Fall 1984

The Patentability of Computer Programs: Merrill Lynch's Patent for a Financial Services System

Lynne B. Allen
Indiana University School of Law

Follow this and additional works at: http://www.repository.law.indiana.edu/ilj

Part of the Computer Law Commons, Internet Law Commons, and the Securities Law Commons

Recommended Citation
Available at: http://www.repository.law.indiana.edu/ilj/vol59/iss4/4
NOTES

The Patentability of Computer Programs: Merrill Lynch’s Patent for a Financial Services System

INTRODUCTION

Much has been written lately about the scope of the Patent Act¹ and whether patent protection is available for computer programs.² Much of the discussion centers on the economic impact patents would have on the computer programming industry and whether patents would stifle innovation or stimulate investment.³ Rather than considering computer programs as a class and determining whether patent protection is available generally, the United States Supreme Court has chosen to deal with computer programs on a case-by-case basis.⁴ The Court has denied protection when it found that the program encompassed a mathematical formula which in effect preempted all uses of the underlying algorithm,⁵ and has granted a patent upon finding that the program was an integral part of a manufacturing process.⁶ Lower courts and patent practitioners are now struggling to determine how these cases fit into the general theory of patent law.⁷

³. See Nycum, supra note 2, at 55-58.
⁴. When the Supreme Court considered whether a patent for a computer program is within the scope of the Patent Act, it explicitly refused to extend its denial of patent protection for the particular invention before it to computer programs generally. Gottschalk v. Benson, 409 U.S. 63, 71 (1972). In a later case, the Court stated that it would continue to evaluate patents for computer programs in the light of prior case law until Congress established new policy to guide courts in this area. Parker v. Flook, 437 U.S. 584, 595-96 (1978).
⁷. See, e.g., Samuels & Samuels, supra note 2.
This Note reviews the basic theories of the scope of the Patent Act in order to develop a general method for determining when patent protection should be available for computer programs and inventions requiring the use of computers. A recently challenged patent held by Merrill Lynch,8 for a securities brokerage/cash management system is described in detail and used as an example throughout the Note in order to focus the discussion. Decisions of the United States Supreme Court, federal district courts, and the Court of Customs and Patent Appeals are discussed, since they often conflict in the area of computer program patents, and because the various methods of granting and challenging patents make each important.

In reviewing patent decisions, it is important to keep in mind that there are several criteria for patentability, all of which must be met if a patent is to be granted. Failure to meet any one of these criteria will invalidate an issued patent, but courts will usually consider only the criteria brought before them in deciding a case. The three most frequently discussed requirements are that the subject matter must be within the scope of the Patent Act,9 the invention must be novel,10 and the invention must not be obvious.11 If a court's inquiry is limited to whether the first criterion is met, it will not discuss the other two. Consequently, a court can deem an invention patentable, or find a patent valid, on the basis of a single criterion, only to have the patent invalidated by a later challenge which raises other criteria.

This Note examines whether computer programs are within the scope of the Patent Act and concludes that no single answer exists. Computer programs must be considered in terms of the purpose for which the program is written. If that purpose falls within the scope of patent law, the first criteria for patentability has been met. Determining the purpose, however, is not always easy, as the Merrill Lynch patent illustrates. This patent will be examined as a method of doing business, a subject long denied patent protection. The patent is also analyzed to determine whether it can be brought within the

---


10. Novelty means that the invention was unknown and unpatented prior to the application for patent protection; if the discovery has been described in a printed publication, was invented by someone other than the applicant, or has been abandoned, no patent will be granted. 35 U.S.C. § 102 (1982).

11. The requirement of non-obviousness establishes that patent protection will be denied if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 35 U.S.C. § 103 (1982).
patent law definition of "process" for which patent protection is available. Realizing that some computer programs do fall within this second category, this Note addresses the issues of novelty and lack of obviousness, concluding that few, if any, computer programs meet the requirements for patent protection.

I. THE PATENTABILITY OF COMPUTER PROGRAMS

The Merrill Lynch Patent

On August 24, 1982, the Patent and Trademark Office (Patent Office) granted a patent to Merrill Lynch for a securities brokerage-cash management system. The patent describes the data processing used to combine a margin brokerage account with one or more money market funds, check writing privileges, and a credit card. The patent can be described either in terms of the services it provides for the customers or as a computer program, making the nature of the protected invention unclear. Because the characterization of an invention can have a decided impact on patentability, it is important to recognize and deal with both possibilities.

The abstract of the Merrill Lynch patent reads: "Data processing for an improved securities brokerage/cash management system supervises, implements
and coordinates a margin securities brokerage account; participation in one or more short term money market or comparable funds; and subscriber-initiated use of electronically responsive subscriber identity credit/debit media and/or checking system."  

This description indicates that the patent claims a computer program, a machine-implemented process. No particular machine is mentioned, however, nor is precise machine language supplied.

Later in the patent, Merrill Lynch states that "the kernel of the overall system is a margin brokerage account," indicating that the patent claims a service or business activity rather than a computer program. This view is further enhanced by the company's statement that the invention's importance derives from the maximized financial returns accruing to customers from the combination of previously existing services into a single package." In other words, the invention does not so much further the art of data processing as it does the brokerage business.

These distinctions and characterizations are important when viewing patents involving computer programs generally and when considering this patent in particular. The validity of the Merrill Lynch patent is currently being challenged on the ground that it claims a method of doing business. The Delaware District Court has determined that although the Merrill Lynch patent "effectuates a highly useful business method and would be unpatentable if done by hand . . . the . . . patent claims statutory subject matter because the claims allegedly teach a method of operation on a computer to effectuate a business activity." This conclusion is based on the belief that the purpose or product of a computer program is irrelevant, a belief which this Note argues is contrary to United States Supreme Court precedent and patent policy.

II. PATENTABLE SUBJECT MATTER

A. Ideas

Patent protection is based upon a constitutional mandate to Congress "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries." Early in the history of the United States patent law the Supreme Court made it clear that "Discoveries" did not include ideas, per se. The Court reasoned that

17. Merrill Lynch patent, supra note 8.
18. Id. at col. 2.
20. As of this writing, Merrill Lynch has survived a motion for summary judgment asking that its patent be invalidated because it claims a method of doing business. Paine, Webber, 564 F. Supp. 1358. The court’s conclusions can still be reversed through appeal.
21. Id. at 1369.
22. Id.
"[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."25 Distinguishing between a process, which is patentable, and
an idea, which is not, is a difficult task.26

In O'Reilly v. Morse,27 the Court presented a classic discussion of the
unpatentability of general ideas. The patent for an electro-magnetic telegraph
contained one claim of particular concern to the Court:

I do not propose to limit myself to the specific machinery or parts of
machinery described in the foregoing specifications and claims; the essence
of my invention being the use of the motive power of the electric or galvanic
current, which I call electro-magnetism, however developed for marking
or printing intelligible characters, signs, or letters, at any distances, being
a new application of that power of which I claim to be the first inventor
or discoverer.28

This claim was not upheld because it was so broad it "shuts the door against
the inventions of other persons, [and] the patentee would be able to avail
himself of new discoveries in the properties and powers of the electro-
magnetism which scientific man might bring to light."29 Granting a patent
that would give one individual so much control over future inventions or
discoveries would be contrary to the very purpose of patent law, promoting
the progress of science.

Patents for computer programs present the same conflict. A specific pro-
gram can be protected through copyright,30 but copyright protection extends
only to the wording of the program itself and not to the idea behind the
program.31 Consequently, while a competitor cannot use one's copyrighted
program without permission, there is no prohibition against devising a dif-
ferent program to perform the same functions. Patents are sought in order
to provide protection for the underlying idea,32 which would provide the
innovative programmer extra economic incentive to further the art of
programming.33 Full protection of an idea implemented through programming
could also act to stifle further innovation in the same way as the invalidated
claim in Morse and thus be contrary to patent policy.

Analogous to the situation in Morse, Merrill Lynch appears to be making
a broad claim to the use of computer programs to implement a combination

26. "The line between a patentable 'process' and an unpatentable 'principle' is not always
clear." Flook, 437 U.S. at 589.
27. 56 U.S. (15 How.) 62 (1853). This case has been cited recently in Diamond v. Diehr,
450 U.S. 175, 188 (1981); Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980); Flook, 437 U.S.
at 592; Benson, 409 U.S. at 68.
28. O'Reilly, 56 U.S. at 112.
29. Id. at 113.
(N.D. Tex. 1978).
32. Samuels & Samuels, supra note 2, at 146.
33. Id. at 147.
of financial services. The company intends to challenge all financial institutions that offer similar services; it does not claim to be concerned about the computer program or other methods used to keep track of individual accounts.\textsuperscript{34} If Merrill Lynch is successful in its endeavors, it would seem that whoever is the first to “computerize” a given technique, process, industry, or service will be able to obtain a monopoly, not on the computer or program, but on the technique, process, industry, or service. Such a result would extend patent protection beyond the bounds set by the Constitution and act to retard, rather than to promote, progress.

\section*{B. Processes}

Congress has dealt with questions concerning the extent of patent protection and the distinction between patentable and unpatentable subject matter by listing those things which are eligible for protection. Patents are thus available for “any new or useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.”\textsuperscript{35} The term “process” is relatively new to the Patent Act, although the concept of protecting processes by patent is not. “Process” is defined in the Patent Act as “process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.”\textsuperscript{36} The term was added to the Act in 1952, because it more clearly described subject matter held patentable by the courts than the term “art” which was used previously.\textsuperscript{37}

\section*{C. Methods of Doing Business}

Treatise writers and practitioners sometimes explain the courts’ distinctions between patentable and unpatentable subject matter by adopting or creating labels for general subject categories and by describing the entire category as either patentable or outside the scope of the Patent Act. A result of such categorization is the inclusion of “methods of doing business” in non-patentable subject matter. Although this term has no clear definition, a review of case law supports the theory that methods of carrying out a business activity are unpatentable because they are concepts which can be used to preempt entire fields of endeavor, rather than one of the possible techniques for performing a specific task.\textsuperscript{38}

\textsuperscript{34} Salmans, Merrill Will License C.M.A. Account, N.Y. Times, Sept. 10, 1982, at D-4. See also Dunnan, One-Stop Money Management, SAVVY, March 1983, at 34.
\textsuperscript{36} 35 U.S.C. §100(b) (1982).
\textsuperscript{38} The Court of Customs and Patent Appeals has been asked to clarify its approach to this category of claims on more than one occasion, but has declined the request. See, e.g., In
Even though its exact parameters are unclear, the term "methods of doing business" is important when discussing computer programs generally and the Merrill Lynch patent in particular. It is Merrill Lynch's business to provide financial services. Each individual service offered through the securities brokerage/cash management system has been available from various financial institutions for some time. Indeed, the services have even been offered, albeit not as a package, through single institutions. Deciding to provide a combination of services, instead of or in addition to individual services, is basically a decision about how to conduct business. Therefore, if this patent protects the combination, it is arguably protecting a method of doing business.

The same result is reached if the patent is regarded as protecting data processing and is given the breadth Merrill Lynch requests. Merrill Lynch appears to claim that this combination of services cannot be offered as a package without violating its patent. It is difficult to believe that there is only one technique for processing the necessary information, given the abundance of both programs and equipment available today. Therefore, Merrill Lynch must be claiming the right to regulate the use of computers to perform these particular functions. Again, the use of computers rather than hand-kept ledgers seems to be a difference in method, indicating that the invention claimed a method of doing business.

As early as 1908, the Second Circuit noted that a "system of transacting business disconnected from the means for carrying out the system is not . . . an art [process]." In Hotel Security Checking Co. v. Lorraine Co., the court of appeals invalidated a patent describing a system for verifying the items served and prices charged by waiters and cashiers in order to prevent employee fraud in restaurants. The Second Circuit characterized the patent claims as "simply a system of bookkeeping made applicable to the

---

re Wait, 73 F.2d 982, 982 (C.C.P.A. 1934). It has been stated that a "system' or method of transacting business is not [a process], nor does it come within any other designation of patentable subject matter." 1 A. DELLER, DELLER'S WALKER ON PATENTS § 26 (2d ed. 1964). There is a clear distinction, however, between such a system and "the physical means of conducting the system." Id. Another writer contends that although business methods are "seemingly within the class of a process or method," the Manual of Patent Examining Procedure proclaims them outside that class. 1 P. ROSENBERG, PATENT LAW FUNDAMENTALS § 6.02(3) (2d ed. rev. 1984).


40. Commercial banks, which offer the banking services involved, have offered brokerage services for several years. See Note, The Legality of Bank-Sponsored Investment Services, 84 YALE L.J. 1477, 1477-80 (1975).

41. See sources cited supra note 34.

42. Indeed, the Merrill Lynch patent may be claiming a new form or variation of bookkeeping, a subject denied patent protection on more than one occasion. See infra notes 43-47 & 78-82 and accompanying text.

43. Hotel Security Checking Co. v. Lorraine Co., 160 F. 467, 469 (2d Cir. 1908). "Art" is the predecessor of "process." Supra note 37 and accompanying text.

44. Hotel Security Checking, 160 F. 467. The system was implemented by a sheet of paper divided into sections (one section per waiter) and individually coded order forms for the waiters to give customers.
conditions existing in hotels and restaurants” having a “fundamental principle . . . as old as the art of bookkeeping,” and determined that the physical means of implementing the system were not new and useful. Leaving open the question of whether such a system would warrant patent protection if restaurants in general did not use any bookkeeping system, the court invalidated the patent because neither the method nor the physical means met the requirement of novelty.

This type of analysis, which requires that the tangible invention be considered apart from the business activity it enhances, has been used repeatedly when scrutinizing patents related to the financial industry. In In re Sterling, the Court of Customs and Patent Appeals (CCPA) rejected a patent claiming a new type of check and checkbook. Although conceding that Sterling’s checkbook, which included both regular checks and checks designed to transfer funds to a savings account, was “an ingenious and convenient arrangement,” the court refused patent protection because the physical structure presented no novelty. Finding that “patentable novelty cannot be predicated upon printing alone,” the court also denied claims covering the checks.

During the same year, the CCPA also denied patent protection to a system for buying and selling commodities without the aid of brokers in In re Wait. The process involved three functions: transmitting offers to buy or sell to distant locations where interested parties could see the offers posted, transmitting acceptances, and recording each transaction. These claims were rejected because the method presented no novelty, consisting of nothing more than the “essential steps in all dealings of this nature.”

Hotel Security Checking, Sterling, and Wait indicate that innovative financial services are not, in and of themselves, patentable; they are methods of doing business. Assuming arguendo that Merrill Lynch has patented a unique combination of services, the patent is still invalid. The services offered by Merrill Lynch may be easily analogized to those specifically denied protection in these early cases.

Like the system for verifying receipts rejected in Hotel Security Checking, the data processing claimed by Merrill Lynch is essentially a system of book-
keeping to keep track of individual accounts and ensure appropriate entries are made each time a customer deposits or withdraws refunds, or earns interest or dividends. The checkwriting aspect of the Merrill Lynch system is reminiscent of the checks and checkbook rejected in *Sterling*; even though the ability to transfer funds among various accounts and to draw on one's margin brokerage account through a single system may be "an ingenious and convenient arrangement," the "arrangement" or combination is not patentable. By the same token, *Wait* indicates that Merrill Lynch will lose its patent, since the data processing seems to do nothing more than perform the necessary steps for manipulating brokerage accounts, money market funds, and demand accounts.

*In re Wait*, is also interesting because the Court of Customs and Patent Appeals declined a request to clarify its views on the patentability of business methods. Later, in *In re Patton*, the CCPA reiterated, without explanation, the thesis that methods of doing business are not within the meaning of "art" (now "process") as used in the Patent Act. The patent in question claimed a national system for fighting fires which included standardized equipment that could be moved from one locale to another. The court used the same approach taken in earlier cases, looking at the various claims and aspects of the patent and disregarding completely anything considered to be a method of doing business. In this case the fire fighting system was ignored and it was the equipment, or apparatus, that needed to meet all the requirements for patentability independent of the business method.

**D. Competing Interpretations of Patentability**

A court that fails to consider patent claims independently or that disregards the purpose behind the claims would probably not reach the conclusions reached in the cases under discussion. This occurred when two different circuit courts reviewed the same patent for drive-in movie theaters and reached contrary results. The Ninth Circuit upheld the patent, characterizing it as an arrangement of "stall-ways" and "drive-ways." The court ruled that the patent described an architecture or structure, and thus, as a "manufacture," fell within the bounds of statutory subject matter.

55. *Id.* at 982.
56. *In re Patton*, 127 F.2d 324, 327 (C.C.P.A. 1942).
57. *Id.* at 327-28. This approach was suggested in *Hotel Security Checking*, when the court looked first at the idea and then at the means of implementation before rejecting a patent for a method of bookkeeping. 160 F. at 469. *See supra* notes 43-47 and accompanying text. It is also the approach taken by the Supreme Court when discussing general process claims. *See Parker v. Flook*, 437 U.S. 584 (1978), discussed *infra* note 157-89 and accompanying text.
58. Hollings head patent, No. 1,909,537.
59. *Loew's Drive-In Theatres, Inc. v. Park-In Theatres, Inc.*, 174 F.2d 547 (1st Cir. 1949); *Park-In Theatres, Inc. v. Rogers*, 130 F.2d 745 (9th Cir. 1942).
60. *Park-In Theatres v. Rogers*, 130 F.2d at 746.
61. *Id.* at 747.
did not address other issues of patentability, such as novelty and prior art,\textsuperscript{62} it left the door open for the First Circuit to invalidate the same patent seven years later.\textsuperscript{63} In its consideration, the First Circuit separated the means of structuring the theater from the general idea of conducting the movie business outdoors.\textsuperscript{64} The court found that the latter, although novel, was a method of doing business and not patentable; the former was patentable subject matter, but not novel.\textsuperscript{65} Accordingly, the patent was held invalid.\textsuperscript{66}

Various members of the same court may take different approaches. In \textit{In re Howard},\textsuperscript{67} the Court of Customs and Patent Appeals reviewed a patent request for a system that eliminated the need to put price tags on every item sold in a store. The patent claims included coding each product sold, storing price information (by code) in a central memory, and transmitting price data to the cash register when the cashier keyed in code numbers for the items sold. The Patent Board of Appeals rejected Howard’s claims on two grounds: unpatentability of methods of doing business and lack of novelty.\textsuperscript{68} The CCPA unanimously affirmed the decision not to grant a patent, although the members of the court differed in their reasoning. Two judges compared Howard’s claims to sales by mail, in which products are listed by code number and price, and found them lacking in novelty.\textsuperscript{69} These judges declined to address the issue of whether methods of doing business are patentable.\textsuperscript{70} Judge Kirkpatrick, in a concurring opinion, characterized the claims as a method of doing business, rendering them outside the scope of the patent laws.\textsuperscript{71} Two judges concurred without comment.\textsuperscript{72}

\textit{In re Howard} indicates that even without reference to methods of doing business, it is unlikely that merely streamlining and computerizing business activities warrants the granting of a patent. By Merrill Lynch’s own admission, none of the individual services combined to create the brokerage/cash management system are new.\textsuperscript{73} They have been obtainable either through a commercial bank offering brokerage services,\textsuperscript{74} or by using different financial institutions to provide each service. An individual could perform all the

\begin{itemize}
\item 62. Id. at 748.
\item 63. The First Circuit conceded that “the structure maybe the subject matter of a patent,” citing \textit{Park-In Theatres v. Rogers}. \textit{Loew’s Drive-In}, 174 F.2d at 551. The court then invalidated the patent on other grounds. \textit{See infra} notes 64-66 and accompanying text.
\item 64. \textit{Loew’s Drive-In}, 174 F.2d at 552.
\item 65. Id. at 552-53. The court compared the arrangement of cars to the arrangement of seats in an indoor theater. \textit{Id}.
\item 66. Id. at 553.
\item 67. 394 F.2d 869 (C.C.P.A. 1968).
\item 68. Id. at 869.
\item 69. Id. at 871.
\item 70. Id. at 872.
\item 71. Id. (Kirkpatrick, J., concurring).
\item 72. Id. (Worley, C.J. and Smith, J., concurring).
\end{itemize}
functions of Merrill Lynch's data processing albeit in a less efficient and more
time consuming manner. The withdrawal and depositing of money in the
various accounts, providing cash for purchasing securities, applying for and
obtaining loans based on the value of one's portfolio, and requiring that
dividends and interest be disbursed promptly in order to deposit it elsewhere
may all be done by individuals. Merrill Lynch uses modern technology to
make this series of transactions more efficient. But Howard indicates that
patent protection is not appropriate since the idea of shifting funds among
accounts is not new, and providing a combination of services may be
characterized as a method of doing business. This analysis of Howard's im-
 pact on the Merrill Lynch patent is buttressed by the treatment given a patent
for an automatic bookkeeping system in Dann v. Johnston, 7 which reached
the Supreme Court in 1976.

Johnston was seeking patent protection for a computer program that enabled
banks to provide customers with periodic statements listing the individual's
checking account expenditures by category (food, shelter, etc.). The claims
were rejected by the Board of Appeals because, among other things, issuing
a patent would have the effect of "grant[ing] a monopoly . . . on a method
of conducting the banking business." 76 The Court of Customs and Patent
Appeals declared this analysis inaccurate because Johnston was claiming
machines, not processes, and therefore banks could provide the services de-
scribed on other machines without infringing Johnston's patent. 77 One of the
dissenting opinions decried this approach because the invention was a new
computer program, 78 and "[e]very competent patent draftsman" can draft
claims to computer programs either as a process or a machine system. 79

Without discussing subject matter patentability and methods of doing
business, the Supreme Court described the system as an alternative method
of bookkeeping for bank customers 80 and noted that customers could achieve
the same goal by using a series of separate accounts. 81 The Court looked at
the general nature of the service 82 and rejected Johnston's application for two
reasons: the prevalence of computers in the banking industry and the existence
of a previously issued patent claiming a computer-operated system for track-
ing expenses by category within each department of a large business
organization. 83 Both of these factors rendered Johnston's claims obvious. 84

77. Id. at 771.
78. Id. at 771 (Rich, J., dissenting).
79. Id.
80. Dann, 425 U.S. at 220.
81. Id. at 227.
82. Id. at 228-29.
83. Id. at 228.
84. Id. at 229.
Although the Supreme Court did not invalidate Johnston's patent on the basis of nonstatutory subject matter, it did deny patent protection to a business-related invention. The Court declared that a computer program developed to specialize a financial service (a checking account) was not eligible for patent protection because computerization is an obvious approach to the activities involved. In other words, computers and computer programs are now or soon will be as common as ruled paper was in the days of Hotel Security Checking. If a specially ruled page presented no invention in 1908, it is difficult to justify patent protection for a specially designed program now.

The inconsistencies which result from determining subject matter patentability by looking at labels such as "method of doing business" became apparent in In re Deutsch. Deutsch succeeded in patenting a method for determining the optimum output for each oil refining plant in a multi-plant system. The method used computers to monitor prices for raw materials, energy, and finished goods, and to determine the optimal operating conditions for each plant based on this data and plant production cost functions. The Court of Customs and Patent Appeals considered this an industrial process and dismissed the notion that it might be a method of doing business. The CCPA noted that the system does not "merely facilitate business dealings" and that "a method of automatically controlling a system of manufacturing plants" did not become a method of doing business simply because computers employed business data.

Deutsch raises some interesting questions about the term "methods of doing business." Determining production levels is a classic business decision. Using a computer to analyze the variables involved, rather than relying upon pencil and paper or intuition, is simply an alternative method of making that decision. This observation indicates that Deutsch's process is a method of doing business. The CCPA, however, found the process outside this category of inventions. The court did not declare business methods patentable or decide that they must be analyzed in a new way; it simply stated that the term did not apply. Deutsch thus seems to limit the term to inventions relating to financial activities and/or non-manufacturing industries. The Merrill Lynch patent will therefore not be exempted from analysis as a business method on the

86. 553 F.2d 689 (C.C.P.A. 1977).
87. Id. at 692.
88. Id. at 692 n.5.
89. Id.
90. It would also seem to be a classic economic exercise, raising questions about novelty and obviousness. The court, however, addressed only subject matter patentability, id. at 690, 692-93, so challenges due to obviousness or lack of novelty is still possible.
91. Id. at 692 n.5.
basis of *Deutsch*. The combination of brokerage and other financial services has nothing to do with manufacturing and has a great deal to do with facilitating business transactions.

Generally, the invention claimed by Merrill Lynch falls within the classification of methods of doing business, which has traditionally been held outside the scope of the Patent Act. The data processing, or computer program, is really a form of bookkeeping; it keeps track of each customer's transactions and creates an itemized listing for each account. While Merrill Lynch uses computers instead of pencil and paper, this is arguably the same type of system denied patent protection in *Hotel Security Checking* and *Dann v. Johnston*. Using a computer to perform these functions is not new; data processing has been used by financial institutions and businesses for a number of years. Indeed, Merrill Lynch seems to claim that the novelty required by the Patent Act is found in the combination of services, rather than in the computer program.

A new combination of services, even if "ingenious," failed to provide the required novelty for a checkbook in *In re Sterling*. The combination can be characterized as a general idea, similar to the claim denied protection in "O'Reilly v. Morse." Since no particular program or equipment is claimed, upholding the Merrill Lynch patent would be tantamount to granting an exclusive right to offer these services if any data processing equipment, or computers, were used in connection with the services. Such a grant would seem more likely to stifle than to stimulate improvements in either the services or the data processing.

More recent cases indicate that predicting whether a patent claim will be characterized as a method of doing business is risky and that using general labels instead of providing indepth analysis can lead to inconsistent results. Indeed, the Delaware District Court has found that the purpose of a computer program, whether to enhance business or manufacturing methods, is irrelevant, a conclusion inconsistent with the most recent Supreme Court cases. It is important, therefore, to look not just at methods of doing business, but at the evolution of the theories behind patenting processes generally in order to determine how to distinguish an idea from a process.

---

93. 425 U.S. 219, discussed supra notes 75-86 and accompanying text.
94. *Dann*, 425 U.S. at 227; Note, supra note 74, at 1477.
96. 70 F.2d 910 (C.C.P.A. 1934). See supra notes 48-51 and accompanying text for a discussion of the case.
97. 56 U.S. (15 How.) 62 (1853), discussed supra notes 27-29 and accompanying text.
III. PATENTABLE PROCESSES

A. Physical Changes

Early efforts to distinguish between patentable processes and unpatentable ideas were based on the theory that a process changes matter in a way which can be seen or touched.99 While the Supreme Court has recently reaffirmed this theory, it has also clearly refused to "hold that no process patent could ever qualify if it did not meet the requirements of our prior precedents."100 Unfortunately, the Court has not yet established clear guidelines for determining how to distinguish an idea from a patentable process if the process does not produce a physical change.

One of the earliest definitions of patentable process was developed by the Supreme Court in *Cochrane v. Deener.*102 In that case, the Court upheld the validity of a patent for a method of milling flour and described patentable process as "an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing."103 The patent in dispute described a particular apparatus that improved the quality of flour, but the claims were not limited to the apparatus and covered the process as a whole.104 The Court noted that if the process itself were new and "produce[d] an entirely new result," the machinery suggested for carrying out the process did not have to be new or patentable.105

Although *Deener* granted patent protection only to those processes which produce physical changes, the question of whether the claimed process is within the *Deener* definition is not always addressed in judicial opinions. In *Munson v. Mayor of New York City,*106 the Supreme Court reviewed a system for filing bonds and their coupons, which eliminated the recurring problems of lost or stolen bonds.107 Expressly declining to decide whether this was a process under patent law,108 the Court invalidated Munson's patent because books had previously been used to file bond coupons.109 Munson's system, or scheme, was therefore held not "to involve any invention."110

101. *Id.* at 71. *See also* Parker v. Flook, 437 U.S. 584, 588 n.9 (1978).
102. 94 U.S. 780 (1876).
103. *Id.* at 788.
104. *Id.* at 785-86.
105. *Id.* at 788.
107. Munson's system involved numbering the pages of a book or ledger, providing one page for each bond or stock certificate issued, and attaching the coupons for each bond to the appropriate page as they were presented and paid.
109. *Id.* at 604-05.
110. *Id.* at 605.
This predilection for deciding patent validity on the basis of one of the requirements for patentability, such as novelty, rather than first deciding if the invention falls within the scope of the Patent Act, was seen in the cases discussed earlier.111 Even if Munson could be read as an indication that transforming matter is not a necessary prerequisite for process patentability,112 it denied patent protection for a specific method of performing a generally known business technique. Therefore, neither Munson nor Deener upholds the validity of the Merrill Lynch patent. Deener would deny patent protection because the process does not produce a physical change. Since data processing has been used to keep track of financial transactions for years,113 Munson indicates that the Merrill Lynch patent is not an "invention."114

B. Performance of Functions

Time and advances in technology have changed the Patent Office’s approach to patents for processes. Machines now exist that perform important functions without creating physical changes; these machines have many uses. In order to provide patent protection for computer programs, the Court of Customs and Patent Appeals now focuses on the fact that a computer program operates a machine, the computer. The court feels that programs must be patentable, since the Patent Act states that methods of operating machines are within its scope.115

One of the earlier indications of this view is the court’s opinion in In re Prater,116 which involved a method for determining which of several sets of data contains the least amount of error.117 As in Deener, the patent application included both apparatus and method claims.118 While the method claims were ultimately rejected,119 the court chose to make some interesting observations about process patents and computer programs in general. The Court

111. E.g., Dann v. Johnston, 425 U.S. 219 (1976); In re Howard, 394 F.2d 869 (C.C.P.A. 1968); In re Wait, 73 F.2d 982 (C.C.P.A. 1934).
112. This conclusion is negated by the line of cases discussed supra text accompanying notes 43-98; it has, however, been reconsidered recently. See supra text accompanying note 101 and infra notes 133-40.
114. Today the Court might say it is obvious or lacks novelty. See Dann, 425 U.S. 219.
115. 35 U.S.C. § 100(b) (1982).
117. The patent claimed a method for analyzing spectrographic data. Spectrographic data are generally in the form of a diagram similar to a graph, which looks like a series of peaks. Id. at 1395. The peaks are analyzed to determine the levels of concentration of the various components of a mixture of gases. Id. There are more peaks or data points in each diagram than are needed to determine the levels of concentration, and the applicants in Prater discovered a method for determining which peaks contain the least amount of error. Id. at 1396.
118. Id. at 1396-97.
119. The CCPA found Prater’s method claims too broadly written and denied patent protection under 35 U.S.C. § 112. Id. at 1404. The court did not consider whether the claims involved statutory subject matter under 35 U.S.C. § 101. Id. at 1405.
of Customs and Patent Appeals noted that computers now perform many of the functions, such as "compare" or "compute," previously considered "purely mental" and therefore outside the realm of patentable subject matter.\(^{120}\) The court suggested that "process," as now defined in the Patent Act,\(^{121}\) included "purely mental steps," and patentability depended upon the drafter's ability to define clearly the process involved.\(^{122}\) Prater's method claims were rejected because they were not clearly defined,\(^{123}\) but not before the court summarily dismissed the Deener requirement of a physical change as dicta\(^{124}\) and expressed the view that computer programs convert a general purpose machine into one with a specific purpose.\(^{125}\)

The court's decision to uphold the apparatus claim in *Prater* was a result of this point of view. Rather than separating the method from the means of implementation,\(^{126}\) the court considered the claim as a whole.\(^{127}\) This permitted a finding that a machine programmed to determine the optimal data points, or peaks, was not obvious, since "one not having knowledge of appellants' discovery simply would not know what to program the computer to do."\(^{128}\) In other words, the Court of Customs and Patent Appeals determined that computer-related inventions were patentable and that the machine or program itself did not have to be novel or non-obvious provided it used a novel and non-obvious idea or principle. This analysis conflicts with the cases dealing with methods of doing business, which require the program to meet all the requirements for patentability on its own, without relying upon the novelty of the business idea.

\section*{C. Promotion of Useful Arts}

The CCPA further expanded the definition of patentable process in *In re Musgrave*,\(^{129}\) stating that "a sequence of operational steps [is] a statutory 'process' . . . [if it is] in the technological arts. . . ."\(^{130}\) The court believed this definition of "patentable process" was "in consonance with the Constitutional purpose to promote the progress of 'useful arts.'"\(^{131}\) In other words, because technology is useful, it deserves patent protection. The court's approval of the patent suggests that the claims, which described a method of

\begin{itemize}
  \item \(^{120}\) See *id.* at 1402.
  \item \(^{121}\) "The term 'process' means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material." 35 U.S.C. § 100(b) (1982).
  \item \(^{122}\) *Prater*, 415 F.2d at 1402 n.23.
  \item \(^{123}\) *Id.* at 1404-05.
  \item \(^{124}\) *Id.* at 1403.
  \item \(^{125}\) *Id.* at 1403 n.29.
  \item \(^{126}\) This approach was taken in the decisions discussed *supra* text accompanying notes 43-98.
  \item \(^{127}\) *Prater*, 415 F.2d at 1405.
  \item \(^{128}\) *Id.* at 1406 (citation omitted).
  \item \(^{129}\) 431 F.2d 882 (C.C.P.A. 1970).
  \item \(^{130}\) *Id.* at 883.
  \item \(^{131}\) *Id.* (citation omitted).
\end{itemize}
accurately determining the nature of underground formations, were within the technological arts. This decision provides patent protection to processes that do not meet the *Deener* definition without overruling *Deener* and without providing a clear definition for patentable process.

Judge Baldwin noted some of the problems this approach would create in his concurrence, which strongly disapproved of the majority position. He pointed out that the majority opinion departed from previous practice by relieving applicants of the duty to disclose apparatus used to implement processes and accepting instead the applicant’s argument that his claims could not reasonably relate to anything but a machine-implemented process. The concurrence pointed to future problems, such as defining “technological arts,” and concluded that the majority simply shifted potential disputes from the subject matter to other sections of the Patent Act.

IV. THE PATENTABILITY OF COMPUTER-RELATED INVENTIONS: THE VALIDITY OF THE MERRILL LYNCH PATENT

Both *Prater* and *Musgrave* imply that all computer-related inventions are “within the technological arts” and therefore within the scope of the Patent Act. They can be interpreted either as deciding that the invention is a new machine (one having a special purpose), thus avoiding a conflict with *Deener*, or that the invention is a process for creating a machine. By themselves, these cases indicate that the Merrill Lynch program deals with patentable material. The Supreme Court, however, rejected the *Prater* and *Musgrave* reasoning and seems to have returned to the *Deener* definition of patentable process.

In *Gottschalk v. Benson*, the Court noted that although it may be possible for a patent to be granted even if the process claimed “did not meet the requirements of our prior precedents,” “[t]ransformation and reduction of an article ‘to a different state or thing’ is the clue to the patentability of a process claim that does not include particular machines.” The applicants sought patent protection for a method of converting coded numbers to a system

132. *Id.* at 894 (Baldwin, J., concurring).
133. *Id.* at 895, 896 (Baldwin, J., concurring).
134. Although the *Prater* court upheld an “apparatus claim,” 415 F.2d at 1405-06, thereby indicating the patent covers the programmed machine, the process of creating the machine (the program) is necessarily included. The *Musgrave* majority no longer requires the applicant to identify a specific machine, accepting the program itself as patentable. See *supra* notes 129-32 and accompanying text.
135. They do not, however, indicate whether the patent is valid, because questions of novelty, obviousness, and specificity remain. *Prater* was denied patent protection on the last of these. See *supra* note 119.
137. *Id.* at 71.
138. *Id.* at 70.
more easily understood by general purpose computers. The claims revealed a general technique which could be used to develop specified applications. All uses of the conversion method were claimed in the patent; there was no limitation to a specific goal, end use, or particular machine. In summarizing its prior opinions, the Court commented that ideas, phenomena of nature, and scientific truths or their mathematical expression are all unpatentable, but applications of these abstract notions may be patented if new and useful. While refusing to hold all computer programs unpatentable, the Supreme Court concluded that Benson had claimed an algorithm and that granting a patent on these claims would effectively preempt an idea. Accordingly, Benson's patent request was denied.

Benson indicates that Merrill Lynch does not hold a valid patent. The company's management system is not tied to a particular machine, making its claims more likely to preempt an idea. Additionally, the cases discussing business methods make it clear that managing investment funds is not a "new and useful end."

Following Benson, which rejected claims for a computer program having no application outside the machine itself, and Dann v. Johnston, in which a computer-operated record keeping system was denied patent protection, the Court of Customs and Patent Appeals returned to the device of listing nonstatutory subject matter, rather than defining "process." The list provided in In re Chatfield included "printed matter; methods of doing business; purely mental steps; naturally occurring phenomena or laws of nature; a mathematical formula and the algorithm therefor."

In Chatfield, the court granted a patent for a method that determined which programs should take priority when more than one program required the use of the same piece of equipment. After determining that computer programs should be analyzed in the same fashion as methods of operating other machine systems, the court found that the "claims, analyzed as a whole, simply define a novel method for operating a particular machine system in a particular mode" and were not so broad as to preempt a mathematical formula.

---

139. Id. at 65. The Court noted that the technique involved the use of mathematics, which did not itself require computers to solve. Id. at 67.
140. Id. at 68.
141. Id. at 67.
142. "A procedure for solving a given type of mathematical problem." Id. at 65.
143. Id. at 71.
144. 425 U.S. 219 (1976). See supra notes 75-84 and accompanying text for a discussion of this case.
146. Id. at 157 (citations omitted).
147. Id.
148. Id. at 159.
149. Id. at 158-59.
The two dissenting judges found Chatfield’s claims similar to those in Benson and outside the scope of patent law.\textsuperscript{150} By defining computer programs as methods of operating machines, the Chatfield majority would find them all within the scope of the Patent Act.\textsuperscript{151} Although this interpretation complies with the statutory language of the Act, it ignores the limitations the Supreme Court placed on the term “process” in Deener. The Chatfield system performed its function completely within the machine, prioritizing the various programs being run. Nothing indicates that the end product reduced or transformed matter in any way.\textsuperscript{152} Since all computer programs are used to operate machines, the Chatfield court would find the Merrill Lynch program within the scope of the Patent Act regardless of whether it is a method of doing business. If the court truly analyzes all claims as a whole, rather than using the bifurcated approach taken in the line of cases discussed earlier, it might even allow an otherwise unpatentable part of the invention, such as the idea of combining financial services, to provide the necessary novelty.

The CCPA did not, however, reach a final conclusion on whether computer programs as a class are within the scope of the Patent Act with Chatfield. In In re de Castelet,\textsuperscript{153} the court found a method for operating drafting and milling machines through the use of computer programs to be nonstatutory subject matter. Rather than considering the program a method of operating a machine, the court looked at the end result, a drawing or a machined surface which corresponded to a pre-selected curve. Considering the claim as a whole,\textsuperscript{154} the court characterized de Castelet’s claim as “storing . . . certain mathematical data in a computer, inputting additional mathematical data, causing the computer to perform programmed computations using [these] data, and, finally, causing the computer to transmit the results . . . to a ‘model forming means.’”\textsuperscript{155} Although the preamble to the patent claims described the invention as a method of generating a curve,\textsuperscript{156} the court found that the steps claimed solved a mathematical equation and sent electrical signals containing solutions.\textsuperscript{157} This characterization resulted in the rejection of the claims.

\textsuperscript{150} Id. at 161-62 (Rich, J., dissenting). The dissent remarked that drafting a claim as a “machine” instead of a “method” was irrelevant because “it is merely a drafter’s choice.” Id. at 161.

\textsuperscript{151} Patent protection is available for “processes.” 35 U.S.C. § 101 (1982). A “process” is a “process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.” Id. § 100(b) (emphasis added).

\textsuperscript{152} Chatfield’s program was limited to “computer graphics systems and scan-conversion of graphic information.” Chatfield, 545 F.2d at 148.

\textsuperscript{153} 562 F.2d 1236 (C.C.P.A. 1977).

\textsuperscript{154} Id. at 1240 n.1.

\textsuperscript{155} Id. at 1244.

\textsuperscript{156} Id.

\textsuperscript{157} Id.
since the court believed that the key to patentable processes was their practical application.\textsuperscript{158} The court found that de Castelet was requesting a patent on the equations used in his program, which was subject matter outside the scope of patent law, and patent protection was denied.\textsuperscript{159}

De Castelet was distinguished from Chatfield by finding that the latter involved a patentable process because although "it employed solutions from equations, the method simply used the results of those equations, and the claims were not drawn to an equation or algorithm per se."\textsuperscript{160} De Castelet, on the other hand, was claiming solutions to equations;\textsuperscript{161} instructing the computer "to transmit electric signals, representing the results of its calculations . . . does not transform the claim into one using an algorithm."\textsuperscript{162}

Since all computers function by solving equations and transmitting signals that represent the solutions, the real distinction may be either in the end product\textsuperscript{163} or in the wording of the patents.\textsuperscript{164} If the key is the end product, the Merrill Lynch patent should be invalidated. Its tangible product is a periodic report.\textsuperscript{165} Since this involves making marks on paper, it seems closer to the curves generated by de Castelet's program than to the intangible decision of priorities obtained by Chatfield. On the other hand, if the key is the wording of the patents, Merrill Lynch may prevail since it avoided the use of standard mathematical equations when drafting its patent application by relying upon flow charts and by using abbreviations (such as MMKT for the value of the customer's regular money market fund account)\textsuperscript{166} instead of the more common mathematical variables (a, b, c, x, y, z, etc.). In either event, these cases continue the tradition of confusion in the area of subject matter patentability.

The Supreme Court once again reviewed the question of subject matter patentability in Parker v. Flook.\textsuperscript{167} Flook's patent described a method for updating alarm limits during the catalytic chemical conversion of hydrocarbons.\textsuperscript{168} Alarm limits indicate when this conversion process is operating

\begin{itemize}
  \item \textsuperscript{158} Id. at 1243.
  \item \textsuperscript{159} Id. at 1245.
  \item \textsuperscript{160} Id. at 1243 (emphasis by court).
  \item \textsuperscript{161} Id. at 1244.
  \item \textsuperscript{162} Id. (emphasis by court).
  \item \textsuperscript{163} The end product in Chatfield was intangible; the running of one computer program before another. 545 F.2d at 153, 154. The end product in de Castelet was a curve, 562 F.2d at 1238, which can itself be defined by a mathematical formula. See id.
  \item \textsuperscript{164} The court noted that the distinction between statutory and nonstatutory subject matter may "be fine indeed . . . considering the glorious flexibility and frustrating limitations of the English language on the one hand, and the ingenuity of patent draftsmen on the other." De Castelet, 562 F.2d at 1243.
  \item \textsuperscript{165} The system generates monthly statements (col. 4), prints a report if possible abuses occur (col. 4), and generates reports required by the Federal Reserve (col. 5). Merrill Lynch patent, supra note 8. No other mention is made of specific output. Computer programs are, in essence, a series of calculations.
  \item \textsuperscript{166} Merrill Lynch patent, supra note 8, at col. 5.
  \item \textsuperscript{167} 437 U.S. 584 (1978).
  \item \textsuperscript{168} The catalytic chemical conversion of hydrocarbons is a process used in the oil-refining and petrochemical industries. Id. at 586.
\end{itemize}
in an inefficient or dangerous manner; they need periodic adjustment during transition stages such as start-up. Flook's method for changing alarm limits differed from commonly used techniques only with respect to the mathematical formula used to determine the limits.

Justice Stevens, writing for the majority, described the issue as "whether the identification of a limited category of useful, though conventional, post-solution applications . . . makes . . . [a] method eligible for patent protection [if its only novel feature is a mathematical equation.]") The majority cited O'Reilly v. Morse as controlling and adopted the approach taken therein. Although the Court described Flook's formula as a "new and presumably better method for calculating alarm limit values," the formula itself was unpatentable subject matter and therefore treated as prior art. Because the Court found no novelty other than the formula in Flook's method, the patent application was denied. Justice Stevens reasoned that to allow any process that "implements a principle in some specific manner" to fall within the scope of patent law would permit skilled patent drafters to circumvent the prohibition against patenting ideas or phenomena of nature.

In essence, the majority looked carefully at the individual aspects of Flook's invention. It used the terminology of the specific requirements for patentability, such as novelty, to determine the purpose of the patent request. The majority found that Flook was requesting a patent for a mathematical formula, not a "process."

Justice Stewart's dissent, joined by Chief Justice Burger and Justice Rehnquist, argued that the majority had incorrectly "import[ed] into its inquiry under 35 U.S.C. § 101 the criteria of novelty and inventiveness." The dissent implied that any claim that falls within the literal meaning of "process" is statutory subject matter. Justice Stewart would have held that by limiting the use of his formula to a specific machine or process, Flook

169. Id. at 585.
170. Id. at 585-86.
171. Id. at 585.
172. 56 U.S. (15 How.) 62 (1853), discussed supra notes 27-29 and accompanying text.
173. Flook, 437 U.S. at 592.
174. This is the same approach taken in many of the cases discussed supra text accompanying notes 43-98, e.g., Loew's Drive-In Theatres, Inc. v. Park-In Theatres, Inc., 174 F.2d 547 (1st Cir. 1949), discussed supra notes 63-66 and accompanying text; In re Sterling, 70 F.2d 910 (C.C.P.A. 1934), discussed supra notes 48-51 and accompanying text.
175. Flook, 437 U.S. at 594-95.
176. Id. at 591-92.
177. Id. at 588, 594-95.
178. Id. at 590.
179. Id.
180. 35 U.S.C. § 101 describes the subject matter patent law protects. Material that is not within § 101 is nonstatutory.
181. Flook, 437 U.S. at 600 (Stewart, J., dissenting).
182. See supra note 121.
183. Flook, 437 U.S. at 599 (Stewart, J., dissenting).
had removed his claim from the prohibition of *Gottschalk v. Benson*¹⁸⁴ and was within the scope of section 101.¹⁸⁵ While not addressing the issue, the dissent implied, however, that Flook's patent might be invalid under other sections of the Act,¹⁸⁶ thus raising the question of whether a "patentable process," which is novel only because it "computerizes" a known process, meets all the requirements for patentability.

*Parker v. Flook* indicates that Merrill Lynch holds an invalid patent if its novelty lies in the fact that the margin brokerage account, money market funds, check writing privileges, and credit card are all offered as a package, not just through a single institution.¹⁸⁷ Because the patent claims an idea or a method of doing business, the invention is nonstatutory and unpatentable. The dissent's analysis suggests that Merrill Lynch is seeking protection for a new way of operating machines and the invention does fall within the scope of the Act. But the dissent also intimates that *Dann v. Johnston*¹⁸⁸ indicates a lack of novelty, rendering the Merrill Lynch patent invalid.

The Supreme Court finally held an invention involving computers to be within the scope of the Patent Act in *Diamond v. Diehr*.¹⁸⁹ The applicants in *Diehr* had developed a more accurate technique for determining how long molded rubber needed to cure.¹⁹⁰ They sought patent protection for their method of curing rubber, which involved constant monitoring of the temperature inside the molds and regular recalculating of the time required to cure the contents. Both the general process of curing rubber and the formula used to calculate cure times had been in use for years.¹⁹¹ The patent examiner and the Patent and Trademark Office Board of Appeals rejected the patent application, finding the subject matter nonstatutory.¹⁹² Noting that the use of computers does not render otherwise statutory subject matter unpatentable, the Court of Customs and Patent Appeals reversed.¹⁹³

A five-Justice majority of the Supreme Court upheld the decision of the CCPA to grant a patent. Justice Rehnquist, writing for the Court, recalled the definition of "process" set out in *Cochrane v. Deener*¹⁹⁴ and the language

¹⁸⁴. 409 U.S. 63 (1972). In *Benson*, the applicant's claims were rejected because they were too broad, not tied to a particular machine or usage, plus preempting all use of the calculations involved. *Id.* For a discussion of this case, see supra notes 136-43 and accompanying text.

¹⁸⁵. Justice Stewart defines the issue as "whether a claimed process loses its status of subject-matter patentability simple because *one step* in the process would not be patentable subject matter if considered in isolation." *Flook*, 437 U.S. at 599 (Stewart, J., dissenting). He comments that this case is "far different" from *Benson*. *Id.*

¹⁸⁶. "It may well be that under the criteria of §§ 102 and 103 no patent should issue on the process claimed in this case. . . ." *Id.* at 600 (Stewart, J., dissenting).


¹⁹⁰. *Id.* at 177-79.

¹⁹¹. *Id.* at 177 n.2.

¹⁹². *Id.* at 179, 181.

¹⁹³. *Id.* at 181.

¹⁹⁴. 94 U.S. 780 (1876). The definition can be found *supra* notes 102-05 and accompanying text.
of *Gottschalk v. Benson* stating that "[t]ransformation and reduction of an article 'to a different state or thing' is the clue to the patentability of a process claim that does not include particular machines." The majority characterized the claims in question as "a physical and chemical process for molding precision synthetic rubber products" that begins "with the loading of a mold. . . and [ends] with the . . . opening of the press at the conclusion of the cure." That a computer and a mathematical equation were used was irrelevant to determining whether this process was statutory subject matter; the Court looked to the claims as a whole in making its determination of subject matter patentability. The majority expressly noted that Diehr's patent might later be invalidated on the grounds of obviousness or lack of novelty.

The dissenters found the Diehr patent analogous to the patent before the Court in *Parker v. Flook.* Finding the opening and closing of the molds mere surplusage without legal significance, the dissenters determined that the claims were nothing more than mathematical formulas, not entitled to patent protection. The author of the dissent, Justice Stevens, lamented that the majority did not base its decision on the discovery itself, but instead rewarded the claimants in Diehr for their draftsmanship rather than for any invention. The dissent stated that "no program-related invention is a patentable process under § 101 unless it makes a contribution to the art that is not dependent entirely on the utilization of a computer." In the dissent, Justice Stevens also recognized that patentability seemed to depend on how the claims were characterized by the Court. The dissenting opinion chose to describe the discovery as "an improved method of calculating the time that the mold should remain closed during the curing process." Justice Stevens then argued that there was nothing new or unusual about either the fact that temperature readings were required or the equipment used to take the readings, and con-

195. *Benson*, 409 U.S. at 70 (cited by the Court in *Diehr*, 450 U.S. at 184).
197. *Id.* at 185.
198. *Id.* at 188.
199. *Id.* at 191.
200. *Id.* at 209 (Stevens, J., dissenting). *Flook*, 437 U.S. 584, is discussed supra notes 167-86 and accompanying text.
202. *Id.* at 210 n.32 (Stevens, J., dissenting). See Blumenthal & Ritter, *Statutory or Non-Statutory?: An Analysis of the Patentability of Computer Related Inventions*, 62 J. Pat. Off. Soc'y 454, 505-06 (1980) for an interesting discussion of how to draft the same invention as either a method or a machine.
203. *Diehr*, 450 U.S. at 219 (Stevens, J., dissenting). The dissent equated "computer program" with the term, "algorithm," which was used to describe unpatentable subject matter in *Benson*. *Id.*
204. *Id.* at 205-07 (Stevens, J., dissenting). The majority also noted the importance of the Court's perception of the subject matter described in a patent. *Id.* at 192 n.15.
205. *Id.* at 206-07 (Stevens, J., dissenting).
cluded that the importance of the method claimed rested with the calculations used to determine cure time.207

Both the majority and dissent in Diehr reinforce the importance of determining the nature of an invention when addressing patentability. None of the Justices in Diehr found that the method involved an advance in computer technology; it was a process for molding rubber. The majority ended the inquiry with this finding, since the only question before the Court was whether Diehr’s invention fell within any of the subject matter (machine, process, etc.) for which patent protection was developed. The dissenting Justices looked at all aspects of the patent and determined in effect that it did not claim a process for molding rubber, since its only contribution to the art of molding rubber was computerization. The invention was a computer program, which is nothing more than a series of mathematical formulas, an unpatentable idea.

The analyses of both the majority and the dissent in Diehr indicate that Merrill Lynch holds an invalid patent. If characterized as a financial services package,208 the patent is outside the scope of the Patent Act; such a package is not a “machine, manufacture, or composition of matter,”209 nor is it a “process, art or method ... [or] a new use of a known process, machine, manufacture, composition of matter, or material”210 as required by the Patent Act. If labeled a method of doing business, the process is an idea and not patentable subject matter.211 If, on the other hand, the Merrill Lynch invention is construed to be in the data processing,212 it faces the considerable difficulty of avoiding the Benson213 and Flook214 decisions, which indicate that computer programs are unlikely candidates for patent protection due to their mathematical nature.

Conclusion

New techniques for using computers must be analyzed according to what they do. If the technique is used to process rubber or perform some other tangible, physical task, it falls within the general scope of patent law. Techniques for implementing services, however, are not statutory subject matter.

207. Id. at 207-09 (Stevens, J., dissenting).
208. This characterization would be favored by the Court in Benson, 409 U.S. 63, which indicates that omitting to tie a computer programming breakthrough to a particular machine or machine system makes the claimed invention an idea rather than a process. Merrill Lynch did not so limit its invention.
210. Id. § 110(b).
211. See supra notes 43-98 and accompanying text.
212. The Delaware District Court opinion hints that there is novelty in the program, the data processing, but is not explicit. Paine, Webber, 564 F. Supp. at 1363.
213. 409 U.S. 63.
214. 437 U.S. 584.
The key to subject matter patentability is not whether a machine (computer) is used, but whether the process for or in which the computer is used is itself within the scope of the Patent Act.

Once subject matter patentability has been established, the other requirements for patent protection must be addressed. Most basically, the invention must be novel and must not be obvious. Recent Supreme Court decisions indicate that these requirements should be analyzed by treating claims relating to ideas or general principles as known or obvious, and not permitting them to provide novelty. Under this approach, the idea of using a computer is put to one side, and the technique for which the computer is used must be novel and nonobvious in its own right.

Returning to the analysis in *Munson v. Mayor of New York City*,\(^1\) (in which the Supreme Court invalidated a patent for a system of filing bond coupons because the means of implementation—ledgers—were not novel), the use of a computer to implement a new idea or the development of a new program does not assure one of obtaining a patent. Just as books or ledgers had previously been used to file bond coupons in 1887, computers and computer programs have been used for a variety of purposes today. Mere “computerization” of a known technique, then, is ineligible for patent protection.

LYNNE B. ALLEN
