F.2d 809 (C.C.P.A. 1980).

38. *Sherwood*, 613 F.2d at 817 (citation and footnote omitted).

39. 602 F.2d 982 (C.C.P.A. 1979), *aff'd sub nom.* *Diamond v. Diehr*, 450 U.S. 175 (1981).

40. *Diehr*, 602 F.2d at 987 (citations omitted).

Court's *Benson-Flook* requirements is found in footnote six from *In re Diehr*:

Although in *Flook* the Supreme Court assumed the equation of the claim to be old in the art even though it was not, the holding of that case does not depend on that mode of analysis. Since *Flook*'s claims were held to be directed to methods of calculation, they were nonstatutory *regardless* of whether the equation was new or old. While the Supreme Court in that case may have found that analysis a convenient vehicle to highlight the fact that *Flook*'s actual contribution to the useful arts was his new formula, we do not believe the Court meant to establish that analysis as a general test in determining compliance with § 101, especially when indiscriminately applied to claim limitations generally.<sup>41</sup>

Thus, the C.C.P.A. made it clear that the analysis prescribed by the Supreme Court—nullify the algorithm and then determine if the invention as a whole is patentable—would not be the analysis that the C.C.P.A. would use. The Supreme Court granted certiorari in *Diehr* to once again address the problem.<sup>42</sup>

The Supreme Court upheld the *Diehr* patent,<sup>43</sup> representing the first time that the high Court sustained the patentability of a computer-related invention. It is difficult to determine, however, if the *Diehr* opinion represented application of the law as the Supreme Court had previously announced it or represented the beginning of a change in direction of federal patent law.<sup>44</sup>

Justice Rehnquist's majority opinion portrays itself as a continuation of the *Benson-Flook* line of cases. Much of the opinion's second and third sections cite *Benson* or *Flook* and argue how *Diehr* follows these precedents.<sup>45</sup> Whether *Diehr* truly represents a continuation of the prior cases is, at best, debatable for several reasons.

First, all four of the dissenting justices in *Diehr*<sup>46</sup> had been in the *Flook* majority;<sup>47</sup> indeed, Justice Stevens wrote the majority opinion in *Flook*<sup>48</sup> and the dissenting opinion in *Diehr*.<sup>49</sup> Second, and more importantly, although both

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41. *Id.* at 987 n.6.

42. *Diamond v. Diehr*, 445 U.S. 926 (1980).

43. *Diamond v. Diehr*, 450 U.S. 175, 192-93 (1981).

44. See, e.g., CHISUM, *supra* note 5, § 1.03[6] [d-f] (discussing developments from *Benson* to *Diehr*); Robert A. Kreiss, *Patent Protection for Computer Programs and Mathematical Algorithms: The Constitutional Limitations on Patentable Subject Matter*, 29 N.M. L. REV. 31, 32 (1999) ("In 1972, the Supreme Court issued its first decision concerning the patentability of mathematical algorithms and, indirectly, computer programs. More than twenty-five years later, courts are still struggling to understand when computer-related inventions and mathematical algorithm-related inventions can be patented.") (footnotes omitted).

45. See *Diehr*, 450 U.S. at 184 (citing *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972)). See also *id.* at 185-88, 189 n. 12 (citing both *Benson*, 409 U.S. at 67, and *Parker v. Flook*, 437 U.S. 584, 584 (1978) ("*Flook II*").

46. The four dissenting justices in *Diehr* were Justices Stevens, Brennan, Marshall, and Blackmun. *Diehr*, 450 U.S. at 193.

47. *Parker v. Flook*, 437 U.S. 584, 584 (1978) ("*Flook II*").

48. *Id.* at 585.

49. *Diehr*, 450 U.S. at 193. Additionally, the four dissenting justices were either in the majority for *Benson* (Justices Marshall and Brennan), did not participate in the decision (Justice Blackmun), or



prior cases are cited, the doctrinal rule to be applied under *Benson* and *Flook* was absent in *Diehr*. The majority in *Diehr* did not attempt to treat the algorithm "as though it were a familiar part of the prior art"<sup>50</sup> before evaluating whether the new invention was patentable; instead, it merely declared that "a physical and chemical process for molding precision synthetic rubber products falls within the § 101 categories of possibly patentable subject matter."<sup>51</sup> Finally, and most importantly, the *Diehr* majority's discussion of *Benson* and *Flook* clearly limited the scope of these decisions to the premise of their arguments—that such things as laws of nature cannot be patented.<sup>52</sup> The Court accepted this unlimited premise while rejecting the conclusion it previously reached in *Benson* and *Flook*—that algorithms represent such laws and, consequently, cannot be patented.<sup>53</sup>

Instead, the opinion in *Diehr* seems to represent a change in interpretation of section 101 of the Patent Act that the Court had initiated in 1980 in *Diamond v. Chakrabarty*.<sup>54</sup> In *Chakrabarty*, the Court stated:

In choosing such expansive terms as "manufacture" and "composition of matter," modified by the comprehensive "any," Congress plainly contemplated that the patent laws would be given wide scope. . . . The relevant legislative history also supports a broad construction. The Patent Act of 1793, authored by Thomas Jefferson, defined statutory subject matter as "any new and useful art, machine, manufacture, or composition of matter, or any new or useful improvement [thereof]."

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had not yet been appointed to the Court (Justice Stevens). *Gottschalk v. Benson*, 409 U.S. 63 (1972).

50. See *Flook II*, 437 U.S. at 591-92 (treating mathematical algorithm as familiar part of prior art, even if unknown at the time of claimed invention).

51. *Diehr*, 450 U.S. at 184. The majority acknowledged that the algorithm—the Arrhenius equation—was a well-known formula used in the rubber-molding process. *Id.* at 177 n.2. Despite acknowledging this, however, the Court made no attempt to determine the impact on the patent of assuming that the use of the algorithm was within the prior art.

52. *Id.* at 185. The *Diehr* Court explained:

Our conclusion regarding respondents' claims [being patentable] is not altered by the fact that in several steps of the process a mathematical equation and a programmed digital computer are used. This Court has undoubtedly recognized limits to § 101 and every discovery is not embraced within the statutory terms. Excluded from such patent protection are laws of nature, natural phenomena, and abstract ideas. . . . "An idea of itself is not patentable, [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." Only last Term, we explained:

[A] new mineral discovered in the earth or a new plant found in the wild is not patentable subject matter. Likewise, Einstein could not patent his celebrated law that  $E = mc^2$ ; nor could Newton have patented the law of gravity. Such discoveries are "manifestations of . . . nature, free to all men and reserved exclusively to none."

Our recent holdings in *Gottschalk v. Benson* . . . and *Parker v. Flook* . . . both of which are computer-related, stand for no more than these long-established principles.

*Id.* at 185 (citations omitted).

53. See *Benson*, 409 U.S. at 71-73 (rejecting patentability of algorithm); *Flook II*, 437 U.S. at 590-92 (treating algorithms as familiar part of prior art rendering it unpatentable unless part of new and useful process).

54. 447 U.S. 303 (1980).

The Act embodied Jefferson's philosophy that "ingenuity should receive a liberal encouragement." Subsequent patent statutes in 1836, 1870, and 1874 employed this same broad language. In 1952, when the patent laws were recodified, Congress replaced the word "art" with "process," but otherwise left Jefferson's language intact. The Committee Reports accompanying the 1952 Act inform us that Congress intended statutory subject matter to "include anything under the sun that is made by man."<sup>55</sup>

Thus, both by starting its opinion expressly relying on *Chakrabarty* and by adopting the philosophy of that decision, namely, that section 101 should be given an expansive reading, the Supreme Court established a new direction for the patentability of computer-related inventions<sup>56</sup>—a direction much to the liking of the lower courts.<sup>57</sup> The next year, the C.C.P.A. had a major opportunity

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55. *Chakrabarty*, 477 U.S. at 308-09 (citations omitted). It is interesting to note that the quotes of the Senate report in the Supreme Court's *Chakrabarty* and *Diehr* opinions are not completely accurate. The full sentence in the Senate report reads, "[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." S. REP. NO. 1979, at 5 (1952), reprinted in 1952 U.S.C.C.A.N. 2394, 2399 (emphasis added). Congress indicated that any machine or any manufacture should be subject to patent, but did not expressly so state when it came to processes. Thus, relying on this language from *Chakrabarty* is appropriate because that case dealt with a "human-made, genetically engineered bacterium," a form of manufacture; its use in *Diehr* may be inappropriate as *Diehr* addressed process patents, not physical forms. *Diehr*, 450 U.S. at 177.

56. This change in direction has been acknowledged by the courts. See *Arrhythmia Research Tech. Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1057 (Fed. Cir. 1992) (explaining that for patentability, mathematical procedures are considered in context of invention as whole).

57. Litigation about the patentability of computer-related inventions also began in the district courts. The first post-*Diehr* lower court opinion of note is *Paine, Webber, Jackson & Curtis, Inc. v. Merrill Lynch, Pierce, Fenner & Smith, Inc.*, 564 F. Supp. 1358 (D. Del. 1983). Paine, Webber unsuccessfully challenged Merrill Lynch's patent on the process underlying its cash management account. *Id.* at 1361-63. The case is remarkable for two reasons.

First, the district court judge, without citing to any authority, globally held that computer programs are patentable. *Id.* at 1366. The court stated "[t]hus if a computer program is viewed as a series of thought processes, then it merely consists of mental steps which is nonstatutory subject matter and not patentable. This view has not been accepted and computer programs are recognized as being patentable." *Id.* This is a bold statement for 1983 as no such clear precedent existed at the time. Cf. RAYMOND T. NIMMER, *THE LAW OF COMPUTER TECHNOLOGY* § 2.07 (3d ed. 1997) (noting confusion surrounding patentability of software-related inventions even after *Diehr*); CHISUM, *supra* note 5, § 1.03[6][g] (discussing *Diehr*). Second, although all three Supreme Court cases in the area—*Benson*, *Flook*, and *Diehr*—had been decided before the district court rendered its decision, only *Benson* was cited in the body of the opinion. *Paine*, 564 F. Supp. at 1366. *Flook* was never cited and *Diehr* was relegated to a footnote and a "quoting" reference. *Id.* at 1367 n.6, 1368. Interestingly, the reference to *Diehr* was, effectively, an "accord" cite to the opinion of the C.C.P.A. in *In re Toma*, 575 F.2d 872 (C.C.P.A. 1978). The sentence for which *Diehr* was cited read: "The CCPA, however, rejected the broad definition of algorithm given by the PTO." *Paine*, 564 F. Supp. at 1367. The footnote indicated that "[t]he Supreme Court . . . also rejected the broad definition of algorithm." *Id.* at 1367 n.6.

Thus, it seems clear that the district court had little regard for the Supreme Court's views on patent law, relying instead on the C.C.P.A. See *id.* at 1366-68 (citing *In re Pardo*, 684 F.2d 912 (C.C.P.A. 1982); *In re Phillips*, 608 F.2d 879 (C.C.P.A. 1979); *In re Toma*, 575 F.2d 872 (C.C.P.A. 1978)) (holding that "under *Toma*, *Phillips*, and *Pardo*, the CCPA has held that the Supreme Court in *Benson* used the term 'algorithm' in a specific sense, 'a procedure for solving a given type of

to examine computer-related inventions in *In re Abele*.<sup>58</sup> The invention claimed had been rejected as non-statutory by the Patent Office.<sup>59</sup> *Abele* reaffirmed and clarified the two-step analysis<sup>60</sup> the court had established in *In re Freeman*<sup>61</sup> and refined in *In re Walter*.<sup>62</sup> "In sum, the [Supreme] Court's decisions have made clear that a claim does not present patentable subject matter if it would wholly preempt an algorithm . . . or if it would preempt the algorithm but for limiting its use to a particular technological environment."<sup>63</sup> On the other hand, *Abele* held that a computer-related invention would be statutory subject matter under section 101 if:

[T]he algorithm [is] "applied in any manner to physical elements or process steps," provided that its application is circumscribed by more than a field of use limitation or non-essential post-solution activity. Thus, if the claim would be "otherwise statutory," albeit inoperative or less useful without the algorithm, the claim likewise presents statutory subject matter when the algorithm is included.<sup>64</sup>

During the same year, another computer-related invention was examined in *In re Meyer*.<sup>65</sup> The Meyer invention involved a computer system that assisted neurologists in diagnosing patients.<sup>66</sup> The court in *Meyer* applied the two-part test refined in *Abele* to find that the Meyer invention was not patentable.<sup>67</sup>

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mathematical problem.""). It seems quite amazing that a district court dodged its obligation to apply the law as announced by the Supreme Court by relying on three earlier precedents from a lower court of appeals.

58. 684 F.2d 902 (C.C.P.A. 1982). The United States Court of Customs and Patent Appeals described the *Abele* invention as being "in the field of image processing particularly as applied to computerized axial tomography or CAT scans. Specifically, appellants' invention is directed to an improvement in computed tomography whereby the exposure to X-ray is reduced while the reliability of the produced image is improved." *Abele*, 684 F.2d at 903.

59. *Id.* at 904-05.

60. This test is commonly known as the "Freeman-Walter-Abele test." See, e.g., MICHAEL A. EPSTEIN, EPSTEIN ON INTELLECTUAL PROPERTY § 10.03[C][1] (4th ed. Supp. 2000) (discussing federal circuit's adoption and application of test).

61. 573 F.2d 1237 (C.C.P.A. 1978).

62. 618 F.2d 758 (C.C.P.A. 1980).

63. *Abele*, 684 F.2d at 906 (citation omitted).

64. *Id.* at 907.

65. 688 F.2d 789 (C.C.P.A. 1982).

66. *Meyer*, 688 F.2d at 793. At oral argument Meyer's counsel explained the invention:

[A] doctor may perform fifty or more tests when conducting a standard neurological examination such as tapping the knee and pricking the skin. . . . [D]octors know the relationship between these tests, the responses they should receive, and the patient's neurological system. After observing the patient's response indicating that a neurological area or pathway is functioning or malfunctioning, the doctor, utilizing appellants' invention, inputs this information to the computer. . . . [T]he invention [is] a "diagnostic" or "memory" aid for a physician . . . [it] does not conduct a diagnosis in and of itself, but is used by a doctor when performing a diagnosis to store and to accumulate test responses obtained by this standard process of elimination and to narrow the neurological area of possible malfunction.

*Id.* at 793.

67. *Id.* at 795-96.

Although setting forth a mathematical algorithm, the Meyer claims were not applied to physical elements or process steps, so consequently, the claims were non-statutory.<sup>68</sup>

When the Federal Circuit replaced the C.C.P.A. it adopted the *Freeman-Walter-Abele* test as a primary means of identifying statutory subject matter in a computer-related invention.<sup>69</sup> The court, however, expressed the view that the test contradicted the Supreme Court's interpretation of section 101 in more recent cases:

Construing section 101 as excluding mathematical algorithms seems somewhat at odds with the liberal view of that section expressed in a more recent Supreme Court opinion, *Diamond v. Chakrabarty*. There, the Court decided that a living man-made micro-organism fell within the terms "manufacture" or "composition of matter" in section 101. In choosing such "expansive terms", stated the Court, "modified by the comprehensive 'any,' Congress plainly contemplated that the patent laws would be given wide scope." The Court went so far as to note that Congress intended statutory subject matter to include "anything under the sun that is made by man."

*Chakrabarty* expressly rejects the argument that patentability in a new area, "micro-organisms[,] cannot qualify as patentable subject matter until Congress expressly authorizes such protection." Although the Court distinguished *Parker v. Flook* in its opinion, the court's rejection of this argument seems to reflect a change from *Flook's* admonition that "we must proceed cautiously when we are asked to extend patent rights into areas wholly unforeseen by Congress."<sup>70</sup>

Nonetheless, the court followed the earlier C.C.P.A. precedents, which resulted in the denial of the patent sought as the only physical step disclosed in the claim was obtaining data, insufficient in itself to cross the threshold to patentability.<sup>71</sup>

The penultimate case undoing the mathematical algorithm exception was *Arrhythmia Research Technology, Inc. v. Corazonix Corp.*<sup>72</sup> In that case, the Federal Circuit reversed a rejected patent application for "the analysis of electrocardiographic signals"<sup>73</sup> declared invalid by the Northern District of

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68. *Id.*

69. *In re Grams*, 888 F.2d 835, 838 (Fed. Cir. 1989). See also *In re Iwahashi*, 888 F.2d 1370, 1374-75 (Fed. Cir. 1989) (applying *Freeman-Walter-Abele* test).

70. *Grams*, 888 F.2d at 837-38 (citations omitted).

71. *Id.* at 840-41.

72. 958 F.2d 1053 (Fed. Cir. 1992).

73. *Arrhythmia*, 958 F.2d at 1054. The full process claim in litigation read:

1. A method for analyzing electrocardiograph signals to determine the presence or absence of a predetermined level of high frequency energy in the late QRS signal, comprising the steps of:

[C]onverting a series of QRS signals to time segments, each segment having a digital value equivalent to the analog value of said signals at said time; applying a portion of said time segments in reverse time order to high pass filter means; determining an arithmetic value of the amplitude of the output of said filter; and comparing said value with said predetermined level.

Texas for a failure to claim statutory subject matter.<sup>74</sup> In applying the *Freeman-Walter-Abele* test, the court stated that:

These claimed steps of "converting", "applying", "determining", and "comparing" are physical process steps that transform one physical, electrical signal into another. The view that "there is nothing necessarily physical about 'signals'" is incorrect. The *Freeman-Walter-Abele* standard is met, for the steps of Simson's claimed method comprise an otherwise statutory process whose mathematical procedures are applied to physical process steps.<sup>75</sup>

After *Arrhythmia*, the Federal Circuit had, effectively, redefined the mathematical algorithm exception announced by the Supreme Court in *Benson* and *Flook* in such a way as to make it meaningless. These Supreme Court cases were decided to prevent a patent from issuing on an algorithm unless it is tied in some way to the physical world. In *Arrhythmia*, the Federal Circuit allowed the required connection to be found in the electronic signals being processed by the algorithm itself.<sup>76</sup> As *Benson* did not recognize this as sufficient, however, the invalid claim in *Benson* is unreconcilable with the valid claim in *Arrhythmia*.<sup>77</sup> If *Benson* and *Arrhythmia* are both good law, somehow *Benson*'s "shifting," "masking," and "adding" are legally unlike *Arrhythmia*'s "converting," "filtering," and "comparing." In fact, as the *AT&T Corp. v. Excel Communications, Inc.*<sup>78</sup> case discussed below demonstrates, *Arrhythmia* must be read as announcing the eminent demise of the mathematical algorithm exception as a limitation on the patentability of inventions.

## 2. *AT&T Corp. v. Excel Communications, Inc.*—The End of the Mathematical Algorithm Exception

Without a doubt, *AT&T Corp. v. Excel Communications, Inc.* ("Excel") is a landmark of modern patent law. Under it, the patent declared invalid by the Supreme Court in *Benson* and *Flook* would most likely be sustained. It represents, therefore, the culmination of the Federal Circuit's attempt to redefine the mathematical algorithm exception. Indeed, it represents the demise of the exception.

The patent involved in *Excel* covered a data processing algorithm that allowed billing based on whether a customer placed a long-distance telephone call to another customer of the same long-distance carrier.<sup>79</sup> The basic steps in

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*Id.* at 1055.

74. *Id.* at 1054.

75. *Id.* at 1059 (citations omitted).

76. *Id.*

77. Compare *Gottschalk v. Benson*, 409 U.S. 63, 73-74 (1972) (setting forth steps for converting signals from binary coded decimal form to binary and describing steps for "data processing method for converting binary coded decimal number representations to binary number representations") with *Arrhythmia*, 958 F.2d at 1055 (setting forth steps for "analyzing electrocardiograph signals to determine presence or absence of predetermined level of high frequency energy in late QRS signal").

78. 172 F.3d 1352 (Fed. Cir. 1999), *cert. denied* 528 U.S. 946 (1999).

79. *Excel*, 172 F.3d at 1353.

the process claimed by AT&T involved "generating a message" that included "a primary interexchange carrier indicator" that was set depending on whether the two subscribers had the same long-distance carrier.<sup>80</sup> The process described in the patent allows long-distance carriers to bill calls at different rates if both the caller and recipient use the same carrier.<sup>81</sup>

*Excel* all but abolished the mathematical algorithm exception:

A mathematical formula alone, sometimes referred to as a mathematical algorithm, viewed in the abstract, is considered unpatentable subject matter. Courts have used the terms "mathematical algorithm," "mathematical formula," and "mathematical equation," to describe types of nonstatutory mathematical subject matter without explaining whether the terms are interchangeable or different. Even assuming the words connote the same concept, there is considerable question as to exactly what the concept encompasses.

This court recently pointed out that any step-by-step process, be it electronic, chemical, or mechanical, involves an "algorithm" in the broad sense of the term. Because § 101 includes processes as a category of patentable subject matter, the judicially-defined proscription against patenting of a "mathematical algorithm," to the extent such a proscription still exists, is narrowly limited to mathematical algorithms in the abstract. . . . In *State Street*, this court, following the Supreme Court's guidance in *Diehr*, concluded that "[u]npatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not 'useful.' . . . [T]o be patentable an algorithm must be applied in a 'useful' way."<sup>82</sup>

Thus, the court completely limited the mathematical algorithm exception from covering such things as the algorithms for converting between number bases as presented in *Benson* to only covering pure mathematical formulas. The

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80. *Id.* at 1354 (quoting Independent Claim 1 from AT&T's patent).

81. *Id.* at 1353.

82. *Id.* at 1356-57 (citations omitted, alteration in the original). Interestingly, in *State Street*, the Federal Circuit continued by stating:

Today, we hold that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces "a useful, concrete and tangible result"—a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.

*State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998), *cert. denied* 525 U.S. 1093 (1999).

Although the court suggests it is moving away from requiring physical transformations for a process to be patentable, it instead seems to be redefining what will be considered "physical" in the analysis. Under *State Street*, changing a datum recorded in electronic format to a different form is sufficient for patentability. What about changing the electro-chemical makeup of a person's brain as new information is memorized or cogitated? See NIMMER, *supra* note 57, § 2.06[2] (noting that like business method exception, shifting focus from abstract idea may be patentable); CHISUM, *supra* note 5, §§ 1.03[6][a-b] (discussing mental steps exception to patentable subject matter under section 101).

presence of any type of algorithm is no longer important as long as the overall process is "useful."

Having demolished the mathematical algorithm exception, the court then did away with the *Freeman-Walter-Abele* test that had been created to implement the exclusion:

Whatever may be left of the [*Freeman-Walter-Abele*] test, if anything, this type of physical limitations analysis seems of little value because . . . the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce "a useful, concrete and tangible result."<sup>83</sup>

Having removed the necessity of examining computer-related inventions in any greater detail than other inventions—all inventions claimed for a patent must demonstrate their "usefulness"<sup>84</sup>—the Federal Circuit concluded its destruction of the earlier Supreme Court<sup>85</sup> and Federal Circuit<sup>86</sup> precedents. It

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83. *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1359 (Fed. Cir. 1999) (quoting *State St. Bank*, 149 F.3d at 1374) (citation omitted).

84. 35 U.S.C. § 101 (1994). See generally CHISUM, *supra* note 5, §§ 4.01-.02 (discussing requirement of usefulness, minimum utility for invention to be patentable); Nathan Machin, Note, *Prospective Utility: A New Interpretation of the Utility Requirement of Section 101 of the Patent Act*, 87 CALIF. L. REV. 421, 426-36 (1999) (discussing how inventions seeking patent protection must demonstrate usefulness).

85. Although the argument is presented as if the Federal Circuit is acting against the Supreme Court, it is not clear that the high Court would disapprove of the changes wrought in the lower court. The Federal Circuit cited to both *Diamond v. Chakrabarty* and *Diamond v. Diehr* in support of the argument that the mathematical algorithm exception no longer existed beyond the narrow definition the court was supplying. *Excel*, 172 F.3d at 1355-56. Both of these Supreme Court cases were clearly decided in a broader way than either *Benson* or *Flook*.

At the same time, the Supreme Court did not show an inclination to remove the focus of physical transformations. For a patent containing a mathematical formula or algorithm to be valid, the Court required that the "claim . . . implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (e. g., transforming or reducing an article to a different state or thing)." *Diamond v. Diehr*, 450 U.S. 175, 192 (1981).

86. In *AT&T Corp. v. Excel Communications, Inc.*, the Federal Circuit Court specifically addressed three earlier and apparently contradictory Federal Circuit authorities. *Excel*, 172 F.3d at 1360 (citing *In re Warmerdam*, 33 F.3d 1354 (Fed. Cir. 1994); *In re Schrader*, 22 F.3d 290 (Fed. Cir. 1994); and *In re Grams*, 888 F.2d 835 (Fed. Cir. 1989)). However, the rejection of each was hardly persuasive.

The Federal Circuit rejected *Grams* and *Schrader* because they did not apply the logic the court was now establishing. *Excel*, 172 F.3d at 1360.

*Grams* is unhelpful because the panel in that case did not ascertain if the end result of the claimed process was useful, concrete, and tangible. . . . The focus of the court in *Schrader* was not on whether the mathematical algorithm was applied in a practical manner since it ended its inquiry before looking to see if a useful, concrete, tangible result ensued. Thus, in light of our recent understanding of the issue, the *Schrader* court's analysis is as unhelpful as that of *In re Grams*.

*Id.* The court found the logic underlying *In re Warmerdam*, 33 F.3d 1354 (Fed. Cir. 1994) to be consistent with that established in *Excel*. *Id.*

was no giant step, therefore, for the court to declare "that computer-based programming constitutes patentable subject matter so long as the basic requirements of § 101 are met."<sup>87</sup>

Thus, after *Excel*, the Federal Circuit had thrown the mathematical algorithm exception defined by the Supreme Court in *Benson* into the rubbish heap. The court's analysis of the patent did away with much of the law that had developed concerning mathematical algorithms. First, the court effectively redefined the term mathematical algorithm to minimize—and more probably eliminate—its importance.<sup>88</sup> Second, the court removed the focus on physical transformations as being important to process patents and abolished the *Freeman-Walter-Abele* test.<sup>89</sup> Third, the court clearly declared that computer programs are patentable under section 101.<sup>90</sup> To determine whether the Supreme Court will approve these changes, we must await the Court's decision to reexamine this area.<sup>91</sup>

*B. The Possible Creation, Indeterminate History, and Certain Demise of the Business Method Exception*

1. Does the Business Method Exception Exist? If So, Does It Have Any Meaning?

The business method exception was never as well developed as the mathematical algorithm exception.<sup>92</sup> The case that is typically cited<sup>93</sup> as

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The [*Warmerdam*] court found that the claimed process did nothing more than manipulate basic mathematical constructs and concluded that "taking several abstract ideas and manipulating them together adds nothing to the basic equation"; hence, the court held that the claims were properly rejected under § 101. Whether one agrees with the court's conclusion on the facts, the holding of the case is a straightforward application of the basic principle that mere laws of nature, natural phenomena, and abstract ideas are not within the categories of inventions or discoveries that may be patented under § 101.

*Id.* (citation omitted).

87. *Excel*, 172 F.3d at 1360.

88. *Id.* at 1356-58.

89. *Id.* at 1358-60.

90. *Id.* at 1360.

91. Certiorari was denied in *Excel*. *AT&T Corp. v. Excel Communications, Inc.*, cert. denied 528 U.S. 946 (1999). Justice Stevens included a statement with the denial noting the question presented by the case is important, and reiterating that denial of a petition "does not constitute a ruling on the merits." *Id.*

92. See, e.g., Lance L. Vietzke, *Patent Protection for Computerized Business Methods*, THE COMPUTER LAWYER, Aug. 1995, at 6 (noting the business method exception is "even less well defined than the mathematical algorithm exception").

93. See, e.g., *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1376 (Fed. Cir. 1998), cert. denied 525 U.S. 1093 (1999) (noting *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467 (2d Cir. 1908) is frequently cited for originating the business method exception); E. Robert Yoches & Howard G. Pollack, *Is the "Method of Doing Business" Rejection Bankrupt?*, 3 Fed. Cir. B.J. 73, 75 (1993) (discussing origin of business method exception).



establishing the exception is *Hotel Security Checking Co. v. Lorraine Co.*,<sup>94</sup> a Second Circuit case. The Supreme Court has never addressed the exception.<sup>95</sup>

Broadly stated,<sup>96</sup> the exception excludes from patent protection "business 'plans' and 'systems.'"<sup>97</sup> As explained in *Hotel Security Checking*, "[a] system of transacting business disconnected from the means for carrying out the system is not, within the most liberal interpretation of the term, [a process]. Advice is not patentable."<sup>98</sup> The narrowness of the exception is in the required connection—a method of transacting business that is associated with a means of accomplishing it would be outside of the exception and would thus be patentable.<sup>99</sup> But where a claim was made to the steps needed to complete a business process without addressing the methodology for achieving each step, the business method exception rendered an invention unpatentable.<sup>100</sup>

Although often expressed as an exception to the scope of section 101, the business method exception has never been clear that it is one. The courts have rarely relied on it;<sup>101</sup> indeed, even *Hotel Security Checking*, which is cited for creating the exception, actually was decided on the grounds that the invention

94. 160 F. 467 (2d Cir. 1908). The Sixth Circuit also recognized the existence of the exception, but ruled that it did not apply to the invention on appeal. *Cincinnati Traction Co. v. Pope*, 210 F. 443, 446-47 (6th Cir. 1913), *reh'g granted and remanded on other grounds*, 212 F. 719 (6th Cir. 1914).

95. See *State St. Bank*, 149 F.3d at 1375-77, 1375 n.12, 1376 n.15 (demonstrating that Supreme Court has consistently refrained from addressing business method exception).

96. It is very hard to state anything about the business method exception narrowly or precisely as no court has ever done so. From its inception, the exception has been imprecisely defined and applied, if it has been used at all. See Michael L. Fuelling, *Manufacturing, Selling and Accounting: Patenting Business Methods*, 76 J. PAT. & TRADEMARK OFF. SOC'Y 471, 471-73 (1994).

97. See CHISUM, *supra* note 5, § 1.03[5] (discussing business method patents, noting changes in law at end of twentieth century allowed as patentable if method is useful, specific, and tangible).

98. *Hotel Sec. Checking*, 160 F. at 469. See also *Lowe's Drive-In Theatres, Inc. v. Park-In Theatres, Inc.*, 174 F.2d 547, 552 (1st Cir. 1949). In *Lowe's Drive-In* the court explained:

Thus a system for the transaction of business, such, for example, as the cafeteria system for transacting the restaurant business, or similarly the open-air drive-in system for conducting the motion picture theatre business, however novel, useful, or commercially successful is not patentable apart from the means for making the system practically useful, or carrying it out.

*Id.*

99. See, e.g., *In re Patton*, 127 F.2d 324, 327 (C.C.P.A. 1942) ("In this connection it is sufficient to say that a system of transacting business, *apart from the means for carrying out such system*, is not within the purview of [the patent laws] . . .") (emphasis added).

100. *Ex parte Murray*, 9 U.S.P.Q.2d 1819, 1820 (P.T.O. Bd. of Pat. App. 1988).

101. Some commentators have indicated that "no case has clearly held that 'methods of doing business' are unpatentable." Fuelling, *supra* note 96, at 472. However, such case law does exist. See, e.g., *Patton*, 127 F.2d at 327-28 (stating that system of transacting business is not patentable subject matter). Illustratively, in *Murray*, the court stated:

While it may in some situations be problematic to ascertain what falls within the penumbra of the judicially prescribed "method of doing business," we find no such difficulty in the present case. We are convinced that the claimed accounting method . . . is, on its very face, a vivid example of the type of "method of doing business" contemplated by our review court as outside the protection of the patent statutes. Accordingly, we will affirm the examiner's rejection of the claims as drawn to nonstatutory subject matter.

*Murray*, 9 U.S.P.Q.2d at 1820 (citation omitted).

was not novel.<sup>102</sup> The commentators, in particular, have been either doubtful of the exception's existence or, alternatively, critical of it.<sup>103</sup> But at least through 1994, the Federal Circuit seemed to acknowledge the exception as part of patent law. "We further note that *Mauco's* dealt with a business methodology for deciding how salesmen should best handle respective customers and *Meyer* involved a 'system' for aiding a neurologist in diagnosing patients. Clearly, neither of the alleged 'inventions' in those cases falls within any § 101 category."<sup>104</sup> This acknowledgment of a potentially viable exception to patentability would change in 1998.

2. *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*—The End of the Business Method Exception

In *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*,<sup>105</sup> State Street sought a declaration that Signature's patent for a "data processing system"<sup>106</sup> for managing pooled mutual fund investments<sup>107</sup> was, among other things, invalid "for failure to claim statutory subject matter under § 101."<sup>108</sup> The district court granted a motion for summary judgment on this ground relying on both the mathematical algorithm and business method exceptions, concluding that the patent was invalid.<sup>109</sup> The Federal Circuit reversed on both grounds.<sup>110</sup>

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102. *Hotel Sec. Checking*, 160 F. at 469 ("It cannot be maintained that the physical means described [in the patent] apart from the manner of their use, present any new and useful feature. . . . [T]here is no novelty.").

103. See generally George E. Tew, *Method of Doing Business*, 16 J. PAT. & TRADEMARK OFF. SOC'Y 607 (1934) (discussing business method exception); Yoches & Pollack, *supra* note 93, at 74 (indicating exception appears in dicta with no guidance for applications); Rinaldo Del Gallo, III, *Are "Methods of Doing Business" Finally Out of Business as a Statutory Rejection?*, 38 IDEA 403 (1998) (stating case law contains no holding claiming methods of conducting business are unpatentable); Vietzke, *supra* note 92, at 6 (criticizing exception, claiming redundant, vague, and poorly defined); Fuelling, *supra* note 96, at 472 (noting no case held exception exists). Cf. CHISUM, *supra* note 5, § 1.03[5] (quoting Judge Newman's dissent in *In re Schrader*, 22 F.3d 290, 296-98 (Fed. Cir. 1994) criticizing exception and arguing for its abolition).

104. *In re Alappat*, 33 F.3d 1526, 1541 (Fed. Cir. 1994).

105. 149 F.3d 1368 (Fed. Cir. 1998).

106. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1371 (Fed. Cir. 1998) (quoting Claim 1 from Signature's patent).

107. The *State Street* court stated that:

The '056 patent is generally directed to a data processing system (the system) for implementing an investment structure which was developed for use in Signature's business as an administrator and accounting agent for mutual funds. In essence, the system, identified by the proprietary name Hub and Spoke®, facilitates a structure whereby mutual funds (Spokes) pool their assets in an investment portfolio (Hub) organized as a partnership. This investment configuration provides the administrator of a mutual fund with the advantageous combination of economies of scale in administering investments coupled with the tax advantages of a partnership.

*Id.* at 1370.

108. *Id.*

109. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 927 F. Supp. 502, 515 (D. Mass. 1996), *rev'd*, 149 F.3d 1368 (Fed. Cir. 1998), *cert. denied* 525 U.S. 1093 (1999).

The Federal Circuit's holding that the business method exception no longer existed is clear:

As an alternative ground for invalidating the '056 patent under § 101, the court relied on the judicially-created, so-called "business method" exception to statutory subject matter. We take this opportunity to lay this ill-conceived exception to rest. Since its inception, the "business method" exception has merely represented the application of some general, but no longer applicable legal principle, perhaps arising out of the "requirement for invention"—which was eliminated by § 103. Since the 1952 Patent Act, business methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method.<sup>111</sup>

The court went on to state that neither it nor the C.C.P.A. had ever relied upon the business method exception to invalidate a patent.<sup>112</sup> Further, the court asserted that its references to the business method exception in *In re Schrader* and *In re Alappat* did not sustain the exception's existence, as *Schrader* ultimately was decided on different grounds and *Alappat*'s reference to two earlier cases' discussions of the exception was inappropriate as these earlier cases did not, in fact, establish the exception.<sup>113</sup> Similarly, the *Hotel Security Checking* case was rejected as it too was decided on grounds that did not involve the business method exception.<sup>114</sup>

To justify the removal of the exception, the court cited Judge Newman's dissent in *In re Schrader*:

[The business method exception] is . . . an unwarranted encumbrance to the definition of statutory subject matter in section 101, that [should] be discarded as error-prone, redundant, and obsolete. It merits retirement from the glossary of section 101. . . . All of the "doing business" cases could have been decided using the clearer concepts of

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110. *State St. Bank*, 149 F.3d at 1377. See *supra* note 82 for a discussion of the *State Street* court's reversal of the district court's ruling on mathematical algorithm exception.

111. *State St. Bank*, 149 F.3d at 1375.

112. *Id.* However, the court's statement does not seem to be true. In 1942, the C.C.P.A. rejected a patent for a fire-fighting system by relying on the business method exception:

Appellant contended . . . that the appealed claims are patentable because they provide for a novel "interstate and national fire-fighting system to combat mass aircraft, incendiary-explosive bombing attack"; that such a system was "the essential aim" of appellant's alleged invention; that his system has been utilized by the United States Government, the city of New York, and manufacturers unknown to appellant; and that it has practical application.

In this connection it is sufficient to say that a system of transacting business, apart from the means for carrying out such system, is not within the purview of [the patent act] nor is an abstract idea or theory, regardless of its importance or the ingenuity with which it was conceived, apart from the means for carrying such idea or theory into effect, patentable subject matter.

*In re Patton*, 127 F.2d 324, 327-28 (C.C.P.A. 1942). The court in *State Street* was aware of this case, as it is cited in note 15 of the opinion. *State St. Bank*, 149 F.3d at 1376 n.15.

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

114. *Id.*

Title 35. Patentability does not turn on whether the claimed method does "business" instead of something else, but on whether the method, viewed as a whole, meets the requirements of patentability as set forth in sections 102, 103, and 112 of the Patent Act.<sup>115</sup>

Thus, with one direct blow, the Federal Circuit did away with the business method exception. Henceforth, the court requires patent applications on business methods to be examined in the same way as patents on any other process are examined.<sup>116</sup>

### C. *The Federal Circuit's New World Order of Patent Law*

The Federal Circuit's two recent decisions implement for processes the same patentability standard that is used for material inventions. Congress's expressed intent for the patentability of material inventions was broad—"anything under the sun that is made by man."<sup>117</sup> Despite the fact that Congress did not express the same sweeping standard of patentability for process inventions, under the currently announced law, it is nonetheless used.<sup>118</sup> Many process inventions that had never been considered patentable before now seek, and obtain, patents.<sup>119</sup>

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115. *Id.* at 1375 n.10 (quoting *In re Schrader*, 22 F.3d 290, 298 (Fed. Cir. 1994)) (Newman, J., dissenting).

116. *See id.* at 1377 (quoting United States Patent and Trademark 1996 Examination Guidelines for Computer Related Inventions, 61 Fed. Reg. 7478, 7479 (1996)) ("Claims should not be categorized as methods of doing business. Instead such claims should be treated like any other process claims."). Even with a case that is apparently as clear as *State Street*, not all commentators are convinced:

Where this leaves the [business method exception] is inherently unclear. The general principles to which the court referred as applicable to business method claims are presumably not wildly different from the ones that originally resulted in the view that such methods cannot be patented. Yet, the court's opinion represents a clear expansion of the role of patent law in the world of business. Whether that is a good or a sustainable event remains to be seen.

NIMMER, *supra* note 57, § 2.06[2] at 52-12.

117. S. REP. NO. 1979, at 5 (1952), reprinted in 1952 U.S.C.C.A.N. 2394, 2399.

118. *See supra* note 56 and accompanying text for a discussion of how the Supreme Court gave section 101 expanded scope and meaning.

119. *See, e.g.*, U.S. Patent No. 5,851,117 (issued Dec. 22, 1998):

*Building block training systems and training methods*: A building block training system and method of training of cleaners of facilities to be used on the job which utilizes a plurality of pictorial displays showing a specific set of steps to accomplish a cleaning operation in an efficient safe manner, e.g., dusting or vacuuming of a facility as well as a plurality of pictorial displays as to what must not be missed and must be avoided in performing the cleaning operation.

*Id.*

U.S. Patent No. 5,920,845 (issued July 6, 1999):

*Date matching methods*: A means and method for use at a date matching event to determine, in a discreet manner, the date preferences of a plurality of participants. The method includes gathering the plurality of participants at the date matching event, and assigning a unique identification code to each participant. The identification code is worn or otherwise displayed in plain sight, being readily observable by a plurality of the other participants. Each applicant may next, if time permits, be provided a temporal period to introduce

Indeed, if a method of match-making can now be patented,<sup>120</sup> the scope of patentable inventions is broad.<sup>121</sup> The Federal Circuit has opened the doors of the patent office for an incredibly wide range of business methodologies and algorithms to be granted a patent. Whether this will be beneficial or detrimental for competition and society is something that must await more experience.<sup>122</sup>

Although these primary consequences of the Federal Circuit's cases cannot yet be determined, other consequences of the decisions can be. The federal patent laws do not exist in isolation; instead, they interrelate with various state intellectual property protection schemes, most particularly trade secret law. By changing the scope of the federal right, the state right must also be affected.

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themselves to the other participants, which is followed by a temporal interval for applicants to interact. After an interval for interaction, the date preferences of each participant are discreetly collected and analyzed to determine all occurring mutual matches. The mutual match results are then delivered to the participants, wherein matched participants may then meet to discuss the arrangements for their date.

*Id.*

U.S. Patent No. 5,947,526 (issued Sept. 7, 1999):

*Personal financial tracking system and method:* A system, method and device for selectively tracking expenditures against a total monetary amount.

*Id.*

U.S. Patent No. 5,960,411 (issued Sept. 28, 1999):

*Method and system for placing a purchase order via a communications network:* A method and system for placing an order to purchase an item via the Internet. The order is placed by a purchaser at a client system and received by a server system. The server system receives purchaser information including identification of the purchaser, payment information, and shipment information from the client system. The server system then assigns a client identifier to the client system and associates the assigned client identifier with the received purchaser information. The server system sends to the client system the assigned client identifier and an HTML document identifying the item and including an order button. The client system receives and stores the assigned client identifier and receives and displays the HTML document. In response to the selection of the order button, the client system sends to the server system a request to purchase the identified item. The server system receives the request and combines the purchaser information associated with the client identifier of the client system to generate an order to purchase the item in accordance with the billing and shipment information whereby the purchaser effects the ordering of the product by selection of the order button.

*Id.*

120. See *supra* note 119 for a description of the patent for Date Matching Methods.

121. To appreciate the degree of change wrought by these two decisions, examine Professor Merges' recent article where he begins by quoting ALICE IN WONDERLAND by Lewis Clark. See Robert T. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577, 578 (1999) (discussing impact of decisions in *State Street* and *Excel*).

122. See *id.* at 584 ("[I]n an ideal world, society would have addressed whether or not the types of business concept patents [being] sought . . . contributed any value in excess of what they cost society. If the answer was no, we would deny patents to them; if yes, patents would be allowed."); *id.* at 588 ("It is virtually impossible to determine—at least at this time—if truly valid business concept patents are a net drag on the economy, a net plus, or neutral.").

## II. THE NEW WORLD ORDER INTRODUCES STORMY WATERS—WILL THE UCITA AND THE STATES' PROTECTION OF ALGORITHMS AND BUSINESS METHODOLOGIES SINK LIKE *BONITO BOATS*?

### A. Preemption of State Intellectual Property Rights by the Federal Patent Law<sup>123</sup>

In any area of power that is shared between the federal government and the states, the states' laws must recede in the face of a contrary federal pronouncement.<sup>124</sup> This general principal often arises in intellectual property law as both the federal government and the states provide legal protections to it.<sup>125</sup> Sometimes, the federal intellectual property provision expressly indicates that similar state laws are preempted, as is the case with the federal copyright act.<sup>126</sup> At other times, as is the case with patent law, the preemption occurs because of the incompatibility between federal and state provisions.<sup>127</sup> In either case, although the issue of preemption may be difficult,<sup>128</sup> the five major

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123. The parallel issue of whether there is a conflict between the federal patent laws and other federal intellectual property protection schemes is not being addressed in this Article. The Supreme Court should be addressing this issue during the 2000-2001 term. See *Traffix Devices, Inc. v. Mktg. Displays, Inc.*, 120 S. Ct. 2715 (2000) (granting *certiorari* to resolve potential conflicts between patent and federal trade dress protection). Lower courts have looked to the cases that are being discussed in this Article to help them resolve this federal-federal conflict, however. See *L.A. Gear, Inc. v. Thom McAn Shoe Co.*, 988 F.2d 1117, 1131-32 (Fed. Cir. 1993), *cert. denied* 510 U.S. 908, 908-09 (1993). See generally Jay Dratler, Jr., *Trade Dress Protection for Product Configurations: Is There a Conflict with Patent Policy?*, 24 AIPLA Q.J. 427 (1996) (discussing trade dress law in relation to patent law).

124. U.S. CONST. art. VI. See *Sola Elec. Co. v. Jefferson Elec. Co.*, 317 U.S. 173, 176 (1942) ("It is familiar doctrine that the prohibition of a federal statute may not be set as naught, or its benefits denied, by state statutes or state common law rules."). Some commentators have argued that the Supremacy Clause is not the source for the type of preemption being discussed in this Article. See Stephen A. Gardbaum, *The Nature of Preemption*, 79 CORNELL L. REV. 767, 768-69, 770-73, 781-83 (1994) (arguing that constitutional source of preemption lies in Necessary and Proper Clause). Whether the source of the federal power is the Supremacy Clause or the Necessary and Proper Clause, contradictory state law is nonetheless preempted.

125. See DONALD S. CHISUM & MICHAEL A. JACOBS, UNDERSTANDING INTELLECTUAL PROPERTY LAW § 1D (1992) (noting interplay of federalism in intellectual property law).

126. 17 U.S.C. § 301 (1994). See generally NIMMER, *supra* note 57, § 3.17 (discussing express intent for federal copyright act to preempt state laws).

127. See generally NIMMER, *supra* note 57, § 3.16 (discussing preemption caused by patent laws); Ralph D. Clifford, *Simultaneous Copyright and Trade Secret Claims: Can the Copyright Misuse Defense Prevent Constitutional Doublethink?*, 104 DICK. L. R. 247 (2000) (discussing implied preemption in copyright cases).

128. See K. David Crockett, *The Salvaged Dissents of Bonito Boats v. Thunder Craft*, 13 GEO. MASON U. L. REV. 27, 27-29 (1990) (suggesting that analyzing principles underlying patent preemption cases may help clarify law); Maureen A. O'Rourke, *Drawing the Boundary Between Copyright and Contract: Copyright Preemption of Software License Terms*, 45 DUKE L.J. 479, 539 (1995) (noting analysis of "principles underlying patent preemption cases may provide guide for constitution copyright preemption of provisions in licenses for mass marketed software"); Richard S. Robinson, *Preemption, the Right of Publicity, and a New Federal Statute*, 16 CARDOZO ARTS & ENT.

Supreme Court cases on implied patent preemption<sup>129</sup> are capable of being reconciled into a cohesive theory of law.

### 1. The *Sears* and *Compco* Decisions

The first two Supreme Court decisions, *Sears, Roebuck & Co. v. Stiffel Co.*<sup>130</sup> and *Compco Corp. v. Day-Brite Lighting, Inc.*,<sup>131</sup> were decided simultaneously in 1964. The former involved Sears copying the design of Stiffel's lamp.<sup>132</sup> Even though there was no showing that Sears palmed off<sup>133</sup> its lamp, the lower courts found that Sears' copying was unfair competition under state law.<sup>134</sup> In the latter, Day-Brite had been found to have engaged in unfair competition by copying Compco's fluorescent lighting fixture in a way that was likely to cause confusion in the trade—and that "confusion [had] occurred."<sup>135</sup> In both cases, the Supreme Court ruled that the state unfair competition count was preempted by the federal design patent law.<sup>136</sup>

In *Sears*, the Court held that:

An unpatentable article, like an article on which the patent has expired, is in the public domain and may be made and sold by whoever chooses to do so. . . . "Sharing in the goodwill of an article unprotected by patent or trade-mark is the exercise of a right possessed by all—and in the free exercise of which the consuming public is deeply interested." "To allow a State by use of its law of unfair competition to

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L.J. 183, 192-95 (1998) (summarizing preemption of state intellectual property laws for understanding of current law); Cf. EPSTEIN, *supra* note 60, § 4.04[A] (discussing preemption of copyrights through case-by-case application of two-prong test).

129. See *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 153 (1989) (recognizing that when state law gives "unlimited protection against copying . . . an unpatentable item whose design had been fully disclosed through public sales conflict[s] with the federal policy embodied in the patent laws"); *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257, 262 (1979) (quoting *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 479 (1974)) (determining whether federal law preempts state law "involves a consideration of whether that law 'stands as an obstacle to the accomplishment and execution of the full processes and objectives of Congress'"); *Kewanee Oil*, 416 U.S. at 480 (noting that if state's regulatory scheme respecting trade secrets contradicts objectives of federal patent laws, then state law must fall); *Compco Corp. v. Day-Brite Lighting, Inc.*, 376 U.S. 234, 238 (1964) (recognizing that "while the federal patent laws prevent a State from prohibiting the copying and selling of unpatentable articles, they do not stand in the way of state law . . . which requires those who make and sell copies to take precautions to identify their products as their own"); *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 232-33 (1964) (holding that when article is not protected by patent or copyright, state law may not forbid others to copy that article).

130. 376 U.S. 225 (1964).

131. 376 U.S. 234 (1964).

132. *Sears*, 376 U.S. at 226.

133. The Restatement says that "palming off" and "passing off" are "now often used more broadly, however, to describe any situation in which the conduct of a seller creates a likelihood that prospective purchasers will be confused with respect to the source of goods or services, regardless of the actors intent." RESTATEMENT (THIRD) UNFAIR COMPETITION § 4 (1995). For palming off to occur, Sears would have had to sell the lamps, not as their own, but as Stiffel lamps.

134. *Sears*, 376 U.S. at 226-27.

135. *Compco*, 376 U.S. at 234-35.

136. *Id.* at 237; *Sears*, 376 U.S. at 232-33.

prevent the copying of an article which represents too slight an advance to be patented would be to permit the State to block off from the public something which federal law has said belongs to the public. The result would be that while federal law grants only 14 or 17 years' protection to genuine inventions, States could allow perpetual protection to articles too lacking in novelty to merit any patent at all under federal constitutional standards. This would be too great an encroachment on the federal patent system to be tolerated. . . . But because of the federal patent laws a State may not, when the article is unpatented and uncopyrighted, prohibit the copying of the article itself or award damages for such copying.<sup>137</sup>

Thus, the foundation stone of the preemption doctrine was laid—states may not prohibit the copying of federally unprotected items. At the same time the Court announced the implied preemption doctrine, it bounded it by indicating that some aspects of state intellectual property law survive preemption. The Court suggested that:

[Federal laws] do not stand in the way of state law, statutory or decisional, which requires those who make and sell copies to take precautions to identify their products as their own. A State of course has power to impose liability upon those who, knowing that the public is relying upon an original manufacturer's reputation for quality and integrity, deceive the public by palming off their copies as the original.<sup>138</sup>

## 2. The *Kewanee Oil* Decision

Ten years later, the Supreme Court was called upon to determine if the *Sears-Compco* doctrine served to preempt state trade secret protection.<sup>139</sup> The Court held that no overall field preemption had been established by *Sears-Compco* and none was required.<sup>140</sup>

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137. *Sears*, 376 U.S. at 231-33 (citations omitted). *Accord Compco*, 376 U.S. at 237-38 (reiterating *Sears* holding that "when an article is unprotected by patent or copyright law, state law may not forbid others to copy that article").

138. *Compco*, 376 U.S. at 238 (dictum). Despite this limitation, the *Sears* and *Compco* decisions were viewed as broadly preempting state law until the later Supreme Court cases were decided. See, e.g., J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 10.54 (4th ed. 1997) (recognizing that despite limitation suggested by *Compco*, before subsequent Supreme Court cases were decided, *Sears* and *Compco* were viewed as broadly preempting state law).

139. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 482 (1974) (determining "whether and under what circumstances" state protection of intellectual property constitutes "too great an encroachment on the federal patent system to be tolerated"). The Circuit Courts of Appeal were split on the question of whether state-provided trade secret protections had been preempted. *Id.* at 472.

140. *Id.* at 474. Although the ruling was technically limited to Ohio's trade secret law, as Ohio had adopted the commonly used definition of trade secrets contained in the RESTATEMENT (FIRST) OF TORTS § 757, the case has broad applicability. Since *Kewanee Oil* was decided, this definition has been refined in both the RESTATEMENT (THIRD) OF UNFAIR COMPETITION §§ 39-45 and in the UNIFORM TRADE SECRET ACT. See, e.g., RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 (1995) (defining trade secrets); *id.* § 40 (describing appropriation of trade secrets); *id.* § 41 (mandating duty of confidence for one to whom trade secret has been disclosed); *id.* § 42 (describing breach of confidence



First, the Court noted that the "objectives of . . . the patent and trade secret laws" differ.<sup>141</sup> The patent system encourages progress in the useful arts by granting a monopoly to exclude others from the manufacture, sale, or use of an invention in exchange for the disclosure of the invention.<sup>142</sup> Each state's trade secret system, however, encourages "[t]he maintenance of standards of commercial ethics and the encouragement of invention,"<sup>143</sup> while prohibiting disclosure of the invention.<sup>144</sup>

The Court continued its analysis by splitting inventors' creations into two categories—those creations that fall outside of the scope of the patent law and those that fall within its penumbra.<sup>145</sup> For those items not within the scope of section 101, the Court could easily conclude that there was no collision between patents and trade secrecy, thus indicating that the states were free to act without qualm.<sup>146</sup> To justify allowing the states to act on the other half of the invention dichotomy, the Court's analysis was more detailed and subject to disagreement.<sup>147</sup>

The Court first noted that trade secrets, unlike the state protections struck down in *Compco* and *Sears*, do not have the effect of protecting items that are in the public domain because trade secrets, by their very definition,<sup>148</sup> must be kept confidential by the inventor.<sup>149</sup> Next, the Court dismissed the need for

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for disclosure of trade secrets); *id.* § 43 (defining improper acquisition of trade secrets); *id.* § 44 (discussing when injunctive relief is appropriate for appropriation of trade secrets); *id.* § 45 (discussing when monetary relief is appropriate for appropriation of trade secrets). Today, a large majority of the states have adopted the Uniform Act as their statement of trade secret law. See *Table of Jurisdictions Wherein Act Has Been Adopted*, UNIFORM TRADE SECRET ACT (1985) (listing states).

141. *Kewanee Oil*, 416 U.S. at 480.

142. *Id.* at 480-81.

143. *Id.* at 481.

144. RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 & cmt. f (1995).

145. *Kewanee Oil*, 416 U.S. at 476-77. The Court's analysis applied the standard contained in 35 U.S.C. § 101 for patentability: "Whoever 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 therefor, subject to the conditions and requirements of this title." *Id.*

146. *Id.* at 482-83. It must be noted that the Federal Circuit's shift in the scope of patentability, by allowing algorithms and business methods to fall within the scope of section 101, has raised the new issues of preemption this Article addresses. See *infra* Section II.B for a discussion of the scope of patentability.

147. See *Kewanee Oil*, 416 U.S. at 493-94 (Marshall, J., concurring) (finding inventors are likely to rely on trade secret rather than patents). See also *id.* at 495-99 (Douglas, J., & Brennan, J., dissenting) (agreeing with lower court's holding that Ohio's trade secret law is not preempted by federal patent law).

148. See RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 ("A trade secret is any information that can be used in the operation of a business or other enterprise and that is sufficiently valuable and secret to afford an actual or potential economic advantage over others.") (emphasis added). See also *id.* § 39 cmt. f ("To qualify as a trade secret, the information must be secret. . . . [C]ourts have recognized that trade secret rights may not be asserted in information that is in the public domain . . .").

149. *Kewanee Oil*, 416 U.S. at 484 (noting also trade secret law would protect invention from breaches of confidence and industrial espionage). This statement by the Court strongly implies that trade secret law can continue to be used until a patent is received. Once a patent is received,

preemption if the invention had not met the standards for patentability<sup>150</sup> even though it would qualify as patentable subject matter under section 101.<sup>151</sup> "The mere filing of applications doomed to be turned down by the Patent Office will bring forth no new public knowledge or enlightenment, since under federal statute and regulation, patent applications . . . are held by the Patent Office in confidence and are not open to public inspection."<sup>152</sup> Having concluded that nothing is gained by requiring patent applications for inventions known not to meet the requirements for a patent, it was a small step for the Court to conclude that the same logic would moderate against requiring patent applications where the qualification of the invention for protection would be questionable.<sup>153</sup> Indeed, the Court indicated that "[t]rade secret protection would assist those inventors in the more efficient exploitation of their discoveries and not conflict with the patent law."<sup>154</sup>

The final type of invention—one clearly qualifying for a patent but being protected by trade secret law nonetheless—did not lead the Court to conclude that preemption was needed.<sup>155</sup> First, the Court concluded that "[t]rade secret

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presumably there has been disclosure of the trade secret, thus eviscerating the secrecy required for a trade secret to exist. See RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 cmt. f ("Thus, information that is disclosed in a patent . . . does not qualify for protection under this Section."). See also Clifford, *supra* note 127, at 275-76 (discussing that if information disclosed in patent were to qualify for trade secret protection, it would seemingly violate disclosure requirement of Intellectual Property Clause of U.S. CONST. art. I, § 8, cl. 8).

The necessity of denying enforcement of trade secret protection after the issuance of a patent has not been appreciated by all courts. The Texas courts, in particular, do not seem to appreciate that the granting of a patent ends trade secret protection. In an early Texas Supreme Court case, one predating *Sears and Compco*, an injunction was issued to enforce a trade secret license agreement even though a patent, which disclosed the trade secret, had been issued. *Hyde Corp. v. Huffines*, 314 S.W.2d 763, 773-74 (Tex. 1958). Fairly recently, even after the modern United States Supreme Court cases on patent preemption, the Texas courts continue to apply the rule established in *Hyde Corp.* See *Garth & RTB Tech., Inc. v. Staktek Corp.*, 876 S.W.2d 545, 550 (Tex. Ct. App. 1994) (applying *Hyde Corp.*). See also EPSTEIN, *supra* note 60, § 3.02[A][1] (noting how other jurisdictions have been more sensitive to this issue and limited the remedies for trade secret misappropriation to the period of time before invention was publicly disclosed).

150. For example, where the invention is not novel under 35 U.S.C. § 102 (1994) or is obvious under 35 U.S.C. § 103 (1994).

151. See *Kewanee Oil*, 416 U.S. at 484-85 (stating also that trade secret law in such cases benefits society by encouraging invention where patent laws do not, prompting further discovery and exploitation of inventions as well as fostering competition).

152. *Id.* at 485. Indeed, although the Court did not do so, one could read the fact that patent applications are to be kept confidential by statute under 35 U.S.C. § 122 (1994) as an expression of congressional intent that trade secret law is not preempted by the patent act. Although he did not rely on section 122, Justice Marshall, in his concurrence, concluded that Congress had expressed intent not to preempt trade secret protection. See *id.* at 494 (Marshall, J., concurring) (concluding that Congress had expressed intent not to preempt trade secret protection, without relying on section 122).

153. *Id.* at 487-89 (noting trade secret protection would cause society to lose use of nonpatentable discoveries until patent office denies patent).

154. *Id.* at 487.

155. *Id.* at 489. This conclusion was a substantial part of the grounds of disagreement in Justice Douglas' dissent. See *id.* at 499 (Douglas, J., dissenting) (arguing that an invention's qualification for patent and protection by trade secret law did not lead to conclusion that preemption was needed).

law provides far weaker protection in many respects than the patent law."<sup>156</sup> Second, the Court indicated that the chance of an independent discovery of any invention was so great that any limitation on disclosure would be, for a practical matter, short in duration.<sup>157</sup> Thus, the Court concluded that trade secret protection could coexist with patent protection.<sup>158</sup>

### 3. The Aronson Decision

A half-decade later, the Court examined whether state contract law was preempted if it was used to collect royalties on an invention after the Patent Office found it to be unpatentable.<sup>159</sup> The Court's decision further narrowed the *Sears-Compco* doctrine<sup>160</sup> but was expressly consistent with *Kewanee Oil*:

In *Kewanee Oil Co.*, we reviewed the purposes of the federal patent system. First, patent law seeks to foster and reward invention; second, it promotes disclosure of inventions to stimulate further innovation and to permit the public to practice the invention once the patent expires; third, the stringent requirements for patent protection seek to assure that ideas in the public domain remain there for the free use of the public.<sup>161</sup>

The Court found that each of these purposes was compatibly achieved by allowing the type of contract found in *Aronson*. Allowing inventors to recover contractual royalties encourages invention in the same way that allowing patent royalties would.<sup>162</sup> Ideas are also disseminated because allowing inventors to

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156. *Kewanee Oil*, 416 U.S. at 489-90 (footnote omitted). Indeed, this finding was critical to the Court's ultimate conclusion that patent and trade secret law could coexist. See *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 155 (1989) (discussing *Kewanee Oil* and concluding that patent and trade secret law could coexist). This central premise of the Court's argument is factually suspect because trade secret protection, particularly in the computer industry, has become the preferred method of protection. See EPSTEIN, *supra* note 60, § 1.01 ("For many companies, the law of trade secrets is the method of choice for protecting valuable business information."); NIMMER, *supra* note 57, § 3.01 ("[T]rade secrecy is often the preferred way for a company to protect its technology."). Even at the time *Kewanee Oil* was decided, doubt existed as to whether patent protection was necessarily superior to trade secrecy. See *Kewanee Oil*, 416 U.S. at 493-94 (Marshall, J., concurring) (expressing doubt that patent preemption is superior to the unlimited duration of trade secrecy).

157. *Kewanee Oil*, 416 U.S. at 490-91. Although this hypothesis may be true in general, it certainly has exceptions. Not all inventions are independently discovered. For example, the Chinese built bridges known as "rainbow bridges" using techniques that have been lost. Consequently, these bridges can only be roughly recreated today. See *Nova: Secrets of Lost Empires: China Bridge*, (PBS television broadcast, Feb. 29, 2000) (transcript available at <http://www.pbs.org/wgbh/nova/transcripts/27fbchina.html> (last visited Feb. 1, 2001) (discussing effort to reconstruct ancient bridge).

158. *Kewanee Oil*, 416 U.S. at 493.

159. See *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257, 258-59 (1979) (holding federal patent law does not preempt state contract law, therefore contract enforceable).

160. See, e.g., G. Richard Shell, *Contracts in the Modern Supreme Court*, 81 CALIF. L. REV. 433, 482 (1993) (discussing narrowed doctrine and Court's reasoning in *Aronson*); Todd Wong, *Patent Law: The Patchwork Approach of the Supreme Court and Its Interplay with State Law*, 1990 ANN. SURV. AM. L. 581, 581-82 (1991) (discussing Supreme Court's narrowing of *Sears-Compco* doctrine).

161. *Aronson*, 440 U.S. 262 (citation omitted).

162. *Id.* at 262.

bring inventions to market using contracts results in availability of additional inventions, which can then be reverse-engineered.<sup>163</sup> Finally, the contract did not remove any invention from the public domain, as Aronson's key chain was not publicly known prior to her disclosure to Quick Point.<sup>164</sup>

The final section of the Court's opinion discussed the essence of the difference the Court perceived between a *Sears-Compco* situation and a *Kewanee Oil-Aronson* situation. In a *Sears-Compco* situation, state law is attempting to prevent the use of something that is already within the public domain.<sup>165</sup> In a *Kewanee Oil-Aronson* situation, on the other hand, nothing is taken from the public domain; instead, a "novel device" is released into the market place.<sup>166</sup> This distinction is further reinforced by the logic used by the Court to distinguish *Lear, Inc. v. Adkins*<sup>167</sup> and *Brulotte v. Thys Co.*<sup>168</sup> The Court stressed that both *Lear* and *Brulotte* were attempts to use state contract law either to prevent federal patent policy from operating or to enlarge the monopoly given by the patent.<sup>169</sup> In *Aronson*, the pattern was different as the contract encouraged Aronson to obtain a patent as the rate or royalties would double in such event.<sup>170</sup> Also, as with the trade secret law examined in *Kewanee Oil*, *Aronson* was using contract law to "encourage invention."<sup>171</sup>

#### 4. The *Bonito Boats* Decision

The landmark decision of *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*,<sup>172</sup> seen by some as limiting or narrowing the *Sears-Compco* preemption doctrine,<sup>173</sup> is better interpreted as restating the doctrine in light of the contemporary understanding of the federal policies being implemented.<sup>174</sup> *Sears-Compco*

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163. *Id.* at 263. To reverse engineer is "[t]o study or analyze (a device, as a microchip for computers) in order to learn details of design, construction, and operation, perhaps to produce a copy or an improved version." RANDOM HOUSE UNABRIDGED DICTIONARY 1647 (2d ed. 1993).

164. *Aronson*, 440 U.S. at 263.

165. *Id.* at 264 ("We have held that a state may not forbid the copying of an idea in the public domain which does not meet the requirements for federal patent protection.").

166. *Id.*

167. 395 U.S. 653, 674 (1969) (holding patent license establishing patent invalidity not required to continue paying patent royalties).

168. 379 U.S. 29, 33 (1964) (holding attempts to collect royalties for use of patented device after patent's expiration is improper).

169. *Aronson*, 440 U.S. at 264-65.

170. *Id.* at 265.

171. *Id.* at 266 (quoting *Kewanee Oil v. Bicron Corp.*, 416 U.S. 470, 485 (1974)). See also *Naimie v. Cytozyme Labs., Inc.*, 174 F.3d 1104, 1110 (10th Cir. 1999) (holding state contract law "benefits society by encouraging invention in areas where patent law does not reach").

172. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141 (1989). *Bonito Boats* challenged, as preempted, a Florida statute making it illegal to copy a boat's hull using a direct molding process. *Bonito Boats*, 489 U.S. at 144-45.

173. See, e.g., MCCARTHY, *supra* note 138, § 7.57 (stating that *Bonito Boats* narrowly interpreted *Sears-Compco* preemption doctrine as not having broad preclusive effect on state trade dress law).

174. Cf. *L.A. Gear, Inc. v. Thom McAn Shoe Co.*, 988 F.2d 1117, 1131 (Fed. Cir. 1993) (stating that "[United States Supreme] Court in *Bonito Boats* reaffirmed the principle of *Sears and Compco*").

stands for the proposition that unpatented articles in the public sphere cannot be protected from copying by the states<sup>175</sup> although the states are free to protect aspects of an article if they serve to identify the source or manufacturer of the item.<sup>176</sup> In *Bonito Boats*, the Court held that "[a] state law that substantially interferes with the enjoyment of an unpatented utilitarian or design conception which has been freely disclosed by its author to the public at large impermissibly contravenes the ultimate goal of public disclosure and use which is the centerpiece of federal patent policy."<sup>177</sup> At the same time, the states can protect ideas that have not yet entered the public sphere through trade secret law<sup>178</sup> and can insure that the source of a product is clearly identified.<sup>179</sup>

The Court was clear that whatever else could be said about implied patent preemption, the approach to the analysis must be "pragmatic."<sup>180</sup> Further, the state protections must leave "substantially free trade in publicly known,

175. See *infra* note 138 and accompanying text for a discussion of the broad preemption of state law.

176. See *infra* note 140 and accompanying text for a discussion of the Supreme Court's decision that *Sears-Roebuck* established no overall field-preemption.

177. *Bonito Boats*, 489 U.S. at 156-57.

178. *Id.* at 155. The *Bonito Boats* court suggested that states would have to be circumspect in how far they protect trade secrets from reverse-engineering. *Id.* "The public at large remain[s] free to discover and exploit the trade secret through reverse engineering of products in the public domain or by independent creation." *Id.* See also *id.* at 160 (citing to statements in *Kewanee Oil Co. v. Bicron Corp.*, 460 U.S. 470, 476 (1974), and *Chicago Lock Co. v. Faiberg*, 676 F.2d 400, 405 (9th Cir. 1982)) (recognizing reverse-engineering prohibitions part of federal patent law but not state trade secret law). Indeed, the Court indicated that the ability to reverse-engineer a trade secret might be what makes trade secret law compatible with federal patent law. See *Bonito Boats*, 489 U.S. at 160 ("[T]he competitive reality of reverse engineering may act as a spur to the inventor, creating an incentive to develop inventions that meet the rigorous requirements of patentability.").

These statements by the *Bonito Boats* Court seriously question whether states can create an automatic or semi-automatic protection scheme for federally protected intellectual property that prevents or prohibits reverse-engineering. Based on this, the Third Circuit may have done a better job analyzing shrink-wrap licenses than the Seventh Circuit did. Compare *Step-Saver Data Sys., Inc. v. Wyse Tech.*, 939 F.2d 91, 105 (3d Cir. 1991) (finding that parties did not intend to adopt box-top license as final expression of their agreement) with *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447, 1455 (7th Cir. 1996) (finding that shrink-wrap license may be enforced because contract was not equivalent to any establishing exclusive rights within general scope of copyright law). See *infra* notes 201-02 discussing shrink-wrap and click-wrap licenses. See generally, Garry L. Founds, Note, *Shrinkwrap and Clickwrap Agreements: 2B or Not 2B?*, 52 FED. COMM. L.J. 99 (1999) (reviewing different analyses of shrink-wrap and click-wrap agreements employed by circuit courts).

179. See *Bonito Boats*, 489 U.S. at 158 ("[To survive preemption], the common-law tort of unfair competition [must be] limited to protection against copying of nonfunctional aspects of consumer products which have acquired secondary meaning such that they operate as a designation of source. The 'protection' granted a particular design under the law of unfair competition is thus limited to one context where consumer confusion is likely to result; the design 'idea' itself may be freely exploited in all other contexts."); *Nat'l Presto Indus., Inc. v. Hamilton Beach, Inc.*, No. 88C10567, 1990 W.L. 208594, at \*10 (N.D. Ill. Dec. 12, 1990) ("Illinois is still free to place restrictions when the copying of trade dress is likely to cause confusion in the consumer's mind regarding the source of the product").

180. *Bonito Boats*, 489 U.S. at 156 (characterizing the reaffirmed approach in *Kewanee Oil* as pragmatic).

unpatented design and utilitarian conceptions."<sup>181</sup> Indeed, such conceptions are the public's to use as desired.<sup>182</sup> Thus, as the Court requires a case-by-case analysis, it has clearly rejected any form of "field preemption"<sup>183</sup> in the analysis of a state's intellectual property protection. Similarly, as the patent act has no provisions that are preemptive of state law, "express preemption"<sup>184</sup> cannot apply. Patent preemption analysis, therefore, is necessarily of the third kind—"conflict preemption";<sup>185</sup> indeed, the type of conflict preemption where the state law "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."<sup>186</sup>

It is important to note the type of analysis that is required under this category of preemption. By its very nature, the specifics of the state law will not conflict with the specifics of a federal law as direct conflicts of this kind are usually found only in express preemption.<sup>187</sup> Consequently, the analysis requires

181. *Id.* When the Court examined the Florida statute under these standards it found it lacking because it was not designed to protect consumers by eliminating confusion as to the source of the product. *Id.* at 157-58. "[T]he Florida statute is aimed directly at preventing the exploitation of the design and utilitarian conceptions embodied in the product itself." *Id.* at 158.

182. *Id.* at 164-65.

183. Professor Nelson provides an excellent definition of field preemption in his recent article on the preemption jurisprudence of the Supreme Court:

[T]he Court sometimes is willing to conclude that a federal statute wholly occupies a particular field and withdraws state lawmaking power over that field. The Court has indicated that a federal regulatory scheme may be "so pervasive" as to imply "that Congress left no room for the States to supplement it." Likewise, the "federal interest" in the field that a federal statute addresses may be "so dominant" that federal law

"will be assumed to preclude enforcement of state laws on the same subject."

Caleb Nelson, *Preemption*, 86 VA. L. REV. 225, 227 (2000) (footnotes omitted).

184. *Id.* at 226 ("Express' preemption occurs when a federal statute includes a preemption clause explicitly withdrawing specified powers from the states.").

185. Again, from Professor Nelson's article:

[E]ven if a federal statute contains no express preemption clause, and even if it does not impliedly occupy a particular field, it preempts state law with which it "actually conflicts." According to the Court, such a conflict exists if either (1) compliance with both the state and federal law is "a physical impossibility" or (2) state law "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."

*Id.* at 227-28 (footnotes omitted).

186. *Boggs v. Boggs*, 520 U.S. 833, 844 (1997) (quoting *Gade v. Nat'l. Solid Wastes Mgmt. Ass'n.*, 505 U.S. 88, 98 (1992)).

187. The Federal Circuit's analysis of patent preemption has apparently missed this point. In *Dow Chemical Co. v. Exxon Corp.*, 139 F.3d 1470, 1477 (Fed. Cir. 1998), for example, the Circuit court used a preemption analysis based on the prima facie case of a "state tort action for intentional interference with contractual relations." The *Dow Chemical* court held that as the tort "require[d] entirely different elements to establish [it], it plainly is not a preempted alternative or additional state law remedy for inequitable conduct." *Dow Chem.*, 139 F.3d at 1477. Similarly, the Ninth Circuit invoked the extra element test to determine if state unfair competition law had been preempted. See *Summit Mach. Tool Mfg. Corp. v. Victor CNC Sys., Inc.*, 7 F.3d 1434, 1439-40 (9th Cir. 1993) (finding that preemption law requires analysis of whether theory of unfair competition contains necessary qualitatively different extra elements, thereby distinguishing it from patent or copyright protection).

The extra element analysis works well when dealing with copyright law because Congress has expressly specified what is to be preempted. See, e.g., 17 U.S.C. § 301(a) (1994) (preempting "rights

that the *policy* to be implemented by the state be compared with the *policy* implemented by the federal patent laws. Where these collide, policy preemption occurs and the state provision cannot be used.

*B. What is the Effect on State Law of Patent Protection for Mathematical Algorithms, Business Methods, and "Anything Under the Sun That Is Made by Man?"*

Because of the Federal Circuit's radical expansion of the scope of the patent laws,<sup>188</sup> areas of state intellectual property law will necessarily be limited by the policy preemption inherent in the patent laws.<sup>189</sup> What, then, are the consequences of the Federal Circuit's inflation of the subject matter of patents? Of course, with a fundamentally ad hoc scheme of patent preemption, it is impossible to answer this question with any globalized statements of what state law is preempted. After all, contract law was effectively preempted in *Brulotte v. Thys Co.*,<sup>190</sup> while being left in force in *Aronson v. Quick Point Pencil Co.*<sup>191</sup> Even though the analysis is done on a case-by-case basis, it is still possible to determine the general boundaries of preemption triggered by the expanded scope of the patent law. An illustrative example will focus the discussion—the distribution of a mass-market computer program.

A computer program provides a good example for exploring preemption

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that are equivalent to any of the exclusive rights within the general scope of copyright"). Because Congress has required an evaluation of "equivalency," examining a state cause of action for different or extra elements is appropriate, and thus would make the cause of action non-equivalent. See, e.g., *Nat'l Basketball Ass'n v. Motorola, Inc.*, 105 F.3d 841, 850 (2d Cir. 1997) (citing *Pro CD, Inc. v. Zeiderberg*, 86 F.3d 1447, 1453 (7th Cir. 1996) for proposition that claim involving extra elements is not equivalent to exclusive rights under copyright); *Data Gen. Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147, 1164 (1st Cir. 1994) (examining extra elements of state claim to determine variance between rights protected by state law and those protected by federal copyright law).

However, for the policy preemption existing under the patent act, where no express preemption occurs, the extra element test does not provide a satisfactory methodology for distinguishing between state claims that are preempted versus those that are not. This can be seen most clearly by comparing the Supreme Court's holding in *Brulotte v. Thys Co.*, 379 U.S. 29 (1964) with its later holding in *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257 (1979). *Brulotte* held that an attempt to enforce a contract requiring royalty payments after a patent had expired was unlawful. *Brulotte*, 379 U.S. at 33-34. The *Aronson* court allowed royalties to be collected despite the fact that the product had been denied a patent. *Aronson*, 440 U.S. at 262-63. See *supra* Part II.A.3 for an in-depth discussion of this issue. In both cases, an extra element would exist—the allegation of the existence of a contract. Only one resulted in preemption, however. Thus, the extra element test does not work to establish preemption. Cf. *G.S. Rasmussen & Assocs., Inc. v. Kalitta Flying Serv., Inc.*, 958 F.2d 896, 904 (9th Cir. 1992) (noting patent law's "zone of preemption [is] broader than that of copyright law").

188. See *supra* Part I for a discussion of the evolution of the Federal Circuit's interpretation of section 101 of the Patent Act.

189. See *infra* Part II.A for a discussion of policy preemption in patent law and its effects on state intellectual property law.

190. *Brulotte*, 379 U.S. at 33-34 (holding that state contract law cannot be used to collect royalties on patented invention after patent expires).

191. *Aronson*, 440 U.S. at 262-63 (holding that state contract law can be used to collect royalty on invention for which patent was sought but never obtained).

issues for two principal reasons. First, it has been the primary technology that has severely challenged previously existing schemas of intellectual property law.<sup>192</sup> Indeed, it will probably be the type of intellectual property that will require the preemption issues discussed in this Article to be ultimately decided in the courts. Second, a computer program is always the expression of multiple algorithms<sup>193</sup>—mathematical algorithms in the language of the courts<sup>194</sup>—and is often used to implement a business method claimed in a patent.<sup>195</sup> This makes it an excellent example of the kind of technology covered by the Federal Circuit's expansion of the scope of the patent law.

The choice of a mass-marketed computer program is impelled as it represents the first time that a systematic attempt has been made to distribute a product to a wide audience<sup>196</sup> while simultaneously attempting to claim that it contains trade secrets of its developer.<sup>197</sup> In order to achieve trade secret protection for a distributed computer program,<sup>198</sup> a licensing agreement is

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192. See NIMMER, *supra* note 57, at I-1 (indicating computer programs are primary form of technology that challenge intellectual law).

193. See, e.g., NIKLAUS WIRTH, *ALGORITHMS + DATA STRUCTURES = PROGRAMS* xii (1976) (stating that "[p]rograms, after all, are concrete formulations of abstract algorithms based on particular representations and structures of data") (emphasis omitted).

194. See *supra* notes 15-16 for a discussion of multiple algorithms in computer science.

195. See generally HENRY C. LUCAS, JR. & CYRUS F. GIBSON, *A CASEBOOK FOR MANAGEMENT INFORMATION SYSTEMS* (1976) (discussing how computer programs are used to implement business methods).

196. Cf. NIMMER, *supra* note 57, § 3.01 (noting "widespread" use of trade secret law within computer industry). See also Microsoft Corp., *End-User License Agreement for Microsoft Desktop Operating System Software*, Windows 95 ¶ 2; Microsoft Corp., *End-User License Agreement for Microsoft Desktop Operating System Software*, Windows 98 ¶ 2 [hereinafter Microsoft Licenses]. (stating that "[y]ou may not reverse-engineer, decompile, or disassemble the software product").

197. There is no doubt that, in appropriate cases, trade secret law can be used to protect aspects of a computer program. NIMMER, *supra* note 57, § 3.02[2] ("There is no dispute that computer . . . software [is an] appropriate subject matter for trade secret protection . . ."). See also *Dickerman Assocs., Inc. v. Tiverton Bottled Gas Co.*, 594 F. Supp. 30, 35 (D. Mass. 1984) (concluding that computer program was trade secret); *Digital Dev. Corp. v. Int'l Memory Sys.*, 185 U.S.P.Q. 136, 140 (S.D. Cal. 1973) (noting that software in question was capable of being trade secret); *Com-Share, Inc. v. Computer Complex, Inc.*, 338 F. Supp. 1229, 1238 (E.D. Mich. 1971) (stating that software was unique property constituting trade secret), *aff'd*, 458 F.2d 1341 (6th Cir. 1972); *State v. Tanner*, 534 So. 2d 535, 538 (La. Ct. App. 1988) (stating that computer software is within definition of intellectual property); *Jostens Inc. v. Nat'l Computer Sys.*, 318 N.W.2d 691, 698 (Minn. 1982) (stating unique principles, engineering, logic, and coherence in computer software may be accorded trade secret status); *Belth v. Ins. Dept.*, 406 N.Y.S.2d 649, 650 (N.Y. Sup. Ct. 1977) (declaring that there is no doubt that computer programs may constitute trade secret); *Computer Print Sys., Inc. v. Lewis*, 422 A.2d 148, 154 n.3 (Pa. Super. Ct. 1980) (stating that computer programs should be afforded trade secret protection); *Schalk v. State*, 823 S.W.2d 633, 636 (Tex. Crim. App. 1991) (en banc) (noting that computer programs satisfy definition of trade secrets under Texas law); *McCormack & Dodge Corp. v. ABC Mgmt. Sys., Inc.*, 222 U.S.P.Q. 432, 444 (Wash. Sup. Ct. 1983) (stating that computer software is trade secret).

198. Most computer programs are distributed only in object code form. One of the non-technical reasons for this (acknowledging that the technical reasons, particularly code execution efficiency, are more important, C. WILLIAM GEAR, *COMPUTER ORGANIZATION AND PROGRAMMING* 15 (4th ed. 1985)), is that object code is significantly harder for others to reverse-engineer. Despite the increased



necessary as the parties who gain possession of a trade secret must be contractually obligated to maintain its secrecy or its trade secret status will be lost.<sup>199</sup> For a program that is distributed to a narrow group of customers, obtaining such contractual protection is an easy job as each customer can be required to sign a licensing agreement before the product is delivered. The same cannot be said for mass-distributed software where individual negotiations with millions of customers are not feasible. Attempts to overcome this problem led to the invention of first, the shrink-wrap license<sup>200</sup> and subsequently, the click-wrap license.<sup>201</sup> Because of continued questions of the viability of these forms of contracting,<sup>202</sup> a uniform act was drafted—The Uniform Computer Information

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difficulty, however, reverse-engineering is almost always possible, particularly if the various disassembling or decompiling products are used. See, e.g., Source Retrieval, L.L.C. at <http://www.sourceretrieval.com/myso.html> (last visited Feb. 19, 2001) (offering decompiler products); Ahpah-Software, L.L.C., at <http://www.ahpah.com/product.html> (last visited Feb. 19, 2001) (same). See generally ANTHONY L. CLAPES, *SOFTWARES, THE LEGAL BATTLES FOR CONTROL OF THE GLOBAL SOFTWARE INDUSTRY* 146 (1993) (noting availability of commercial programs that substantially automated software decoding); JONATHAN B. ROSENBERG, *HOW DEBUGGERS WORK: ALGORITHMS, DATA STRUCTURES, AND ARCHITECTURE* 12, 145-47, 157-72, 205-13 (1996) (discussing software decompiling); John Hennessey, *Symbolic Debugging of Optimized Code*, 4 A.C.M. TRANSACTIONS ON PROGRAMMING LANGUAGES AND SYSTEMS 323 (1982) (available at <http://www.acm.org/pubs/contents/journals/toplas/1982-4#3>) (discussing software decompiling).

Not all courts have appreciated that object code can be reversed engineered. See *Architectronics, Inc. v. Control Sys., Inc.*, 935 F. Supp. 425, 433 (S.D.N.Y. 1996) (stating that there was no evidence that object code could disclose any trade secrets because it may have been concealed within impenetrable programming codes, which make reverse-engineering difficult or impossible). But see *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1514 (9th Cir. 1993) (describing how defendant was able to reverse engineer video game programs by transforming machine readable object code into human readable source code using a process called "disassembly" or "decompilation").

199. See Victoria A. Cundiff, *Protecting Computer Software as a Trade Secret*, 507 PRAC. LAW INST. 761, 764-65 (1998) (noting that owners and developers of computer software must consider using trade secret safeguards to protect their software from misappropriation); Robert C. Scheinfeld & Gary M. Butter, *Using Trade Secret Law to Protect Computer Software*, 17 RUTGERS COMPUTER & TECH. L.J. 381, 393-94 (1991) (discussing importance of creating obligation of secrecy in order to preserve trade secret status of computer software).

200. A "shrink-wrap" agreement is one that is contained within a software package, either displayed on the outside of the box under the plastic shrink-wrapping or contained within the box itself. The person is deemed bound by the agreement upon opening the shrink-wrapping or using the software. See EPSTEIN, *supra* note 60, § 10.02[A][2][b][i] (discussing shrink-wrap agreements).

201. As with a shrink-wrap license, software purportedly subject to a "click-wrap" license comes with a preprinted agreement. As the software installs, the user is shown the agreement and must click on an "accept" or "do not accept" button. If the user clicks the "do not accept" button, the software will not install. See *Stomp, Inc. v. NeatO, LLC*, 61 F. Supp. 2d 1074, 1080 n.11 (C.D. Cal. 1999) (explaining click-wrap licenses); *American Eyewear, Inc. v. Peeper's Sunglasses & Accessories, Inc.*, 106 F. Supp.2d 895, 904 n.15 (N.D. Tex. 2000) (explaining how click-wrap licenses work).

Although not yet commonly litigated, click-wrap licenses have been deemed valid thus far where the delivery mechanism for the software is the Internet. See *Caspi v. Microsoft Network, L.L.C.*, 732 A.2d 528, 532-33 (N.J. Super. Ct. App. Div. 1999) (enforcing forum selection clause contained in click-wrap agreement). Whether the *Caspi* court would accept a click-wrap agreement as part of a more traditionally delivered software package was specifically not addressed. *Id.* at 532 n.3.

202. Compare *Step-Saver Data Sys., Inc. v. Wyse Tech.*, 939 F.2d 91, 108 (3d Cir. 1991) (holding that box-top disclaimer did not create complete and final terms of agreement) with *ProCD, Inc. v.*

Transactions Act<sup>203</sup> ("UCITA")—specifically to allow the easier creation of license agreements involving computer technology and information.<sup>204</sup> The common element in a shrink-wrap, click-wrap, and UCITA license is the use of state law to provide an intellectual property protection scheme. As patent protection is now available for these programs, however, it is necessary to examine whether the policy preemption under *Bonito Boats* will allow the alternative state protection to survive.

It is obviously impossible to assert that overall state trade secret protection for a computer program has been preempted; indeed, the Supreme Court has held that state trade secret law is not preempted.<sup>205</sup> At the same time, it would be a mistake to read *Kewanee Oil* as establishing a per se rule that trade secret protection is always available.<sup>206</sup> The analysis required under patent policy preemption is not so easy and the facts of the particular case must be examined as part of the preemption analysis.

For the classic trade secret, like the one the Supreme Court examined in *Kewanee Oil*, the policy collision between the state trade secret protection and the federal patent protection is slight. The product developed in *Kewanee Oil* was not widely distributed. In fact, the claimed misappropriation was by a former employee of *Kewanee Oil* who allegedly stole a technique used internally

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Zeidenberg, 86 F.3d 1447, 1455 (7th Cir. 1996) (enforcing shrink-wrap license as binding). See generally *Founds*, *supra* note 178, at 99-103 (discussing enforceability of shrink-wrap and click-wrap agreements under UCITA).

203. See The National Conference of Commissioners on Uniform State Laws, *Uniform Computer Information Transaction Act*, available at [http://www.law.upenn.edu/bll/ulc/ulc\\_frame.htm](http://www.law.upenn.edu/bll/ulc/ulc_frame.htm) [hereinafter UCITA site] (outlining history of UCITA).

204. See, e.g., Rochelle Cooper Dreyfuss, *Do You Want to Know a Trade Secret? How Article 2B Will Make Licensing Trade Secrets Easier (But Innovation More Difficult)*, 87 CALIF. L. REV. 191, 194 (1999) (discussing motivation behind UCITA). Originally, when the UCITA was drafted, it was intended to become Article 2B of the U.C.C. See National Conference of Commissioners on Uniform State Laws & The American Law Institute, *NCCUSL to Promulgate Freestanding Uniform Computer Information Transactions Act: ALI and NCCUSL Announce that Legal Rules for Computer Information Will Not Be Part of UCC*, at <http://www.2BGuide.com/docs/040799pr.html> (last visited Feb. 19, 2001) (noting that UCITA would not be promulgated as Article 2B of U.C.C.). Because the American Law Institute failed to endorse the draft, this became impossible. *Id.* The National Conference of Commissioners on Uniform State Laws promulgated it as a free-standing uniform law. See UCITA site, *supra* note 203 (discussing rationale behind drafting of UCITA).

205. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 492 (1974). It seems clear that *Bonito Boats* did not disturb the holding in *Kewanee Oil*. See *Bonito Boats*, 489 U.S. at 156 (reaffirming the "pragmatic approach" *Kewanee Oil* took in preempting state law involving protection of intellectual property). See also *Reingold v. Swiftships, Inc.*, 126 F.3d 645, 652 n.2 (5th Cir. 1997) (restating Supreme Court's assertion that federal patent law does not preempt trade secret law); *Acuson Corp. v. Aloka Co., Ltd.*, 257 Cal. Rptr. 368, 379-80 (Cal. Ct. App. 1989) ("Trade secret law . . . gives protection against the misuse of confidential information when the owner has made reasonable efforts to maintain secrecy"). See also *M. Bryce & Assocs., Inc. v. Gladstone*, 319 N.W.2d 907, 916 (Wis. Ct. App. 1982) (recognizing copyright does not preempt trade secret law) *cert. denied*, 459 U.S. 944 (1982).

206. *Cf. Kewanee Oil*, 416 U.S. at 479 ("The question of whether the trade secret law of Ohio is void under the Supremacy Clause involves a consideration of whether that law 'stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress.'").

by Kewanee Oil.<sup>207</sup> Thus, the product was truly secret—no non-employee of the secret's owner had access to it.

The situation with a mass-marketed computer program is radically different. For a successful program, millions of people will have access to it.<sup>208</sup> This triggers important differences when compared to the secret in *Kewanee Oil*.

It is puzzling to understand how something that is known by millions can be considered a secret.<sup>209</sup> When used in the term "trade secret," the word "secret" means "a method, formula, plan, etc. known only to . . . the few."<sup>210</sup> While 600 people might still qualify as being a "few,"<sup>211</sup> or possibly even 6000,<sup>212</sup> tens of millions of people<sup>213</sup> cannot.<sup>214</sup>

To avoid this problem, proponents of trade secret protection for mass-marketed software argue that the millions of purchasers of the software have all agreed not to disclose the trade secrets contained in the software and, as a consequence, no disclosure has occurred.<sup>215</sup> That is, the proponents are relying

207. *Id.* at 473. The former employee had executed a non-disclosure agreement. *Id.*

208. See *infra* note 213 for a discussion of the prevalence of Microsoft Windows in millions of American households.

209. See RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39, cmt. f (1995) ("To qualify as a trade secret, the information must be secret.").

210. RANDOM HOUSE UNABRIDGED DICTIONARY 1730 (2d ed. 1987) (emphasis added).

211. See *Mgmt. Science Am., Inc. v. Cyborg Sys., Inc.*, No. 76 C 2149, 1977 U.S. Dist. LEXIS 15471, at \*3 (N.D. Ill. January 1, 1977) (exploring antitrust violations by notifying potential customers of defendants of charges contained in lawsuit).

212. See *Data Gen. Corp. v. Digital Computer Controls, Inc.*, 357 A.2d 105, 107-08, 110, 112 (Del. Ch. 1975) (holding that information was still trade secret even though almost six thousand people had access to it).

213. For example, the Microsoft Windows operating system obviously has a wide distribution. It is not hard to estimate the number of copies of the various Windows operating systems that have been sold. According to Microsoft, "[i]n 1997, about 88 percent of new personal computers based on Intel x86-compatible microprocessors had a version of Windows installed; Intel x86-compatible computers in turn accounted for about 95 percent of all new personal computers." Bernard J. Reddy, David S. Evans, and Albert L. Nichols, *Why Does Microsoft Charge so Little for Windows?* § I, Jan. 7, 1999, at <http://www.microsoft.com/PressPass/ofnote/nera/nera.asp> (visited August 1, 2000). Thus, about 83.6% (88% x 95%) of all personal computers have a version of Windows installed. Approximately 59% of American homes now have a PC installed. *PC Households*, PC MAGAZINE, Sept. 1, 2000, at 86. Consequently, almost half of all American homes (83.6% x 59% = 49.3%) have Microsoft Windows installed. As there are 101,041,000 households in the United States, U.S. Census Dept., *Estimates of Housing Units, Households, Households by Age of Householder, and Persons per Household*, 1998 available at <http://www.census.gov/population/estimates/housing/sthuhh1.txt> (visited August 2, 2000) there are approximately 50,000,000 copies of Microsoft Windows in use in people's homes in the United States. Obviously, many more copies of Windows are in use in businesses, not to mention other countries.

214. "Few" means "not many but more than one; . . . a small number of persons or things." RANDOM HOUSE UNABRIDGED DICTIONARY 712 (2d ed. 1987). Cf. *Leonard v. Texas*, 767 S.W.2d 171, 175 (Tex. App. 1988) (holding disclosure to "limited" number of persons who are pledged to secrecy does not terminate trade secret status), *aff'd sub nom. Schalk v. Texas*, 823 S.W.2d 633 (Tex. Crim. App. 1991).

215. See, e.g., RESTATEMENT (THIRD) OF UNFAIR COMPETITION §§ 40(b)(1) & 41(a) (1995) (stating that one is subject to liability for appropriation of another's trade secret if that person knows or has reason to know that information is trade secret and he made express promise of confidentiality

on state contract law or the UCITA to build a legal secrecy shell around their trade secrets. But when this shell is examined, it turns out to be no more effective in protecting the software than the Florida law was in protecting the hull designs in *Bonito Boats*.

Among other provisions, these licenses seek to restrict the millions of possessors of a given software package from reverse-engineering it.<sup>216</sup> This broad prevention of reverse-engineering, however, distinguishes a mass-marketed software trade secret from the type of trade secret examined in *Kewanee Oil*. In that case, employees of the trade secret owner were prohibited from reverse-engineering the product, but a large group of the public could still do so.<sup>217</sup> In contrast, mass-marketed software uses state law to prevent any possessor of the software from being able to reverse-engineer it—all who gain access to it are asserted to have agreed to the shrink-wrap, click-wrap, or UCITA license, after all.<sup>218</sup> In other words, state law is used to effectively prohibit reverse-engineering. With this prohibition, the collision between the state law and federal patent policy becomes clear.

Federal policy generally favors the disclosure of inventions; indeed, to encourage disclosure, after a limited monopoly to make, sell and use an invention is possessed by the inventor, all rights to the invention belong to the public.<sup>219</sup> At the same time, federal policy recognizes that the states have an interest in protecting business morals, including recognizing inventions as trade secrets.<sup>220</sup> While these two contradictory systems can coexist in general, they cannot when the use of trade secret law corrodes the process by which new ideas ultimately move into the public domain.

A key aspect of how this transformation from private to public information occurs is through the federal policy requirement that inventions protected by trade secrets must be subject to the risk of being reverse-engineered.<sup>221</sup> In

prior to disclosure of trade secret).

216. See, e.g., *Microsoft Licenses*, *supra* note 196 (restricting use of Windows operating systems).

217. *Kewanee Oil v. Bicron Corp.*, 416 U.S. 470, 473-74 (1974).

218. This analysis is particularly true under the UCITA. It resolves the dispute over the validity of a shrink-wrap or click-wrap license in favor of their enforceability. See UCITA site, *supra* note 203, § 112 (stating that intentional conduct or engaging in operations that in circumstances indicate acceptance manifests assent to record or term). Once the consumer's approval is obtained under section 112, a license is formed. See *id.* §§ 210(a), at 307 (stating that contract may be formed by conduct of parties and describing requirements for grant of license). The UCITA deems license terms that limit the right of a party to reverse-engineer a program to be enforceable. See *id.* § 307(b) (stating that use of information by licensee that is contrary to express terms of license will be breach of contract).

219. See *L.A. Gear, Inc. v. Thom McAn Shoe Co.*, 988 F.2d 1117, 1131 (Fed. Cir. 1993) ("[T]he Court in *Bonito Boats* reaffirmed the principle of *Sears and Roebuck*, and reiterated that the public has the right to copy the design of goods that are unprotected by patent or copyright, absent consumer confusion or deception.").

220. See *Kewanee Oil*, 416 U.S. at 481-82 (noting that maintenance of commercial ethics is one policy behind trade secret law).

221. See *Acuson Corp. v. Aloka Co., Ltd.*, 257 Cal. Rptr. 368, 379 (Ct. App. 1989) ("The likelihood that unpatented objects will be reverse engineered is part of the federal balance.").

*Kewanee Oil*, the Court said, "[a] trade secret law, however, does not offer protection against discovery by fair and honest means, such as . . . by so-called reverse engineering, that is by starting with the known product and working backward to divine the process which aided in its development or manufacture."<sup>222</sup> The Court continued to stress the importance of reverse-engineering in the federal-state balance in *Bonito Boats*:

In essence, the Florida law prohibits the entire public from engaging in a form of reverse engineering of a product in the public domain. This is clearly one of the rights vested in the federal patent holder, but has never been a part of state protection under the law of unfair competition or trade secrets. The duplication of boat hulls and their component parts may be an essential part of innovation in the field of hydrodynamic design. Variations as to size and combination of various elements may lead to significant advances in the field. Reverse engineering of chemical and mechanical articles in the public domain often leads to significant advances in technology. If Florida may prohibit this particular method of study and recombination of an unpatented article, we fail to see the principle that would prohibit a State from banning the use of chromatography in the reconstitution of unpatented chemical compounds, or the use of robotics in the duplication of machinery in the public domain.

Moreover, as we noted in *Kewanee*, the competitive reality of reverse engineering may act as a spur to the inventor, creating an incentive to develop inventions that meet the rigorous requirements of patentability. . . . The protections of state trade secret law are most effective at the developmental stage, before a product has been marketed and the threat of reverse engineering becomes real. During this period, patentability will often be an uncertain prospect, and to a certain extent, the protection offered by trade secret law may "dovetail" with the incentives created by the federal patent monopoly. . . . Given the substantial protection offered by the Florida scheme, we cannot dismiss as hypothetical the possibility that it will become a significant competitor to the federal patent laws, offering investors similar protection without the *quid pro quo* of substantial creative effort required by the federal statute. The prospect of all 50 States establishing similar protections for preferred industries without the rigorous requirements of patentability prescribed by Congress could pose a substantial threat to the patent system's ability to accomplish its mission of promoting progress in the useful arts.<sup>223</sup>

If allowed to be effective, state trade secret law for mass-marketed software would pose the same threat to the federal patent scheme as the Florida statute did. It, too, would prevent the reverse-engineering of a product as such would be considered a violation of the millions of license agreements. No one would be able to reverse-engineer the program despite its generalized release in the

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222. *Kewanee Oil*, 416 U.S. at 476.

223. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 160-61 (1989) (citations omitted).

marketplace. As with the Florida statute, the federal incentives for invention would be defeated. Why should a programmer settle for a relatively short-term patent when potentially perpetual protection<sup>224</sup> is available under state law? The use of state trade secret protection for mass-marketed computer software can only be seen as "pos[ing] a substantial threat to the patent system's ability to accomplish its mission of promoting progress in the useful arts."<sup>225</sup>

### CONCLUSION

Trade secret protection continues to be an important methodology for protecting innovative products. It serves an absolutely critical role for newly created products from the moment of innovation through the commercial distribution of the product. Even after commercial distribution starts, trade secret law can be useful where the product does not directly disclose the trade secret or where the distribution is to a limited audience. In each of these cases, trade secret law serves to enhance innovation, thus serving the same goal as that expressed by the patent laws.

In the case of a now patentable mass-marketed computer program, on the other hand, the nature of trade secret protection changes. Rather than being an adjunct to federal patent protection, it becomes a hindrance. From the programmer's prospective, the perpetual protection received from trade secret law far outweighs the slightly stronger, but limited in time, protection received from patent law. Thus, the programmer has no incentive to attempt to create the most innovative program possible; indeed, seeking a patent becomes much less desirable. As treating mass-marketed computer programs as trade secrets directly interferes with federal patent policy, under the case-by-case analysis required by *Bonito Boats*, the UCITA and other state intellectual property laws must give way to the federal patent code.

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224. Cf. RESTATEMENT (THIRD) OF UNFAIR COMPETITION §§ 39, 40 (1995) (imposing no durational requirement for trade secrets, noting protected until readily ascertained and no longer secret).

225. *Bonito Boats*, 489 U.S. at 161.