

CASE NOTES

Patent Law—Computer Programs—Unpatentable Mental Process—*Gottschalk v. Benson*.¹—In 1963 Benson and Tabbot filed an application with the Patent Office.² They sought a patent for a method described in their specification³ as being related “to the processing of data by program and more particularly to the programmed conversion of numerical information”⁴ in a general purpose digital computer.⁵ Specifically, the process involved the conversion of binary coded decimal (BCD) numerals into pure binary numerals.⁶ Various ways of performing this conversion had existed prior to the applicants’ discovery of their method, which they alleged to be better and simpler in operation.⁷ Their method consisted of programming⁸ a general purpose digital computer—a machine already long in use—with an appropriate algorithm.⁹ However, the same process could also be performed men-

¹ — U.S. —, 93 S. Ct. 253 (1972).

² Application No. 315,050. The facts in this paragraph appear in Application of Benson, 441 F.2d 682, 682-84 (C.C.P.A. 1971), and *Gottschalk v. Benson*, 93 S. Ct. at 253-55.

³ The specification is that element of the patent application that discloses the components of the invention. This disclosure must be so clear and concise as to permit a person skilled in the art to which the invention pertains to make and use the invention. 35 U.S.C. § 112 (1970).

⁴ 93 S. Ct. at 254.

⁵ A computer is a “device capable of solving problems by accepting data, performing prescribed operations on the data, and supplying the results of these operations.” Computers and the Law 124 (P. Bigelow ed. 1966) [hereinafter cited as Bigelow]. A computer may be either digital—a “computer that operates on discrete data by performing arithmetic and logic processes on these data,” *id.* at 125—or analog—a “computer that operates on analog data by performing physical processes on these data,” *id.* at 121. Digital computers can be further classified as special purpose computers, which are designed to solve a restricted class of problems, *id.* at 134, and general purpose computers, which are designed to solve a wide class of problems, *id.* at 127.

⁶ The human mind deals with quantitative information in various numerical forms, such as the decimal form (0,1,2,3,4,5,6,7,8,9). However, before a computer is able to process this same quantitative information, it must be converted into pure binary form, a system of representation having only two basic elements, usually indicated by “0” and “1.” 441 F.2d at 682-83. This conversion has an intermediate step, which is the BCD, a “decimal notation in which the individual decimal digits are each represented by a group of binary digits . . .” Bigelow, *supra* note 5, at 122. Thus, the number “23” would appear in BCD form as “0010 0011,” whereas after final conversion into pure binary form, the same number would be represented as “10111.”

⁷ 441 F.2d at 683. The applicants specified various advantages, such as reducing the number of steps required to be taken, disposing with the repetitive storing and retrieval of partially converted information, eliminating the need for equipment changes and the use of auxiliary equipment, and decreasing the chance of error.

⁸ A program is a plan for solving a problem. Bigelow, *supra* note 5, at 132. A computer contains circuitry which will permit instructions to be programmed into its system. Such programs usually contain arithmetic functions, as well as instructions to store results, read and record data input, write an output, and compare data. The computer performs these operations in sequence according to the user’s program. Furth & Hoffman, Introduction to Machine Methods, in Bigelow, *supra* note 5, at 28.

⁹ An algorithm is a “prescribed set of well defined rules or processes for the solution

tally through use of a proper conversion table compiled manually with pencil and paper. All that the applicants' method actually did was vary the arithmetic steps a human would normally use by changing the order of the steps, by changing some of the symbolism, and by taking subtotals after each successive operation.¹⁰ The claims in the application were not limited to any particular form of technology, apparatus, or end use and thus did not purport to encompass use of the claimed method in any particular mechanism.¹¹

The Patent Office rejected claims 8 and 13 of the application,¹² and in 1968 the Patent Office Board of Appeals (Board) affirmed.¹³ The Board found these claims to set forth "mental processes"¹⁴ which

of a problem in a finite number of steps" Bigelow, *supra* note 5, at 121. In contrast, a heuristic approach uses "exploratory methods of problem solving in which solutions are described by evaluation of the progress made toward the final result." *Id.* at 127.

¹⁰ 93 S. Ct. at 255.

¹¹ *Id.* at 254.

¹² 441 F.2d at 682. These were the only claims actually considered by the Patent Office. Apparently the other claims had met with a preliminary rejection by the Patent Office. Claim 8 reads:

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

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

Claim 13 reads:

A data processing method for converting binary coded decimal number representations into binary number representations comprising the steps of—

- (1) testing each binary digit position *i*, beginning with the least significant binary digit position, of the most significant decimal digit representation for a binary "0" or a binary "1";
- (2) if a binary "0" is detected, repeating step (1) for the next least significant binary digit position of said most significant decimal digit representation;
- (3) if a binary "1" is detected, adding a binary "1" at the (*i*+1)th and (*i*+3)th least significant binary digit positions of the next lesser significant decimal digit representation, and repeating step (1) for the next least significant binary digit position of said most significant decimal digit representation;
- (4) upon exhausting the binary digit positions of said most significant decimal digit representation, repeating steps (1) through (3) for the next lesser significant decimal digit representation as modified by the previous execution of steps (1) through (3); and
- (5) repeating steps (1) through (4) until the second least significant decimal digit representation has been so processed.

¹³ 441 F.2d at 682.

¹⁴ A mental process has been viewed as "a series of unique but undefined steps executed by the biological apparatus known as the human brain." Sutton, *The "Mental Steps" Doctrine: A Critical Analysis in the Light of Prater and Wei*, 52 J. Pat. Off. Soc'y 479, 481 (1970) [hereinafter cited as Sutton].

did not conform to the statutory prerequisites for patentability as defined in the Patent Act.¹⁵

The Court of Customs and Patents Appeals (CCPA) reversed this rejection by the Board.¹⁶ The CCPA refused to consider an eleventh-hour attempt by the Board to lend support to its original rejection of the method as a mental process with the added argument that the claims were insufficiently distinct,¹⁷ fearing that such consideration would obscure the major issue as to whether a computer program constitutes a patentable process.¹⁸ Purporting to determine the patentability of the process solely on the basis of section 101, the CCPA concluded that the proposed method involved only a machine-implemented process which did not require human intervention.¹⁹ The CCPA reasoned that although the same process could be performed mentally, there were no "mental steps" such as the exercise of judgment or decision-making required in the proposed method,²⁰ while the only practical and technologically productive use of the process would be a non-mental use in a computer.²¹ Hence the Board's "mental process" characterization was inaccurate.

The Supreme Court of the United States granted certiorari *sub nom. Gottschalk v. Benson*.²² In 1972, the Court unanimously reversed the CCPA and HELD: an idea—in this case a mathematical formula

¹⁵ 35 U.S.C. §§ 100(b), 101 (1970). These sections will be referred to in the text as section 100(b) and section 101 respectively. Section 100(b) provides:

The term "process" means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.

Section 101 provides:

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.

¹⁶ Application of Benson, 441 F.2d 682 (C.C.P.A. 1971).

¹⁷ *Id.* at 684-85. The statutory scope of a claim is defined in 35 U.S.C. § 112 (1970). This section will be referred to in the text as section 112. Section 112 provides:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention. A claim may be written in independent or dependent form, and if in independent form, it shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim.

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

¹⁸ 441 F.2d at 684-85. A patentable process must be new and useful, novel, and non-obvious. 35 U.S.C. §§ 101-03 (1970).

¹⁹ 441 F.2d at 687.

²⁰ *Id.* at 688.

²¹ *Id.*

²² 405 U.S. 915 (1972).

which expresses a mental process—is unpatentable. A computer program devised from the formula is likewise unpatentable, since the formula has no practical use except in connection with a program for a digital computer, and the patent would therefore wholly preempt the mathematical formula and in practical effect would be a patent on the formula itself.²³ The Court exhibited a reluctance to formulate any new rules for measuring the patentability of a program, preferring instead to leave this task to Congress.²⁴ In order to avoid breaking any new ground before Congress had taken action, the Court based its holding on earlier Supreme Court opinions dealing with the patentability of mechanical and chemical processes.²⁵

The purpose of this note is to consider the propriety of the Supreme Court opinion. This task requires an initial examination of the CCPA decision in *Application of Benson* as an extension of a series of earlier CCPA decisions which had gradually eroded the mental steps doctrine²⁶ into oblivion. Thereafter, the note will turn to an analysis of the Supreme Court's opinion in *Gottschalk v. Benson*. The Court's use of earlier Supreme Court decisions to formulate its holding will be examined. The note will also discuss the statutory basis for the decision. Following an assessment of the various policy considerations behind the Court's holding that a computer program is an unpatentable mental process, such as the possible availability of other means of protecting a program and the Court's deference to Congress for ultimate decision, the note will conclude with a brief discussion of the effect of the Court's holding on the future patentability of programs.

Prior CCPA Decisions

The CCPA's decision in *Application of Benson* followed a series of recent cases in which the CCPA had attempted to formulate guidelines for determining the patentability of a program. By tracing the judicial development of these guidelines, the rationale by which the CCPA in *Benson* approved the patentability of a computer program will be elucidated. *Application of Prater*²⁷ represents the initial attempt

²³ 93 S. Ct. at 257.

²⁴ *Id.* at 258.

²⁵ *Id.* at 257.

²⁶ As the term is used by the patent courts, a "mental step" is:

a step in a claimed process which may be performed by the human brain in combination with such peripheral devices as eyes and hands, but which may also be executed by a mechanical or electrical device. . . . [A] mental *process* may be viewed as the unknown series of operations which the brain goes through when actually performing a *single mental step* in a claimed process: Mental steps are portions of process claims; mental processes take place in the human mind.

Sutton, *supra* note 14, at 482.

Under the mental steps doctrine, mental steps, even if novel, are not patentable. *Halliburton Oil Well Cementing Co. v. Walker*, 146 F.2d 817, 821 (9th Cir. 1944); *Application of Shao Wen Yuan*, 188 F.2d 377, 380 (C.C.P.A. 1951); *In re Abrams*, 188 F.2d 165, 167-68 (C.C.P.A. 1951).

²⁷ 415 F.2d 1393 (C.C.P.A. 1969). For commentary on *Prater*, see Sutton, *supra*

by the CCPA to establish such standards. In this case of first impression, the court was asked to determine the patentability of method and apparatus claims within the field of spectral analysis for selecting optimum peaks and providing a particular subset of equations least susceptible to error amplification. Whereas in prior decisions mechanical and chemical process claims had been rejected as resting solely on mental steps,²⁸ the court in *Prater* found that "the teachings of the specification provide a full disclosure of at least analog apparatus for carrying out the claimed steps *without requiring any steps to be performed in the human mind.*"²⁹ Thus the court did not reject the claims as covering an unpatentable mental process. In reaching this decision, the court removed the underpinnings of the "mental steps" doctrine when it firmly rejected a "rule" which had grown out of dictum in *Cochrane v. Deener*³⁰ to the effect that, in order to be patentable, all processes must operate physically upon some substance.³¹ However, even though the applicants had disclosed a machine-implemented³² process, the process in *Prater* was still held to be unpatentable because the specification did not expressly and distinctly set out the subject matter of the invention as required by section 112.³³ The court thus concluded that the method claim, even when read in light of the specification, was broad enough "to encompass pencil and paper markings which a mathematician might make in documenting or recording his mental calculations."³⁴

Three months later, when asked to review the Board's rejection of method and apparatus claims which consisted of programming a set of equations into a digital computer with the result of depicting three-dimensional objects as two-dimensional drawings, the CCPA in *Application of Bernhart* attempted to extend its conclusion in *Prater* that "disclosure of apparatus for performing the process wholly without human intervention merely shows that the *disclosed* process does not fall within the so-called 'mental steps' exclusion."³⁵ The court in *Prater* had held that because the disputed claims in that case disclosed only a mental process, they were overly-broad in terms of section 112; in contrast, the court in *Bernhart* concluded that claims covering only mental

note 14, at 479, and Woodcock, Mental Steps and Computer Programs, 52 J. Pat. Off. Soc'y 275 (1970).

²⁸ Application of Shao Wen Yuan, 188 F.2d 377, 380 (C.C.P.A. 1951); In re Abrams, 188 F.2d 165, 168 (C.C.P.A. 1951).

²⁹ 415 F.2d at 1402.

³⁰ 94 U.S. (IV Otto) 780, 788 (1876).

³¹ 415 F.2d at 1402-03. For further discussion of this dictum in *Cochrane*, see text at notes 106-10 infra.

³² A machine-implemented process is a process which may be implemented solely by mechanical means with no need for human intervention. Thus, a machine-implemented process may be patentable, provided that the method claim clearly discloses a machine capable of performing a process and that the process itself meets the statutory prerequisites for patentability. Id. at 1403.

³³ Id. at 1405.

³⁴ Id.

³⁵ 417 F.2d 1395, 1400 (C.C.P.A. 1969).

steps were not too broad to conform to the statutory prerequisites for distinctness of the disclosure in a claim.³⁶ However, instead of discussing the claims solely in terms of section 112, the court cited section 101, which defines what constitutes a statutory³⁷ process.³⁸ Notwithstanding the court's determination that the claim disclosed a machine-implemented process, the court nevertheless refused to patent the process because it was "obvious"³⁹ in relation to prior art. Thus, while attempting to refine the *Prater* guidelines for defining a statutory claim, the CCPA clouded the issues by failing to distinguish between the purposes of section 101 in defining a statutory process and those of section 112 in defining a statutory claim.

Shortly after *Bernhart*, the CCPA reversed a decision by the Board in *Application of Mahony*,⁴⁰ which had rejected an application for a patent on a synchronization process for framing a number of bits⁴¹ flowing in a bit stream⁴² into digital words.⁴³ The court saw the sole issue to be one of interpreting the claims under section 112 and did not consider the patentability of the process under section 101. The court rejected an argument by the Board that the disputed claim failed to conform to section 112 by setting out an unpatentable process. It appears that the court correctly perceived that to treat the question of the statutory nature of the *process*, which is analyzed under section 101, as an element in the determination of whether a *claim* is statutory under

³⁶ *Id.* at 1400-01.

³⁷ The phrases "statutory process" and "statutory claim" serve as short-hand expressions for a process which conforms to the prerequisites for patentability of section 101 and for a claim which satisfies the standards for breadth and distinctness set out by section 112.

³⁸ *Id.* at 1401. The court stressed that this was a machine-implemented process with no mental steps and stated that "[t]o find that the claimed process could be done mentally would require us to hold that a human mind is a digital computer or its equivalent, and that a draftsman is a planar plotting apparatus or its equivalent." *Id.*

³⁹ The standard for obviousness is set out in 35 U.S.C. § 103 (1970):

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, 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. Patentability shall not be negated by the manner in which the invention was made.

For a discussion of the standards employed in determining the prerequisites to non-obviousness, see *Graham v. John Deere Co.*, 383 U.S. 1, 12-19 (1966), and *United States v. Adams*, 383 U.S. 39, 48-52 (1966).

⁴⁰ 421 F.2d 742 (C.C.P.A. 1970).

⁴¹ Bit is the abbreviation for binary digit, which is a "character used to represent one of the two digits in the numeration system having the radix 2." Bigelow, *supra* note 5, at 122.

⁴² Bit stream is defined in *Mahony* as a term used "in conjunction with transmission methods in which character separation is accomplished by the terminal equipment, and the bits are transmitted over the circuit in a consecutive line of bits." 421 F.2d at 746.

⁴³ A digital or computer word is a "sequence of bits or characters treated as a unit and capable of being stored in one computer location." Bigelow, *supra* note 5, at 124.

section 112 would unnecessarily complicate the law.⁴⁴ The two statutes represent distinct steps in the determination of the patentability of a process. Section 112 is used to examine the distinctness and breadth of the claim. Once it has been established that the claim discloses the process with sufficient clarity, then it is determined whether the process complies with section 101 by being new and useful in relation to prior art. Accordingly, the court determined whether the distinctness of the disclosure in the disputed claim complied with section 112. However, instead of merely concluding—as it had in *Prater*—that the claims were indistinct, the court developed a rule of construction which required that a statutory claim need cover *only* what the applicant reasonably regarded as his invention.⁴⁵ Employing this subjective standard of reasonableness, the court concluded that the claim was statutory since, although there was no express reference to a machine-implemented process, the terms “bit” and “bit stream” connoted electrical signals, thereby precluding a reading of the claim as encompassing a mental process.⁴⁶ Thus the court clarified the guidelines for determining the distinctness of a claim under section 112 by adopting a rule of construction employing a subjective standard of reasonableness.

Following *Mahony*, the CCPA reversed another decision by the Board in *Application of Musgrave*,⁴⁷ which refused to issue a patent on a method for obtaining more accurate recordings of seismograms. The court rejected the Board's reliance on the dictum in *Cochrane*⁴⁸ from which subsequent cases had derived a rule that a statutory process must operate physically upon a substance.⁴⁹ In addition, the court criticized three rules proposed by counsel for the inventor in *In re Abrams*⁵⁰ as being unsound; accordingly it did not feel bound to follow them as precedent.⁵¹ The *Musgrave* court found rules 2 and 3 to be irrelevant to a determination of whether a process complies with section 101,

⁴⁴ 421 F.2d at 745.

⁴⁵ *Id.* This rule of construction proposed by the CCPA presents certain difficulties of proof. In meeting this subjective standard, an inventor will have to consider carefully the possible obstacles which he might face in proving what he reasonably regarded as his invention. For example, should the Patent Office merely attempt to glean the intent of the inventor from his application, or should the Office require the filing of a sworn affidavit in addition to the application? Furthermore, should the CCPA establish a rebuttable or conclusive presumption of reasonableness which would operate to decide doubtful cases in favor of the applicant, and should such a presumption shift the burden of proof to the Patent Office? The resolution of such questions by the CCPA could have insured greater efficacy for its rule of construction.

⁴⁶ *Id.* at 747.

⁴⁷ 431 F.2d 882 (C.C.P.A. 1970).

⁴⁸ For a discussion of this dictum, see text at notes 106-10 *infra*.

⁴⁹ 431 F.2d at 893.

⁵⁰ 188 F.2d 165, 166 (C.C.P.A. 1951). The proposed rules were (1) if all steps are purely mental, the claim is nonstatutory and unpatentable; (2) if the steps are both physical and mental but the novelty and advancement of the art lie solely in the mental steps, the claim is unpatentable; and (3) if the steps are both physical and mental, and the novelty and advancement of the art lie in the physical steps while the mental steps are merely incidental to the process, the claim is patentable. *Id.*

⁵¹ 431 F.2d at 889.

since novelty and advancement of the art are not prerequisites under section 101. In considering rule 1's rejection of "purely mental" processes, the court concluded that this rule could be applicable if "purely mental" were construed to mean only steps which were incapable of being performed by machine, and not merely a machine-implemented process which may also be performed mentally.⁵² Having thus determined that a process was not always nonstatutory merely because some or all of the steps therein could be carried out by the human mind as well as by disclosed apparatus, the CCPA was free to formulate its own standards for defining a statutory process: "All that is necessary . . . to make a sequence of operational steps a statutory 'process' within 35 U.S.C. § 101 is that it be in the technological arts so as to be in consonance with the Constitutional purpose to promote the progress of 'useful arts.'"⁵³ As a result of *Musgrave*, the criteria for judging the patentability of a process under section 101 and the breadth and distinctness of a claim under section 112 became more clearly delineated.

In deciding *Application of Benson*, the CCPA related it to these prior cases, observing that all of them arose as a result of the Patent Office's use of the mental steps doctrine⁵⁴ to reject the processes involved as encompassing nonstatutory subject matter.⁵⁵ However, unlike the earlier decisions, each of which involved some combination of method and apparatus claims, *Benson* treated only method claims for a computer program.⁵⁶ In holding that the disputed claims set out a statutory process, the CCPA stated that section 101 was the sole basis of its decision,⁵⁷ and in support of this position cited the caveat in *Mahony* against combining the question of the statutory nature of the process with a determination of the breadth of the claim.⁵⁸ However, it is submitted that the CCPA merely paid lip service to this warning. The court then went on to devote the major part of its opinion to an application of the *Mahony* rule of construction to the disputed claims,⁵⁹ and then utilized this rationale in reaching its conclusion about the patentability of the process.⁶⁰ Moreover, the court not only confused the issues in the case by adopting a standard of reasonableness in construing a claim to determine the statutory nature of a process; it also compounded this confusion by employing the wrong standard of reasonableness. Instead of citing the subjective standard of reasonableness

⁵² *Id.*

⁵³ *Id.* at 893. The clarity of these standards is illustrated by *Application of Foster*, 438 F.2d 1011, 1014-15 (C.C.P.A. 1971), where a method for removing distortion from a seismogram was found to conform to section 101 because it promoted technological arts but not to conform to section 112 because the claim could not be interpreted to cover only what the applicant reasonably intended to be his invention.

⁵⁴ The "mental steps" doctrine is explained in note 26 *supra*.

⁵⁵ 441 F.2d at 686.

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.* at 687.

⁶⁰ *Id.* at 687-88.

set out in *Mahony*, the CCPA relied on the concurring opinion in *Musgrave*, which incorrectly stated the *Mahony* standard in objective terms—that the disclosure in the claim must be reasonable “to one of ordinary skill in the pertinent art when read in light of and consistently with the specification”—⁶¹ in contrast to the more subjective language of the court in *Mahony*: “The proper consideration here is whether the appealed claims cover only what the appellant [the applicant] regards as his invention.”⁶² It would appear that the *Mahony* majority’s rule of construction conforms to the language of section 112, by requiring that the claims should make a disclosure “particularly pointing out and distinctly claiming the subject matter which the *applicant regards as his invention*.”⁶³ Although section 112 also expressly creates an objective standard which requires the specification to describe the process in such “exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same,”⁶⁴ the objective standard does not refer to the language of the claims. Moreover, even in reference to the specification, section 112 requires that it “shall set forth the best mode *contemplated by the inventor of carrying out his invention*.”⁶⁵ Thus, even if the CCPA had chosen to amend its rule of construction, it might have done so more effectively by making express reference to the language of the *Mahony* standard of reasonableness rather than to the incorrect restatement of that *Mahony* standard in the *Musgrave* concurring opinion.

In construing the reasonableness of the disclosure in the claims in *Benson*, the CCPA followed the *Mahony* court’s analysis of “bits” and “bit streams” in arguing that a reference to “shifting” and “signals” in claim 8⁶⁶ sufficiently demonstrated a machine-implemented process performed with no human intervention once the computer had been initially programmed.⁶⁷ However, the court in *Benson* then employed the *Mahony* rule to find that claim 13⁶⁸ also disclosed a machine-implemented process, even though the claim did not contain any mechanical or electrical terminology.⁶⁹

Having employed the objective standard of reasonableness to find sufficient disclosure in the disputed claims to satisfy the section 112 requirements, the CCPA next used the same standard to find a statutory mental process within the scope of section 101:

Apparatus, machinery, “hardware”—whatever it may be called—is disclosed by which the steps *can* be carried out without human intervention but at the same time, since the

⁶¹ *Id.*, citing 431 F.2d at 895 n.1 (concurring opinion).

⁶² 421 F.2d at 745.

⁶³ 35 U.S.C. § 112 (1970) (emphasis added).

⁶⁴ *Id.*

⁶⁵ *Id.* (emphasis added).

⁶⁶ The text of claim 8 is set out in note 12 *supra*.

⁶⁷ 441 F.2d at 687.

⁶⁸ The text of claim 13 is set out in note 12 *supra*.

⁶⁹ 441 F.2d at 687-88.

claim does not itself call for any particular hardware, the method within the claim can be practiced either with apparatus other than that described or with the simplest of equipment . . . This could *in theory* be any kind of writing implement and any kind of recording medium—"pencil and paper"—or even, we suppose, red and blue poker chips and a surface to put them on or slots to put them in so that "0's and "1's can be represented.⁷⁰

It is submitted that this argument misses the point. It is unreasonable to construe the disclosure in a claim to be adequate because it contains language sufficiently narrow to indicate an intent to implement the process by machine, and at the same time to find that the process set out in the claim is statutory even though the language in the claim is indistinct in failing to disclose any particular apparatus.

It is only in the closing paragraphs of the opinion that the CCPA finally responded to the Board's rejection of the process as being purely mental and hence nonstatutory under section 101. The court found none of the steps to be purely mental,⁷¹ since neither the exercise of judgment nor the making of a decision between alternatives was required even in the manual performance of this method.⁷² More importantly, the court observed that the only practical use of this process would be to increase the speed and utility of computer operations. Accordingly, even a process having no practical use other than to enhance the internal operation of machines which concededly promote technological progress would likewise advance the technological arts. Thus, after initially confusing the issue as to whether a process is statutory by employing the reasonableness standard for a statutory claim, the CCPA ultimately resolved the issue by determining that the process would promote the technological arts.⁷³

The above survey of recent CCPA cases illustrates an attempt by the court to abandon the mental steps doctrine and to replace it with new guidelines for determining the statutory nature of a process under section 101 and of a claim under section 112. However, although the

⁷⁰ Id. at 688.

⁷¹ Application of Prater, 415 F.2d 1393, 1402 n.22 (C.C.P.A. 1969). The CCPA has attempted to distinguish between mental and physical steps:

"Purely mental steps" are considered to be steps which may only be performed in, or with the aid of, the human mind. This is quite in contrast to "purely physical steps" which may only be performed by physical means, machinery, or apparatus. . . . Between the *purely* mental and *purely* physical ends of the spectrum there lies an infinite variety of steps that may be either machine-implemented or performed in, or with the aid of, the human mind.

Id.

⁷² 441 F.2d at 688.

⁷³ In two cases decided by the CCPA after *Benson*, the court held a mental process to be patentable because it met the statutory requirement under section 101 of being within the class of technological or useful arts. In *re Waldbaum*, 173 U.S.P.Q. 430, 434, No. 8619 (C.C.P.A., Apr. 20, 1972), and Application of McIlroy, 442 F.2d 1397, 1398 (C.C.P.A. 1971).

CCPA had delineated the rules in *Mahony* and *Musgrave*, the court in *Benson* was careless in its use of those standards. Since both section 101 and section 112 establish definite and distinct prerequisites for the determination of the patentability of a process, it was not improper for the CCPA to consider both sections in determining patentability. However, the court should have taken greater care to define each step in this determination in terms of its statutory basis and to relate its guidelines to the proper purpose of each statute. The confusion between the purposes of sections 101 and 112 which the court generated served merely to hinder any attempt to replace the mental steps doctrine with a worthier successor.

The Supreme Court Decision

In turning to an analysis of the Supreme Court decision in *Gottschalk v. Benson*, it should first be noted that the Court's failure to mention the CCPA cases further illustrates their questionable status. Instead, the Court relied on earlier Supreme Court decisions involving mechanical or chemical processes to answer the question of "whether the method described and claimed is a 'process' within the meaning of" section 100(b) and section 101.⁷⁴ In determining the limits of a statutory process, the Court cited *Rubber-Tip Pencil Co. v. Howard* for the proposition that an idea itself is not patentable.⁷⁵ However, if the idea could somehow be made practically useful in a new device, then the new device would be patentable.⁷⁶ In *Howard*, although the inventor had a good idea for attaching an eraser to a pencil in order to increase the eraser's utility, his reliance on the elastic qualities of rubber to achieve this attachment, although useful, did not constitute a new device, since the elasticity of rubber is common knowledge. In short, the Court in *Gottschalk* looked to a case holding that only a new and useful device which embodies a mechanical process is patentable.

The *Gottschalk* Court then referred to another early decision, *LeRoy v. Tatham*,⁷⁷ to distinguish further between a natural power or principle and the process used to exploit the power by applying it to a useful object. The Court there had held that only a mechanical process—and not the idea which gave rise to it—would be patentable: a fundamental idea or truth may be sufficiently broad to be a motivating force in the invention of various processes, each patentable in its own right, but the idea is not itself patentable.⁷⁸ The Court in *LeRoy* had attempted to establish the full boundaries of a patentable process, holding that not only must a process set out more than an abstract principle, but that it must also refrain from encompassing the *results* of the process.⁷⁹

⁷⁴ 93 S. Ct. at 254.

⁷⁵ *Id.* at 255, citing 87 U.S. (20 Wall.) 498, 507 (1874).

⁷⁶ 87 U.S. (20 Wall.) at 507.

⁷⁷ 55 U.S. 167, 14 How. 156 (1852).

⁷⁸ *Id.* at 187, 14 How. at 175.

⁷⁹ *Id.* at 187-88, 14 How. at 175.

The latter is unpatentable; to patent a result would prohibit other persons from achieving the same result by a different means.⁸⁰

The Court in *Gottschalk* also mentioned a more recent Supreme Court decision involving mathematical expressions of scientific truths, *MacKay Radio & Telegraph Co. v. Radio Corp. of America*,⁸¹ which reaffirmed these earlier standards for the patentability of a process. In addition to reemphasizing the distinctions made in these early decisions between a mechanical process and the idea giving rise to it, *MacKay* had further to distinguish both from a process and from an idea a mathematical formula which defined the idea and which thereby permitted an inventor to utilize this idea in a particular process. Although not purely an idea, a formula, being merely the expression of an idea, nevertheless lacked the concreteness necessary to qualify as a useful device created with the aid of an idea.⁸²

The Court in *MacKay* also considered the scope of the disclosure in the disputed claims. In an infringement suit where the defendant alleged the invalidity of the patent, the Court found the new and useful device to be patentable in that it was narrowly disclosed and consisted of a structure conforming to the teachings of the formula.⁸³ It was only when the inventor sought to discard the mathematical precision afforded by this formula in order to establish that the defendant's activities constituted an infringement of his claim that the Court objected to the process as encompassing areas to which the formula did not apply. The Court in *Gottschalk* properly avoided this aspect of *MacKay*, since such questions, regarding the scope of a claim, would involve section 112.

Thus the Court in *Gottschalk* extracted from these earlier decisions a rule that only a process is patentable, not the idea which gave rise to it or the results of its use. The corollary of that rule is that, in order to be patented, a process must be incorporated in a new and useful device created with the aid of an idea. In assessing the propriety of this corollary rule, it is important to note that all of these cases, treating only mechanical processes, were decided prior to the advent of computer technology and therefore did not consider any of the circumstances peculiar to this field, such as the value of a computer program as a process regardless of any relation it may have to a mechanical computer device. The *Gottschalk* opinion, then, leaves some problems unexplored. Aside from the question of the propriety of using pre-computer case law to determine the statutory nature of a computer program, there is also a question as to whether the Court should have made more detailed and frequent reference to section 100 (b) and sec-

⁸⁰ Id. For a discussion of the other cases cited by the Court with regard to the delineation of this means-result restriction on patentability in the form of the "function of the apparatus" doctrine, see text at notes 98-105 *infra*.

⁸¹ 306 U.S. 86 (1939).

⁸² Id. at 94.

⁸³ Id.

tion 101 than quoting them in a single footnote.⁸⁴ In addition, since the case law cited by the Court had developed prior to the 1953 revision of the Patent Act which produced section 100(b) and section 101, perhaps the Court should have discussed the difference between the old and new statutory provisions as well as any effect this could have had on the authority of these pre-1953 cases. For example, the old Act⁸⁵ used the term "art," nowhere mentioning "process" as presently defined by section 100(b), and perhaps this more explicit language would have elicited a response different from that made by the Court in the earlier decisions. In these pre-1953 cases the Court was concerned with whether the term "art" could be construed as incorporating a process before it could begin to apply the statutory prerequisites for patentability to a process. Rather than seeking to define a process, the *Gottschalk* Court could have used the definition of a process provided by Congress in section 100(b) as a starting point and then focused its attention mainly on determining whether a process conforms to section 101. In sum, reference to these technicalities could have provided added strength to the Court's opinion; it is not suggested, however, that failure to make such references negated the validity of the Court's discussion of what constitutes a statutory process.

Although the Court initially limited the scope of its opinion to the single issue of whether or not a computer program is a statutory process under section 101, it weakened the statutory basis for its decision by observing that the "claims were not limited to any particular art or technology, to any particular apparatus or machinery, or to any particular end use,"⁸⁶ and that "the 'process' claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure-binary conversion."⁸⁷ By challenging the scope of the claim, the Court appeared to be shifting to a section 112 analysis of the disputed claims. After this shift in emphasis, the Court cited *O'Reilly v. Morse*,⁸⁸ which held that a claim for a process of using electro-magnetism to produce distinguishable written signs for telegraphy could not include every use of electro-magnetism, since, if this claim were approved, it would not matter by what process the result was accomplished.⁸⁹ The language of *Morse* illustrates the Court's concern over the scope of the disputed claim: "[The applicant] does not confine his claim to the machinery or parts of machinery, which he specifies; but claims for himself a monopoly in its use, however developed, for the purpose of printing at a distance. * * * [T]he claim is too broad . . ."⁹⁰ Thus, the citation of *Morse* only emphasized the Court's digression from its original concern over the statutory nature of the process under section 101.

⁸⁴ 93 S. Ct. at 254 n.2.

⁸⁵ 35 U.S.C. § 31 (1946).

⁸⁶ 93 S. Ct. at 254.

⁸⁷ *Id.* at 255.

⁸⁸ 56 U.S. 65, 15 How. 62 (1853).

⁸⁹ *Id.* at 119, 15 How. at 113.

⁹⁰ *Id.* at 120, 15 How. at 113.

However, the Court subsequently explained its reference to *Morse* by quoting an interpretation of that case which had appeared in *The Telephone Cases*:⁹¹ "The effect of that decision was, therefore, that the use of magnetism as a motive power, without regard to the particular process with which it was connected in the patent, could not be claimed, but its use in that connection could."⁹² Thus the Court in *The Telephone Cases* referred to *Morse* in support of the proposition that although the idea behind the process is unpatentable, its use in a particular useful process would be patentable.⁹³

Although the Court in *Gottschalk* chose to limit its decision to the issue of the statutory nature of the *process* under section 101, the Court unquestionably departed from this route when it considered the statutory nature of the disputed *claim*. Even when the Court cited *The Telephone Cases* in explanation of its reliance on *Morse*, it quoted portions of the decision which, like *Morse*, also considered the breadth of the disputed claim.⁹⁴ The Court in *Gottschalk* thereby departed even further from its original consideration of the statutory nature of a process when it cited these portions of the case to illustrate that the disputed *claim* did not apply to all telephonic use of electricity.⁹⁵ It is submitted that both of these areas of analysis—concerning the nature of a statutory claim and a statutory process—should be included in a determination of the patentability of a program, since proper disclosure in a claim provides a basis for making this determination, provided, however, that these analyses are clearly delineated. Adequate consideration of the question of patentability should require an analysis of both the process and the claim.⁹⁶ It is therefore suggested that if the Court intended to discuss the breadth of the disputed claims, it could have clarified its treatment of this issue by relating these considerations to section 112, since a claim of proper breadth merely serves as a framework in which to consider the patentability and does not automatically render the disclosed process patentable.

Following its discussion of the scope of the disputed claim, the Court reviewed a series of prior Supreme Court decisions which "argued that a process patent must either be tied to a particular machine or apparatus or must operate to change articles or materials to a 'different

⁹¹ 126 U.S. 1 (1887).

⁹² *Id.* at 534.

⁹³ *Id.* at 533.

⁹⁴ *Id.* at 538. Compare this with the language of section 112, which is set out in note 17 *supra*.

⁹⁵ 93 S. Ct. at 256.

⁹⁶ In considering the patentability of the process in *Morse*, the Court expressly considered both elements of statutory patentability:

Whoever discovers that a certain useful result will be produced, in any art, machine, manufacture, or composition of matter, by the use of certain means, is entitled to a patent for it; provided he specifies the means he uses in a manner so full and exact, that any one skilled in the science to which it appertains, can, by using the means he specifies . . . produce precisely the result he describes.

56 U.S. at 126, 15 How. at 119.

state or thing.'"⁹⁷ However, by failing to state whether it regarded these cases as espousing sound rules for defining the patentability of a process, or whether the cases presented distinguishable proposals, the Court was unclear as to how much weight it wished to give these cases in formulating its holding. One case so cited was *Corning v. Burden*,⁹⁸ which modified the view that only a new and useful device based on a process—not the process itself—was patentable by holding that a process itself is patentable where the result is produced by chemical action or by the operation of some power of nature or some substance upon another object.⁹⁹ Moreover, the Court in *Corning* reiterated the "means-result" doctrine, by which a patentable process was required to represent a practical means of producing a beneficial result and not merely the result itself.¹⁰⁰ By thus distinguishing between a process as a method of actively operating upon an object and a process as describing the effect of the operation as it is passively received by the object, the Court in *Corning* acknowledged the "function of the apparatus" rule which provides that the "function of a machine, or the effect produced by it on the material subjected to the action of the machine"¹⁰¹ is unpatentable.¹⁰²

To provide further examples of the argument that a patentable process need not be tied to a particular device as long as it changes the state of an object, the Court in *Gottschalk* cited *Waxham v. Smith*.¹⁰³ *Waxham* held a process for improved incubation of eggs to be patentable, regardless of the particular form of mechanism used to put the process into operation.¹⁰⁴ As in *Corning*, the Court in *Waxham* treated the issue of patentability in terms of the "function of the apparatus" doctrine, distinguishing between the unpatentable function which a machine performs and the patentable means by which the performance is secured.¹⁰⁵ Thus, assuming that the "function of the apparatus" doctrine may correctly be applied to a process and used to prohibit the patenting of the result of a process, it is submitted that *Corning* and *Waxham* further defined the boundaries of a process so as to exclude the results of a process from patentability.

To further elucidate its treatment of *Corning* and *Waxham*, the

⁹⁷ 93 S. Ct. at 257 (emphasis added).

⁹⁸ 56 U.S. 267, 15 How. 252 (1853).

⁹⁹ *Id.* at 283, 15 How. at 267.

¹⁰⁰ *Id.* at 284, 15 How. at 268. For a further discussion of this principle, see text at notes 79-80 *supra*.

¹⁰¹ *Id.* This "function of the apparatus" rule was abandoned by the CCPA as a heretical offshoot of the "means-result" rule in *Application of Tarczy-Hornoch*, 397 F.2d 856, 864 (C.C.P.A. 1968).

¹⁰² 56 U.S. at 284, 15 How. at 268.

¹⁰³ 294 U.S. 20 (1935).

¹⁰⁴ *Id.* at 22.

¹⁰⁵ *Id.* The Court also cited *Smith v. Snow*, 294 U.S. 1 (1935), which does not appear to be in point. *Smith* was concerned primarily with the scope of the claim, not the patentability of the process which is either tied to a particular machine or changes an object from one form to another. *Id.* at 11.

Gottschalk Court cited *Cochrane v. Deener*, which held that a process for increasing the quality of flour was patentable regardless of the particular instrumentality used to implement it.¹⁰⁶ Of course, even though the tools used to perform the process were of secondary importance, the Court still required for a finding of patentability, that certain things should be done to the flour in a certain order.¹⁰⁷ At this point it should be recalled that the CCPA position on *Cochrane* differs from that of the *Gottschalk* Court. The CCPA has criticized the *Cochrane* "rule"—that a patentable process must operate physically upon substances—as mere dictum from a decision which was originally intended not to restrict the patentability of a process but to remove any limitations that would tie a process to the means used in performing it.¹⁰⁸ Of course, instead of criticizing the weight afforded to this dictum, the CCPA could have dismissed *Cochrane* entirely as a pre-computer case capable of discussing a process only in concrete terms pertaining to doing certain *things* to certain *substances*. However, even if the *Cochrane* limitation were dictum, the Supreme Court had stressed similar restrictions in other cases, for example, in *O'Reilly v. Morse*, where the Court defined a patentable process in concrete terms as being confined to the apparatus specified by the applicant.¹⁰⁹ In any case, the Court in *Gottschalk* did not appear to give much weight to *Cochrane*. It is suggested, then, that the Court utilized this restriction on the patentability of a process as an argument and not as the basis of its holding.¹¹⁰

Thus, the Court in *Gottschalk* embellished its earlier discussion of the unpatentability of both the idea giving rise to a process and of the result of a process by arguing that a patentable process must either be tied to a machine or transform an object from one state to another. Assuming that the Court did not cite *Cochrane* in support of its holding, it matters little that the *Cochrane* "rule" has undergone recent relating to the patentability of a process that the Court in *Gottschalk* deal with the "function of the apparatus" doctrine, which has met with similar rebuke. This section of the opinion might therefore be best described as an historical survey of prior attempts by the Court to delimit the scope of a patentable process.

It was after this examination of prior Supreme Court decisions relating to the patentability of a process that the Court in *Gottschalk* submitted its holding. The Court returned to its original premise that

¹⁰⁶ 94 U.S. (IV Otto) 780, 787 (1876).

¹⁰⁷ *Id.* at 788.

¹⁰⁸ Application of Prater, 415 F.2d 1393, 1403 (C.C.P.A. 1969).

¹⁰⁹ 56 U.S. at 120, 15 How. at 113. Similarly in *Tilghman v. Proctor*, 102 U.S. (XII Otto) 707 (1880), where the Court issued a patent for a process of separating fat acids and glycerine from fatty bodies and where there was no disclosure of a mechanical means of implementation, a clue to the patentability was the reduction of an article to a different state or thing. *Id.* at 721-22. See also *Expanded Metal Co. v. Bradford*, 214 U.S. 366, 385-86 (1909), where the Court sustained a patent on a process involving mechanical operations and producing a new and useful result.

¹¹⁰ 93 S. Ct. at 257. See text at note 97 *supra*.

an idea is not patentable,¹¹¹ incorporating within the meaning of "idea" the algorithm in the Benson claim used to convert BCD into pure binary numerals.¹¹² The Court reasoned:

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.¹¹³

At first glance, the Court's observation that the algorithm's only practical use is in a digital computer does not appear to support its holding. The Court had previously presented the argument that a patentable process had to be tied to a machine.¹¹⁴ By employing the same argument as a ground for concluding that the computer process is unpatentable, the Court generated confusion. Moreover, the Court's observation that the process had only one practical use in a single type of machine seems to conflict with the Court's earlier criticism of the broad scope of the disputed claims.¹¹⁵ A good deal of this confusion may be eliminated by assuming—as this paper does—that these arguments were not in support of the Court's holding and by reconsidering *O'Reilly v. Morse*, not in the framework of the Court's concern over the *claim*, but in light of the Court's refusal to issue a patent on electro-magnetism as an *idea*.¹¹⁶ If Morse had been able to patent an idea, even though he had merely discovered how to use the idea in a single method, he would have received protection against infringement both of his own method and of any past or future methods of applying the same idea. This would have preempted the use of the idea by everyone except Morse. Similarly, assuming that the algorithm in the present case is an idea, it is also unpatentable. Although Benson seeks only a single use of this idea in a conversion process within a general purpose digital computer, the idea has only a single practical use. As a result, he would in effect be receiving protection against any other actual use of this same idea. Thus, issuance of a patent for use of the idea in a single process would have the same preemptive effect as issuance of the patent on the idea itself would have had in *Morse*, since a patent of the only use of an idea is no different from a patent on the idea itself.

To reiterate, by this failure to distinguish clearly the prior Supreme Court decisions which were the basis of its holding from those earlier decisions which represented prior attempts by the Court to define a patentable process, the Court in *Gottschalk* generated unnecessary confusion over the issue of what constitutes a patentable process. As considered above, the holding of the CCPA in *Benson* also contained

¹¹¹ For a case in support of this principle, see text at notes 77-78 *supra*.

¹¹² 93 S. Ct. at 257.

¹¹³ *Id.*

¹¹⁴ For a discussion of this principle, see text at note 97 *supra*.

¹¹⁵ For elucidation of this earlier criticism, see text at notes 86-93 *supra*.

¹¹⁶ 56 U.S. at 65, 15 How. at 62.

elements of uncertainty. The court there upheld the claims as containing disclosures reasonable under section 112, and then found the process to be patentable under section 101, even though there was a lack of disclosure of any particular apparatus for implementing the process.¹¹⁷ Assuming, of course, that the Supreme Court in *Gottschalk* was correct in its initial premise that an idea is unpatentable, its holding would appear to rest on firmer footing than the CCPA decision in *Benson*, notwithstanding the uncertainty of the scope of a patentable process as proposed by the Court.

Policy Considerations

In reaching its decision, the Court in *Gottschalk* adopted the earlier Supreme Court rules as to the patentability of mechanical or chemical processes and applied them to the patentability of a computer program. The reluctance of the Court to formulate any new rules could be explained by the intricacy of the policy considerations which confronted the Court. The Report of the President's Commission on the Patent System had advised that a computer program should be unpatentable, "regardless of whether the program is claimed as: (a) an article, (b) a process described in terms of the operations performed by a machine pursuant to a program, or (c) one or more machine configurations established by a program."¹¹⁸ In reaching this conclusion, the Report considered various policies which had a bearing on its decision.

One reason for refusing to patent computer programs is the inability of the Patent Office to examine these applications. The Report noted that at present the Patent Office lacks a technique for the classification of the various program applications, as well as the search files needed to determine whether the program is preceded by prior art.¹¹⁹ However, this need not be a permanent concern; it could eventually be eliminated if the Patent Office began now to formulate the necessary classification techniques and to compile adequate search files.¹²⁰ However, the Report also feared that the Patent Office would be incapable of performing reliable searches due to the tremendous volume of prior art being generated, and that these inadequate searches would seriously weaken the presumption of validity¹²¹ which accompanies a patent.¹²² But the weight to be

¹¹⁷ For an analysis of the CCPA opinion in *Benson*, see text at notes 54-73 *supra*.

¹¹⁸ "To Promote the Progress of . . . Useful Arts" In an Age of Exploding Technology, Report of the President's Commission on the Patent System 12 (1966) [hereinafter cited as Report].

¹¹⁹ *Id.* at 13. The statutory requirements for patentability are that the invention be new and useful, novel, and non-obvious. 35 U.S.C. §§ 101-03 (1970).

¹²⁰ For an argument along these lines, see Bender, Computer Programs: Should They Be Patentable?, 68 Colum. L. Rev. 241, 250-51 (1968).

¹²¹ 35 U.S.C. § 282 (1970).

¹²² Report, *supra* note 118, at 13.

afforded the statutory presumption of validity has been lessened.¹²³ Moreover, the statutory prerequisites for patentability normally weed out a vast number of specious applications before having to resort to any lengthy search of prior art.¹²⁴ And if a computer could be programmed to search the growing files, the Patent Office would have little difficulty in processing these program applications.¹²⁵

The Report was not concerned with the possibility of any detrimental effect which the denial of patentability might have on the computer industry, observing "that the creation of programs has undergone substantial and satisfactory growth in the absence of patent protection . . ."¹²⁶ Of course, this rapid development of computer programs could have occurred in the first place as the result of scientific researchers striving to advance the computer sciences.¹²⁷ It is fair to argue that when industry became aware of the value of computer programs, a profit motive replaced this scientific thirst for knowledge as a prime motivating force behind further development of computer programs. Industry thus favored patent protection—accompanied by the promise of royalties—for its programs, so as to make its investments in the development of new programs worthwhile. Accordingly, there are those who fear that without patent protection advancement in the computer industry will be retarded and that newly-discovered programs will be hoarded by the developer.¹²⁸

However, a patent is not the sole means of protecting a computer program. Copyright protection is currently available.¹²⁹ Because this protection is limited only to the copying of details, which can assume many forms, and would not cover concepts or techniques used in the program, copyright protection may be inadequate.¹³⁰ Thus another programmer would be free to use any uncopyrighted version of the program. However, the practical effect of this protection may be broadened by submitting to the Copyright Office a package containing all conceivable versions of the program.¹³¹ Moreover, there is more similarity between patent and copyright protection than might first appear, since the user of a pirated program cannot avoid copying the program, even if his copying is limited to transferring the program

¹²³ For example, see *Lemelson v. Topper Corp.*, 450 F.2d 845, 849 (2d Cir. 1971).

¹²⁴ *Bender*, supra note 120, at 252.

¹²⁵ *Sheers & Encke, Copyrights of Patents for Computer Programs?*, 49 J. Pat. Off. Soc'y 323, 327 (1967).

¹²⁶ Report, supra note 118, at 13.

¹²⁷ *Bender*, supra note 120, at 246.

¹²⁸ *Id.*

¹²⁹ Report, supra note 118, at 13. Indeed, under certain conditions, the Copyright Office will register a computer program in the same class as a book. 17 U.S.C. § 5(a) (1970); 37 C.F.R. §§ 202.3(c), 202.4 (1972). Katona, *Legal Protection of Computer Programs*, 47 J. Pat. Off. Soc'y 955, 958 (1965).

¹³⁰ *Jacobs, Patent Protection of Computer Programs*, 47 J. Pat. Off. Soc'y 6, 7 (1965).

¹³¹ Katona, supra note 129, at 969.

into the storage center of his own computer.¹³² Nevertheless, since a copyright protects against only the copying of a program, the inventor would still have no protection against a programmer who developed the identical program independently of any knowledge of the inventor's efforts.

A further obstacle to adequate protection under a copyright is the fair use doctrine, which is a privilege in others than the owner of a copyright to use the copyrighted material in a reasonable manner without the owner's consent; although technically an infringement, such use is nevertheless allowed, provided that the public will benefit from this appropriation and that it will not seriously impair the incentive to create.¹³³ However, when "fair use" is claimed as a defense in an infringement suit, the weight of this doctrine may be offset by the doctrine of substantial similarity, by which the courts may find infringement of a copyright even though the protected article has not literally been copied. The latter doctrine is used on a case-by-case basis to determine whether an ordinary observer would be led to spontaneously believe that an article has been copied.¹³⁴

Moreover, assuming that neither patent nor copyright protection is available to the developer of a computer program, he could still protect the program under a trade secret agreement.¹³⁵ Under the protective cloak of a trade secret agreement, the developer could disclose his program to another party in return for the pledge of secrecy and the payment of royalties. Of course, this agreement would bind only the other party, and the developer would have no remedy against a nonparty who had independently discovered and exploited the same program.¹³⁶ It is therefore conceded that a trade secret agreement does not provide the same degree of protection as does a patent.¹³⁷ However, as long as a developer enters into the agreement with a reliable party, he will derive more benefit from doing so than

¹³² *Id.* at 974.

¹³³ Comment, Software Protection: Patents, Copyrights, and Trade Secrets, 35 Albany L. Rev. 695, 709 (1971).

¹³⁴ Katona, *supra* note 129, at 970-71.

¹³⁵ Trade secret status exists when the subject matter is used continuously in one's business, is not generally known or readily ascertainable by others and is treated with due regard for protecting secrecy. Restatement of Torts § 757, comment *b* at 5-6 (1939); 12 R. Milgrim, Business Organizations: Trade Secrets §§ 2.01-2.09 (1973); Marmorek, The Inventor's Common-Law Rights Today, 50 J. Pat. Off. Soc'y 369, 375-81 (1968). The courts generally view trade secrets as property. *New Method Laundry Co. v. MacCann*, 174 Cal. 26, 31, 161 P. 990, 991 (1916). The value of the trade secret depends substantially upon the secrecy with which it is maintained. *E.I. du Pont de Nemours & Co. v. United States*, 288 F.2d 904, 911 (Ct. Cl. 1961). In the absence of secrecy, the individual's property right disappears. *Smith v. Dravo Corp.*, 203 F.2d 369, 373 (7th Cir. 1953). The major disadvantage to the owner of trade secret protection is that a competitor may gain possession of the trade secret through independent analysis of the components of the product. *Id.* at 375.

¹³⁶ Restatement of Torts § 757, at 13-14 (1939).

¹³⁷ Sheers & Encke, Copyrights of Patents for Computer Programs?, 49 J. Pat. Off. Soc'y 323, 326-27, (1967).

he would acquire from merely hoarding the program. Moreover, if the program were capable of being independently discovered with little difficulty, it is questionable whether such a program would be patentable under the statutory prerequisite of nonobviousness.

Clearly, these various policy considerations are of major concern in determining the patentability of a computer program. These considerations represent the views of various interest groups, and, although the Court was fortunate in receiving sixteen amicus curiae briefs from such groups,¹³⁸ the judicial process nevertheless lacks the broad investigative powers of the legislature. Thus, in view of the apparent complexity of the above considerations and the confusion which arose from the CCPA's attempt to define a patentable process under the existing statutes, the Court appears justified in deferring to Congress for final determination of the patentability of a computer program.

In light of the Court's decision to defer to legislative action for a final answer, it is necessary to consider the weight and scope of the Court's holding. The Court expressly limited its holding to refer solely to a program similar to Benson's algorithm which had a practical use only in a digital computer.¹³⁹ Accordingly, a process used in another apparatus, for example an analog computer, may be patentable if it conforms to the requirements of the Supreme Court precedents utilized in *Gottschalk*. Until congressional action on the problem is taken, then, it would appear that a claim which discloses only an idea giving rise to a method, or the result of a method, will not be found to set out a patentable process. Whether the *Gottschalk* Court also suggested that a process, to be patentable, must be tied to a machine or must operate to change an article to a different state or thing is questionable, since the Court merely observed that prior cases had "argued" these points. However, even assuming that these passages in the Court's rationale could not be used to show the unpatentability of any of the processes recently treated by the CCPA, it is probable that the same conclusion—that those processes are unpatentable—would be reached on the basis of the *Gottschalk* holding alone. The Court's reversal of *Benson*, which was merely an extension of the earlier CCPA decisions, renders that whole line of cases immediately suspect.¹⁴⁰ This suspicion is substantiated by the Court's total disregard

¹³⁸ 93 S. Ct. at 258 n.7.

¹³⁹ Id. at 257.

¹⁴⁰ The CCPA was able to distinguish *Benson*, which involved solely the art of data-processing, from most of its prior cases, which involved some subsidiary or additional art. 441 F.2d at 686. The court noted, for example, that in *Prater* the process was related to the spectrographic analysis of gases, while in *Musgrave* computers were used to process seismograms. In *Bernhart*, the process was related to an apparatus for depicting three-dimensional objects as two-dimensional drawings. None of these claims sought a patent solely on a mathematical formula, as did *Benson*. Id. However, since there was no device based on the use of scientific principles in these cases, this alone should be sufficient to bar the issuance of a patent under the Supreme Court precedents.

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of the CCPA's reasonableness standard and "technical arts" rule, as well as the Court's reliance on its own pre-computer decisions. Until Congress acts on the matter, the Court is apparently reluctant to make it any easier to patent a computer program, preferring instead to maintain the status quo by reaffirming the more stringent prerequisites of its precedents, which do not permit an extension of the scope of a statutory process so as to include a computer program.

Conclusion

Prior to the Supreme Court decision in *Gottschalk* the CCPA had decided a series of cases which had gradually abandoned the mental steps doctrine in favor of new guidelines which would permit the patenting of mental processes under section 101 and section 112. In establishing these guidelines, the CCPA failed to delineate clearly the scope and purpose of the separate norms of the two provisions, thereby weakening the fiber of its opinions. In contrast, the Supreme Court relied on its earlier pre-computer decisions, and made no mention of the CCPA guidelines in determining that the Benson computer program did not constitute a patentable process under section 101. However, the Supreme Court made the same mistakes as the CCPA when it discussed the statutory nature of the disputed claims without clearly framing this discussion within the context of section 112. Moreover, while apparently engaging in an historical survey of its earlier decisions defining the boundaries of a patentable process, the Court left the scope of its own guidelines for the patentability of computer programs in doubt by failing to specify whether these cases were cited in support of its holding. Although the Court limited both the weight of its holding by deferring to Congress and the scope of its holding by restricting its application to similar algorithms servicing similar computers, the practical effect of its holding appears to have a greater weight and broader scope than that claimed by the Court.

HOWARD B. BARNABY, JR.

Federal Courts—Admiralty Jurisdiction—"Maritime Locality Plus Maritime Nexus" Required to Establish Admiralty Jurisdiction in Aviation Negligence Cases—*Executive Jet Aviation, Inc. v. City of Cleveland*.¹—Petitioners' jet aircraft was departing from Cleveland's Burke Lakefront Airport, adjacent to Lake Erie. The plane was bound for Portland, Maine, to pick up charter flight passengers and then continue to White Plains, New York. After being cleared for takeoff by the federal air traffic controller, the plane struck a flock of seagulls on the runway as it began its ascent. The birds were ingested into the aircraft's jet engines, causing a rapid loss of power. The plane fell, struck an air-

¹ 409 U.S. 249 (1972).