The Current Law of Patents For Computer Software: Or Benson Revisited, 1 Computer L.J. 85 (1978)

John T. Roberts

Recommended Citation

THE CURRENT LAW OF PATENTS
FOR COMPUTER SOFTWARE:
OR *BENSON* REVISITED

by John T. Roberts*

INTRODUCTION

Have judicial decisions in recent years helped answer whether new methods of operating a computing machine should receive different patent protection than new methods of operating any other machine?[1] Have those who, since the early 1960's, openly opposed the patenting of computer software made any progress? Have those who urge its acceptance made any progress? Have those who seek only clarification of the law made any progress? In mid-1978, the answer to each of these questions must be largely in the negative.

One court, the Court of Customs and Patent Appeals,[2] has struggled repeatedly with the question of program patentability. It has, since *In re Benson*,[3] found statutory and patentable the software[4] inventions of Johnston,[5] Noll,[6] Chatfield,[7] Deutsch[8] and Flook.[9] It has found unpat-

---

* B.S. 1957, Massachusetts Institute of Technology; L.L.B. 1961, University of Virginia. Mr. Roberts is a member of the bars of the District of Columbia and the Commonwealth of Virginia, registered before the Patent and Trademark Office, and a member of the law firm of Irons and Sears, P.C., Washington, D.C.

1. This issue was addressed by the majority in *In re* Chatfield, 545 F.2d 152, 157, 191 U.S.P.Q. 730, 734, 6 CLSR 52, 59 (C.C.P.A. 1976), *cert. denied,* — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 466 (1977) [hereinafter cited as *Chatfield*].

2. The Court of Customs and Patent Appeals will hereinafter be cited as "C.C.P.A."

3. *In re* Benson, 441 F.2d 682, 169 U.S.P.Q. 548, 2 CLSR 1030 (C.C.P.A. 1971), *rev'd sub nom.* Gottschalk v. Benson, 409 U.S. 63, 175 U.S.P.Q. 673, 3 CLSR 256 (1972). The Supreme Court decision in this case will hereinafter sometimes be cited as *Benson*.

4. The first appearance of this word demands an acknowledgment of definitional problems. The largest problem is that there are more concepts than words and few agreed-upon definitions. Lawyers ought to feel quite comfortable with this situation.

5. *In re* Johnston, 502 F.2d 765, 183 U.S.P.Q. 172, 4 CLSR 1491 (C.C.P.A. 1974), *rev'd sub nom.* Dann v. Johnston, 425 U.S. 219, 189 U.S.P.Q. 257, 5 CLSR 1133 (1976).

6. *In re* Noll, 545 F.2d 141, 191 U.S.P.Q. 721, 6 CLSR 69 (C.C.P.A. 1976), *cert. denied,* — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 465 (1977) [hereinafter cited as *Noll*].

entable the inventions of Christensen,[10] Waldbaum,[11] Richman[12] and de Castelet.[13] This article will undertake the hazardous task of rationalizing these decisions.

During this period the Patent and Trademark Office has rejected software patents on the broad grounds that "the law . . . where the invention resides in a program servicing a computer is clearly settled by . . . *Benson*"[14] and "the thrust [of *Benson* is] that computer programs . . . are not patentable."[15] Yet, the Patent Office has issued, in its new software class,[16] about two hundred patents.[17] A review of these patents suggests that the above-stated "settled law" has not been uniformly applied. The Patent Office has also strongly defended disclosure rejections in such cases as *In re Knowlton*,[18] *In re Comstock*,[19] *In re Brandstadter*,[20] and *In re Doyle*,[21] where one or more subject matter rejections would have seemed appropriate.

Since late 1976, the Patent Office has suspended the prosecution of software patent applications while awaiting clarification of the law by the United States Supreme Court.[22] As this is being written, there are

---

On July 5, 1977, the assignee, Bell Laboratories, Inc. had formally abandoned the application, and filed a suggestion of mootness. Justice Blackmun indicated that he would grant review, vacate and remand the case for dismissal on grounds of mootness. 348 PAT., T.M. & COPYRIGHT J. (BNA), at A-1 (Oct. 6, 1977).

7. 545 F.2d 152, 191 U.S.P.Q. 730, 6 CLSR 52 (C.C.P.A. 1976), *cert. denied*, — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 466 (1977) (untimely filed).

The jurisdictional statute requires the filing of an application for writ of certiorari within ninety days after the "judgment or decree." 28 U.S.C. § 2101(c) (1970). Alone among the federal appellate courts, the C.C.P.A. has neither formality. The petition was filed timely from the date of the mandate, but untimely from the date of the opinion.

8. *In re* Deutsch, 553 F.2d 689, 193 U.S.P.Q. 645, 6 CLSR 408 (C.C.P.A. 1977).

9. *In re* Flook, 559 F.2d 21, 195 U.S.P.Q. 9, 6 CLSR 426 (C.C.P.A. 1977), *rev'd*, Parker v. Flook, — U.S. —, No. 77-642 (June 22, 1978).

10. *In re* Christensen, 478 F.2d 1392, 178 U.S.P.Q. 35, 4 CLSR 66 (C.C.P.A. 1973).

11. *In re* Waldbaum, 559 F.2d 611, 194 U.S.P.Q. 465, 6 CLSR 415 (C.C.P.A. 1977).

12. *In re* Richman, 563 F.2d 1026, 195 U.S.P.Q. 340 (C.C.P.A. 1977).

13. *In re* de Castelet, 562 F.2d 1236, 195 U.S.P.Q. 439 (C.C.P.A. 1977).

14. *Quoting from* an examiner's answer known to the author.

15. *Quoting from* the Board's opinion in *Chatfield*.

16. Originally Class 444, now Class 364, subclass 300.

17. As of April 1978, there were 493 references in this subclass; one hundred and four patents and seventy-six defensive publications have issued in this class, and the remainder have been cross-referenced.

18. 481 F.2d 1357, 1362-63, 178 U.S.P.Q. 486, 489-90, 4 CLSR 799, 806-08 (C.C.P.A. 1973).

19. 481 F.2d 905, 908-09, 178 U.S.P.Q. 616, 618-20, 4 CLSR 818, 821-23 (C.C.P.A. 1973).

20. 484 F.2d 1395, 1400-05, 179 U.S.P.Q. 286, 289-93, 4 CLSR 976, 982-91 (C.C.P.A. 1973).

21. 482 F.2d 1385, 1389, 179 U.S.P.Q. 227, 230, 4 CLSR 933, 939-40 (C.C.P.A. 1973).

22. The Patent Office originally ignored the holdings of *Noll* and *Chatfield* on

between 600 and 900 software applications currently pending before the examiners and Patent Office Board of Appeals, with 450 being filed yearly.[23] There are also several cases pending before the C.C.P.A., including *In re Toma*[24] and *In re Johnson*.[25]

From this state of affairs, two consequences are clear. First, that any software patent issuing in the next several years is likely to be for an invention conceived over a decade ago, thereby extending the duration of coverage of the patent and making potentially far more valuable the patent grant.[26] Second, that the validity of any of these patents will be uncertain for years to come.

Since 1972, applicants, attorneys, examiners and judges have struggled with the equally cryptic discovery of one Gary Benson[27] and writings of one William Douglas.[28] What exactly was the invention or contribution of Benson? What was the exclusive right requested? Why was it denied? Despite explicit judicial requests for reconsideration of its holding in *Gottschalk v. Benson*,[29] the Supreme Court, for six years,

the ground the decisions were not final. Since October 3, 1977, the Patent Office has taken the unique position that the disposition of *Noll* was equivalent to a reversal and that *Chatfield* may likewise be ignored since the reasons given for denial of the petition indicated that it would have been accepted and the holding below reversed if the Court, jurisdictionally, could have done so. However, the opposite conclusion appears equally tenable.

23. This was the Patent Office's own estimate, *reported in* Petition of the Solicitor General, Parker v. Flook, No. 77-642, filed November 2, 1977, *reprinted in* 354 PAT., T.M. & COPYRIGHT J. (BNA), at D-1, D-3 n.12 (Nov. 17, 1977). *See also,* Bigelow, *Patents: U. S. Supreme Court to Review Flook,* 4 COMPUTER L. & TAX. REP., Feb. 1978, at 2. A further indication of this backlog is the fact that the recently decided *Noll* case (545 F.2d 141, 191 U.S.P.Q. 721, 6 CLSR 69 (C.C.P.A. 1976), *cert. denied,* — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 465 (1977)), was fully briefed before the Patent Office Board of Appeal prior to November, 1972.

24. *In re* Toma, 77-554, a method for translating from Russian to English, argued before the C.C.P.A. in October, 1977.[*Ed. Note:* On May 18, 1978, the C.C.P.A. held the method in *Toma* to be patentable subject matter. *See, Method of Operating Computer to Translate Between Natural Languages Held Patentable Subject Matter,* 380 PAT., T.M. & COPYRIGHT J. (BNA), at A-16 (May 25, 1978).]

25. *In re* Johnson, 76-717, 76-718, 76-719, involving the analysis of seismic data, argued in January, 1978.

26. A similar situation arose with radar patents, first delayed by World War II, and later held up by endless interferences caused, in large part, by the initial delay. Many patents on pre-war radar inventions are only now expiring.

27. As described in *In re* Benson, 441 F.2d 682, 682-84, 169 U.S.P.Q. 548, 548-49, 2 CLSR 1030, 1031-33 (C.C.P.A. 1971), *rev'd sub nom.* Gottschalk v. Benson, 409 U.S. 63, 175 U.S.P.Q. 673, 3 CLSR 256 (1972).

28. Gottschalk v. Benson, 409 U.S. 63, 175 U.S.P.Q. 673, 3 CLSR 256 (1972).

29. *See, e.g., In re* Chatfield, 545 F.2d 152, 161-62, 191 U.S.P.Q. 730, 738, 6 CLSR 52, 67-68 (C.C.P.A. 1976) (Rich & Lane, J.J., dissenting); *In re* Johnston, 502 F.2d 765, 774, 183 U.S.P.Q. 172, 179, 4 CLSR 1491, 1508 (C.C.P.A. 1974) (Rich, J., dissenting), *rev'd sub nom.* Dann v. Johnston, 425 U.S. 219, 189 U.S.P.Q. 257, 5 CLSR 1133 (1976).

declined to do so.[30] Finally, on January 16, 1978, the Court accepted the petition of the Solicitor General in *Parker v. Flook*, and issued its decision reversing the C.C.P.A., on June 22, 1978.[31]

I. THE UNSTATED ISSUES

Three issues are subliminally present in every patent case, particularly a software patent case: (1) the economic philosophy of the patent system, (2) retrospective limitations on the patent grant, and (3) prospective limitations on the patent grant. They each deserve identification and discussion since each is of constitutional dimension and clearly affects every decision.

A. *The Economic Philosophy of the Patent System*

Do patents for inventions advance or impede the progress of the useful arts? Thomas Jefferson himself first opposed, then supported the patent system.[32] The Supreme Court in *Mazer v. Stein*[33] stated: "The

---

30. In Dann v. Johnston, *supra* the Supreme Court reversed on the sole ground of obviousness, while observing that its *Benson* opinion was "limited." 425 U.S. at 224, 189 U.S.P.Q. at 259, 5 CLSR at 1137. In *Chatfield* (as well as *Noll*), the Court denied the petitions of the Government on grounds other than the merits. *See* notes 6 & 7 *supra*.

31. — U.S. —, No. 77-642 (June 22, 1978). [*Ed. Note: See* Postscript *infra*, at page 104.]

32. As stated by Justice Clark in Graham v. John Deere Co., 383 U.S. 1, 7-8, 148 U.S.P.Q. 459, 463 (1966):

> Jefferson, like other Americans, had an instinctive aversion to monopolies. It was a monopoly on tea that sparked the Revolution and Jefferson certainly did not favor an equivalent form of monopoly under the new government. His abhorrence of monopoly extended initially to patents as well. From France, he wrote to Madison (July 1788) urging a Bill of Rights provision restricting monopoly, and as against the argument that limited monopoly might serve to incite "ingenuity," he argued forcefully that "the benefit even of limited monopolies is too doubtful to be opposed to that of their general suppression," V Writings of Thomas Jefferson, at 47 (Ford ed., 1895).
>
> His views ripened, however, and in another letter to Madison (Aug. 1789) after the drafting of the Bill of Rights, Jefferson stated that he would have been pleased by an express provision in this form:
>
> > "Art. 9. Monopolies may be allowed to persons for their own productions in literature & their own inventions in the arts, for a term not exceeding—years but for no longer term & no other purpose." *Id.* at 113.
>
> And he later wrote:
>
> > "Certainly an inventor ought to be allowed a right to the benefit of his invention for some certain time. . . . Nobody wishes more than I do that ingenuity should receive a liberal encouragement." Letter to Oliver Evans (May 1807), V Writings of Thomas Jefferson, at 75-76 (Washington ed.).
>
> As if anticipating a still current semantic debate, Jefferson initially opposed patents as monopolies, and then approved them as encouragement for ingenuity.

33. 347 U.S. 201, 100 U.S.P.Q. 325 (1954).

economic philosophy behind the [constitutional clause] . . . is the con-
viction that encouragement of individual effort by personal gain is the
best way to advance public welfare through the talents of authors and
inventors in 'Science and useful Arts.' "[34] Just two years ago a Justice
Department spokesman opined that virtually everyone supports the
principle of patents for inventions.[35]

Expressing the contrary position, however, a presidential commis-
sion studying the patent system recommended in 1966 that software not
be patentable. This result was reached, in part, because the commission
concluded that "the creation of programs has undergone substantial
and satisfactory growth" without patent protection.[36] The government,
in its *Flook* petition, echoed this conclusion by stating that the pat-
enting of software would have a "debilitating effect on development of
the computer industry."[37] The evidence cited to support this statement
was a fifteen to twenty percent annual growth rate and a current $1.5
billion volume in the software industry.[38] Yet, it is a fallacy to equate
effort with progress. Indeed, one could equally argue that these statis-
tics show that software development is both inefficient and repetitive.

It is also a nonsequitur to urge that a substantial growth rate in an
industry without patent protection demonstrates that patent protection
is unnecessary or undesirable. For example, the petroleum industry has
recently enjoyed an even greater growth in dollar volume than the
software industry, but that does not imply that an economical method
of extracting oil from shale will be discovered sooner if the Patent
Office denies coverage to that class of inventions.

When a person cites these reasons to justify denial of protection to a
particular class of inventions, it is as likely that he doubts the value of
patents generally as that he believes this restricted class of inventions
ought not to enjoy patent protection.

B. Retrospective Limitations on the Patent Grant

The second constitutional issue, retrospective limitations on the
patent grant, was addressed by the United States Supreme Court in
Graham v. Deere.[39] In *Graham*, the Court found a limitation on the
power granted Congress under Article I, § 8 of the United States
Constitution,[40] holding that Congress could not grant patents "whose

34. *Id.* at 219, 100 U.S.P.Q. at 333.
35. Almost no one questions that a completely free market for innovations
  would result in a less than optimum level of innovative activity . . . .
Speech by Donald A. Farmer, Special Assistant to the Assistant Attorney General,
Antitrust Division, Feb. 20, 1976.
36. REPORT OF THE PRESIDENT'S COMMISSION ON THE PATENT SYSTEM 13 (1966).
37. Petition of the Solicitor General, *supra* note 23, at D-3.
38. *Id.* at D-3 n.13.
39. 383 U.S. 1, 148 U.S.P.Q. 459 (1966).
40. U. S. CONST. art. I, § 8, cl. 8:

effects are to remove existent knowledge from the public domain
. . . ."[41]

This issue, reflected in the novelty and nonobviousness require-
ments of patent law,[42] is usually not addressed explicitly in software
cases. However, it always seems to be present. As the C.C.P.A. noted
recently in *In re Warmus*,[43] the Patent Office Board of Appeals in that
case had found subject matter deficiencies relevant in its discussion of
obviousness. Yet, this mistake is not limited to the Board. In *Flook*
there was no rejection on novelty grounds—the Patent Office admitted
that the invention was novel and unobvious; yet, the government's brief
to the Supreme Court asserted that the application should be rejected
for lack of invention.[44]

In *Benson*, a similar attack was made. The applicant elected to take
the wholly accurate, but in the author's view quite inadvisable, position
that novelty and obviousness were not in issue.[45] It would appear safer
for an applicant to always assume that he has the burden of persuasion
on the question of whether he has made a worthwhile contribution to
the art, although this is quite difficult in an appeal to the C.C.P.A.[46]

C. Prospective Limitations on the Patent Grant

The third and most troublesome issue, as stated in *Henry J. Kaiser
Co. v. McLouth Steel Corp.*,[47] is that the Constitution does not permit
an inventor "a monopoly broader than his invention."[48] The question
then is what later inventions are properly covered by a patent? The
many Supreme Court decisions on this issue were summarized in *Ben-*

The Congress shall have Power . . . To Promote the Progress of Sci-
ence and useful Arts, by securing for limited Times to Authors and Inven-
tors the exclusive Right to their respective Writings and Discoveries; . . .

41. 383 U.S. at 6, 148 U.S.P.Q. at 462.

42. 35 U.S.C. §§ 102, 103 (1970 & Supp. V 1975), *reprinted in* the Appendix in this
issue.

43. 561 F.2d 816, 195 U.S.P.Q. 234, 6 CLSR 430 (C.C.P.A. 1977).

44. The Government's brief contends that the decision in Funk Bros. Seed Co.
v. Kalo Inoculant Co., 333 U.S. 127, 76 U.S.P.Q. 280 (1974), requires that the dis-
covery be treated as prior art and that the end use be an "inventive" application.
354 PAT., T.M. & COPYRIGHT J. (BNA), at D-1, D-5 & D-6 (Nov. 17, 1977).

45. *In re* Benson, 441 F.2d 682, 684, 169 U.S.P.Q. 548, 550, 2 CLSR 1030, 1033
(C.C.P.A. 1971), *rev'd sub nom.* Gottschalk v. Benson, 409 U.S. 63, 195 U.S.P.Q. 673,
3 CLSR 256 (1972).

46. The judicially-approved evidence of unobviousness (*see*, Graham v. John
Deere Co., 383 U.S. 1, 148 U.S.P.Q. 459 (1966)), *e.g.*, the level of skill in the art, is not
part of the application and is not persuasive if submitted in affidavit form. Fur-
thermore, if the subject matter rejection is withdrawn, it is not needed. At a later
stage, the record is frozen and the introduction of such evidence is not then per-
mitted.

47. 257 F. Supp. 372, 150 U.S.P.Q. 239 (E.D. Mich. 1966), *aff'd*, 400 F.2d 36, 158
U.S.P.Q. 565 (6th Cir. 1968).

48. *Id.* at 442, 150 U.S.P.Q. at 295.

son as holding that ideas, scientific truths, principles, phenomena of nature, and intellectual concepts are not patentable; only novel structures or useful applications of them are patentable.[49]

Two quite different, yet valid, propositions are involved in this holding. The first is that even the discoverer of a concept or property, such as the telegraph, telephone, directional antenna, or leakproof battery, may not obtain a monopoly on the concept or property itself; one can only patent the novel system which carries out the concept or displays the property.[50] The second proposition is that even if one is the first to harness a new force, *e.g.*, steam, solar power or atomic energy, he may not claim an exclusive right over every later system employing that force.[51]

A third, and related, though invalid proposition is that one cannot patent the useful applications of a discovery. As Justice Frankfurter observed in *Funk Bros. Seed Co. v. Kalo Inoculant Co.,*[52] ". . . any patentable composite exemplifies in its properties 'the laws of nature.' [Such arguments] could fairly be employed to challenge almost every patent."[53] Charles Goodyear discovered a law of nature when he heated raw rubber and sulfur to form vulcanized rubber. About the same time, John and Charles Hanson discovered that lead, when recently set, would reunite. This discovery allowed the production of cheaper and superior lead pipe. A century later another inventor discovered a new way of transforming one form of electrical signal to another. All three inventions involved discoveries of laws of nature. In the first, the patent was sustained for all uses for vulcanized rubber.[54] In the second, the copier of the process secured a free license by convincing the Court that the patent must be limited to the claimed machine.[55] In the third, the government itself convinced the Court to grant everyone a free license.[56] The stated ground in both of the latter cases was that the latecomers had an absolute right to use the laws of nature.[57]

---

49. 409 U.S. 63, 67-71, 175 U.S.P.Q. 673, 675-76, 3 CLSR 256, 259-62 (1972).

50. For instance, Morse did not invent the first telegraph. He did, however, invent the first long distance telegraph by inventing a relay or voltage amplifier. As such, his ambitious (and unnecessary) claim to "electromagnetism however developed for . . . printing . . . at any distance" was properly denied.

51. The inventor of the first steam engine, Newcomen, could not claim that Watt's improvement was an infringement. Newcomen achieved power from the condensation of steam, while Watt achieved power from the generation of steam.

52. 333 U.S. 127, 76 U.S.P.Q. 280 (1947).

53. *Id.* at 135, 76 U.S.P.Q. at 283.

54. Goodyear v. Day, 10 F. Cas. 678 (C.C.N.J. 1853) (No. 5,568).

55. LeRoy v. Tatham, 14 How. (55 U.S.) 156 (1852).

56. Gottschalk v. Benson, 409 U.S. 63, 175 U.S.P.Q. 673, 3 CLSR 256 (1972).

57. *Id.* at 72, 175 U.S.P.Q. at 676, 3 CLSR at 262; LeRoy v. Tatham, 14 How. (55 U.S.) 156 (1852).

II. THE DECISION IN *GOTTSCHALK V. BENSON*

Every decision since *Benson*,[58] and every brief and argument in this area, has sought to explain the holding,[59] rationale,[60] thrust,[61] or thinking[62] of *Benson*. Indeed, the Supreme Court itself has joined this chorus with the singularly ambiguous comment that its *Benson* holding was "limited."[63]

Every litigant who has attempted to invoke *Benson* either in support of or in opposition to patents on software has had to either acknowledge or ignore the contradictory positions taken by the Court within the opinion itself. Perhaps *Benson* can best be understood by focusing upon these anomalies.

It is unlikely that the original draft of the majority opinion concluded that: (a) processes outside those recognized in prior precedents might be patentable; (b) some computer programs might be patentable; and (c) the holding had nothing to do with analog computers. The opinion acknowledges that "[i]t is said . . ." that the decision negates each of these things.[64] Yet, who could have said such things about an unwritten opinion? It could certainly not have been the parties, the public or the Bar, since none of them had access to, or knowledge of, the internal memoranda and discussions of the Court. These issues, the author suggests, were probably raised by other Justices of the Court in criticism of or proposed dissents to the initial draft of the opinion, and the entire last half of the opinion was probably rewritten as a compromise to prevent a 4-2 or perhaps even 3-3 split.

It is unusual, in marshalling support for an argument, to state that something is both tall and short or wide and thin. However, stranger things are known to happen in order to get unanimity from a committee, a legislature, or even a court. Justice Douglas' position on monopolies is well-known.[65] Thus, it is quite in character for him to condemn with a rhetorical flourish claims "so abstract and sweeping as to cover

---

58. 409 U.S. 63, 175 U.S.P.Q. 673, 3 CLSR 256 (1972).

59. *In re* Flook, 559 F.2d 21, 23, 195 U.S.P.Q. 9, 11, 6 CLSR 426, 429-30 (C.C.P.A. 1977), *rev'd*, Parker v. Flook, — U.S. —, No. 77-642 (June 22, 1978).

60. *In re* Waldbaum, 559 F.2d 611, 617, 194 U.S.P.Q. 465, 469, 6 CLSR 415, 424 (C.C.P.A. 1977).

61. *In re* de Castelet, 562 F.2d 1236, 1240, 195 U.S.P.Q. 439, 443 (C.C.P.A. 1977); *In re* Johnston, 502 F.2d 765, 774, 183 U.S.P.Q. 172, 179, 4 CLSR 1491, 1507 (C.C.P.A. 1974) (Rich, J., dissenting).

62. *In re* Noll, 545 F.2d 141, 151, 191 U.S.P.Q. 721, 729, 6 CLSR 69, 86 (C.C.P.A. 1976) (Lane & Rich, JJ, dissenting).

63. Dann v. Johnston, 425 U.S. 219, 224, 189 U.S.P.Q. 257, 259, 5 CLSR 1133, 1137 (1976).

64. 409 U.S. 63, 71, 175 U.S.P.Q. 673, 676, 3 CLSR 256, 262 (1972).

65. My experience . . . convinced me that controls on capitalism were obvi-

both known and unknown uses of the BCD to pure binary conversion."[66] It is inconsistent, however, for him then to say that the claimed process covers the only practical use of the algorithm,[67] unless such a statement is made to secure the concurrence of fellow Justices.

It is rare for any court to squarely overrule its own prior decision or to admit an error, either factual or legal. In this case it is doubly unlikely to occur because it is unnecessary—Benson lost.[68] The narrowest rule which will support the assumed facts[69] is that one cannot patent a mathematical algorithm. *Benson* was also the "high water mark" for the broad position that no computer program is patentable.[70] Justice Douglas specifically indicated that his opinion "[does] not so hold."[71] Between these two extremes is a vast range of legal rules, sufficient to have defeated Benson, but narrow enough to allow patenting of some software inventions.

When it decides *Parker v. Flook*, the Supreme Court may enlighten everyone as to the true "rule" of *Benson*. It would be more useful, however, if the Court simply acknowledged that the *Benson* holding was clearer than the "rule," and set forth the "rule" to be applied in future software patent cases.

III. SOFTWARE AS APPARATUS OR PROCESS

Is an old computer with a new program, an old car with new spark

---

ously necessary; monopoly power could end all competition which is the important ingredient in the free enterprise system. . . . Free enterprise in the Jeffersonian sense freed the spirit and loosened all men's creative energies. . . . I [shared] insight into the corporate world and its chicanery [and the need] to protect small and medium sized companies.

W. DOUGLAS, GO EAST YOUNG MAN 306, 307, 453 (1974).

66. 409 U.S. at 68, 175 U.S.P.Q. at 675, 3 CLSR at 259.

67. *Id.* at 71, 175 U.S.P.Q. at 676, 3 CLSR at 262.

68. Allowance of claims 8 and 13 was reversed. *Id.* The Supreme Court opinion does not avert to the several claims which the Patent Office allowed. To date, however, no patent has issued to Benson, suggesting that all of the claims were later rejected by the Patent Office.

69. The rule of any case must be drawn from the facts as they are found by the court. In *Benson*, the Court found that the "'process' claim . . . may . . . be performed . . . without any apparatus." *Id.* at 68, 175 U.S.P.Q. at 675, 3 CLSR at 259. Record evidence such as the requirement of storing signals in a "reentrant shift register," if thought by the reader to be inconsistent with the Court's decision, may have a good deal to do with the correctness of the decision, but nothing to do with the "rule" of *Benson*.

70. The opinion stated that the President's Commission on the Patent System in 1966 recommended that software not be patentable. *Id.* at 72, 175 U.S.P.Q. at 677, 3 CLSR at 262. Curiously, the opinion did not point out that this was a feature of the 1967 Administration patent revision bill (Section 106, S.1042, 90th Cong., 1st Sess. (1967), *reprinted in* the Appendix in this issue), which was withdrawn from further consideration after substantial criticism from the industry, the bar, and finally, the Administration itself.

71. 409 U.S. at 71, 175 U.S.P.Q. at 676, 3 CLSR at 262.

plugs, or an old paper-making machine with an elevated roll, a new machine? The answer to this question depends upon the answerers' definition of the term "machine." May a new program be claimed as a new machine, and does this aid the applicants' cause? These are legal questions, or at least questions which lawyers must, if asked, attempt to answer.

Courts are required in software cases to analyze the apparently mutually exclusive, statutory categories of "process," "machine," "manufacture" and "composition of matter"[72] in light of the original constitutional mandate.[73] The results of this analysis may take the Bar by surprise.

In *In re Prater*,[74] the court rejected the process claims as not limited to a machine process.[75] It then allowed the apparatus claims, solely on the basis that there were no "mental steps" involved, since the entire operation was performed by machine.[76] The same year, in *In re Bernhart*,[77] the court allowed a "system" claim. The only rejection was for obviousness,[78] although the Patent Office also raised the question of novelty.[79] The C.C.P.A. held that such machines were statutory subject matter.[80]

Method claims were approved in *In re Mahony*[81] and *In re Musgrave*.[82] The latter opinion noted that operational steps in the technological arts made the method a statutory process.[83] *Benson* also contained only method claims.[84]

Method, use and apparatus claims were presented in *In re Foster*.[85] The court, citing *Musgrave*, found that all three types of claims were directed to statutory subject matter. However, the court then rejected the method claims on the ground that the term "signals," as used in such claims, included visible signals which *could* be manually manipu-

72. 35 U.S.C. § 100(b) (1970), *reprinted in* the Appendix in this issue.
73. U.S. CONST. art. I, § 8, cl. 8, *quoted in* note 40 *supra*.
74. 415 F.2d 1393, 162 U.S.P.Q. 541, 2 CLSR 32 (C.C.P.A. 1969), *superseding,* 415 F.2d 1378, 159 U.S.P.Q. 583, 2 CLSR 8 (C.C.P.A. 1968).
75. *Id.* at 1404, 162 U.S.P.Q. at 550, 2 CLSR at 48.
76. *Id.* at 1406, 162 U.S.P.Q. at 52, 2 CLSR at 51.
77. 417 F.2d 1395, 163 U.S.P.Q. 611, 2 CLSR 359 (C.C.P.A. 1969). The court correctly noted that the changes are invisible to the eye, and that its memory elements are differently arranged. The court concluded that if it is not a new machine, it is certainly a "new and useful improvement." *Id.* at 1400, 163 U.S.P.Q. at 616, 2 CLSR at 366.
78. *Id.* at 1401, 163 U.S.P.Q. at 617, 2 CLSR at 368.
79. *Id.* at 1398, 163 U.S.P.Q. at 614-15, 2 CLSR at 363.
80. *Id.* at 1400, 163 U.S.P.Q. at 616, 2 CLSR at 367.
81. 421 F.2d 742, 164 U.S.P.Q. 572, 2 CLSR 587 (C.C.P.A. 1970).
82. 431 F.2d 882, 167 U.S.P.Q. 280, 2 CLSR 920 (C.C.P.A. 1970).
83. *Id.* at 893, 167 U.S.P.Q. at 289-90, 2 CLSR at 938.
84. 409 U.S. 63, 64, 175 U.S.P.Q. 673, 674, 3 CLSR 256, 256-57.
85. 438 F.2d 1011, 169 U.S.P.Q. 99, 2 CLSR 994 (C.C.P.A. 1971).

lated,[86] and that the specification therefore claimed more than what the "applicant regards as his invention."[87] This holding rendered as dicta[88] the prior statement that the method claims were statutory subject matter.[89] The use and apparatus claims were allowed.[90]

In re Christensen,[91] decided after *Benson*, presented a method claim with a mathematical equation as its novel feature. The court did not discuss the "technological arts" standard of *Musgrave*,[92] but simply held that *Benson* precluded a claim where its novelty was the solution of a mathematical equation as the final step.[93]

Only apparatus claims were presented in *In re Johnston*.[94] The Board had found them non-statutory on the ground that a patent on the apparatus would grant Johnston a monopoly over a method of banking.[95] The C.C.P.A. reversed the Board, finding that "[r]ecord-keeping *machine* systems are clearly within the 'technological arts.'"[96] The majority rejected the Solicitor's suggestion that *Benson* was logically applicable.[97] It noted that *Benson* involved process claims, while *Johnston* involved apparatus claims, and that *Johnston* encompassed neither a law of nature, a mathematical formula, nor an algorithm.[98] Judge Rich dissented on the ground that the invention was a new program and *Benson* precluded patents on such inventions.[99] He further asserted that the majority opinion distinguished *Benson* on the basis of form, and not substance.[100]

In *In re Noll*,[101] the majority again limited *Benson* to process (method) claims, finding the decision inapplicable to the machine claims presented.[102] The court distinguished between how an applicant

---

86. *Id.* at 1016, 169 U.S.P.Q. at 102, 2 CLSR at 1001.

87. *Id.*

88. *Dicta* is defined as "opinions of a judge which do not embody the resolution or determination of the court." BLACK'S LAW DICTIONARY 540 (4th rev. ed. 1968).

89. 438 F.2d at 1015, 169 U.S.P.Q. at 101, 2 CLSR at 999.

90. *Id.* at 1016, 169 U.S.P.Q. at 102, 2 CLSR at 1001-02. Thus it would appear that these are better categories for software claims.

91. 478 F.2d 1392, 178 U.S.P.Q. 35, 4 CLSR 66 (C.C.P.A. 1973).

92. 431 F.2d 882, 893, 167 U.S.P.Q. 280, 289, 2 CLSR 920, 938 (C.C.P.A. 1970).

93. 478 F.2d at 1394, 178 U.S.P.Q. at 37, 4 CLSR at 69-70.

94. 502 F.2d 765, 765-67, 183 U.S.P.Q. 172, 173-74, 4 CLSR 1491, 1492-96 (C.C.P.A. 1974), *rev'd sub nom.* Dann v. Johnston, 425 U.S. 219, 189 U.S.P.Q. 257, 5 CLSR 1133 (1976).

95. *Id.* at 768, 183 U.S.P.Q. at 175, 4 CLSR at 1497.

96. *Id.* at 771, 183 U.S.P.Q. at 176, 4 CLSR at 1501. (Emphasis in original.)

97. *Id.* at 771, 183 U.S.P.Q. at 177, 4 CLSR at 1502.

98. *Id.*

99. *Id.* at 773, 183 U.S.P.Q. at 179, 4 CLSR at 1506 (Rich, J., dissenting).

100. *Id.*

101. 545 F.2d 141, 191 U.S.P.Q. 721, 6 CLSR 69 (C.C.P.A. 1976), *cert. denied,* — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 465 (1977).

102. *Id.* at 149, 197 U.S.P.Q. at 727, 6 CLSR at 81.

perceives his invention, *e.g.*, a new program, and how he *presents* it, *e.g.*, a machine claim.[103] This case and the companion case of *In re Chatfield*,[104] involving method claims, were each decided by 3-2 majorities. Judges Lane and Rich dissented in both cases on the basis that claiming a machine, as opposed to a process, was merely the "drafter's choice" and that both were equally proscribed by *Benson*.[105]

Judge Rich's dissent in *Chatfield* traced the history of the section 101 statutory categories from 1790 to 1952, and stated that the 1952 formulation of categories was a "mere modernization of language and a declaration of existing case law."[106] Yet, if one considers that "useful arts" was the only category of patentable subject matter specifically set forth in the Constitution, the 1790 formulation of patentable subject matter—"any useful art, manufacture, engine, machine, or device, or any improvement therein"—drafted by the very signatories to the Constitution, could not have meant to include, as a first subclass, useful arts which were neither manufactures, engines, machines or devices. Nor could it have meant to include subclasses of manufactures, engines, machines or devices which were not useful arts. It could have meant only to state useful arts, *e.g.*, manufactures, engines, machines, devices or improvements thereon. The initial category—"useful arts"—was all-inclusive. The additional categories must be seen as exemplary only, and not exclusive, or even mutually exclusive. An engine is today, as it was in 1790, first a manufacture, second a machine, third a device, and fourth an improvement on prior engines.

The 1952 Patent Act substituted the term "process" for the prior

---

103. *Id.* at 147, 197 U.S.P.Q. at 725-26, 6 CLSR at 78-79.

104. 545 F.2d 152, 191 U.S.P.Q. 730, 6 CLSR 52 (C.C.P.A. 1976), *cert. denied,* — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 466 (1977).

105. *Id.* at 161, 191 U.S.P.Q. at 738, 6 CLSR at 67 (Rich & Lane, JJ., dissenting); *In re* Noll, 545 F.2d 141, 152, 191 U.S.P.Q . 721, 729, 6 CLSR 69, 86-87 (Lane & Rich, JJ., dissenting), *cert. denied,* — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 465 (1977).

106. The categories of patentable inventions named in § 101 are an evolution from the first patent act of 1790 where they were named as "any useful art, manufacture, engine, machine, or device, or any improvement therein." The 1973 (sic) act changed it to 'any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement on any art, machine, manufacture, or composition of matter." The 1836 act, which established the first Patent Office, retained the identical language. The Consolidated Patent Act of 1870 (§ 24) simplified it to "any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof," language which was repeated in the Revised Statutes of 1874 (§ 4886) and which remained the same until 1952. The only change in the wording made by the Patent Act of 1952—which was not a change in substance—was the replacing of the word "art" by the word "process" (§ 101) coupled with a new definition in § 100(b) stating: "The term 'process' means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material," a mere modernization of language and a declaration of existing case law.
545 F.2d at 159, 191 U.S.P.Q. at 736-37, 6 CLSR at 63-64 (Rich, J., dissenting).

all-inclusive term "useful art."[107] However, Section 100 confirmed the fact that there was no intended change, since it defined process to include "art."[108] Thus, it would appear that the issue in every case is still whether an invention is a "useful art." If an invention is not a (modern) "process," it is not a (classic) "useful art," and therefore, not a "machine." On the other hand, if an invention is a "useful art," it is then a "process" and may also be a "machine."

The English language is unwieldy at best in describing technology. Was Goodyear's invention the "process" of vulcanizing rubber, or the "manufacture" of vulcanized rubber? Was Morse's invention the "process" of transmitting signals, or the telegraph "machine." It is simply easier to describe the contribution, the newness of certain inventions, as a process, or a machine, or a new use, depending upon the contribution itself. The Patent Office has used these categories to classify inventions for many years, and a large body of law has evolved as a consequence.

There is simply no reason for a decision on patentability to depend upon whether an invention is described as a process or machine. If, as Judges Rich and Lane believe, *Benson* proscribed all patents for program inventions, it necessarily prohibited patent coverage for programs, whether described as processes or machines. If, alternatively, *Benson* merely held that the mental solution of a mathematical formula is beyond the useful arts, it proscribed no invention within the useful arts, whether called a process or a machine.

IV. LEGISLATION—SOLUTION OR DILEMMA

The appeal to Congress in *Benson* for a legislative solution to the question of whether software should be patentable[109] was re-echoed by the majority in *Chatfield* with a curious reverse twist. The court in *Chatfield* suggested that those who want to *preclude* the patenting of software should submit proposals to Congress.[110] This was just the reverse of Justice Douglas' invitation in *Benson* for Congress to broaden statutory coverage to include "these programs."[111]

The *Benson* opinion began conventionally enough, posing the question of whether the claimed method was a statutory "process."[112] It did

---

107. 35 U.S.C. § 101 (1970), *reprinted in* the Appendix in this issue.

108. 35 U.S.C. § 100(b) (1970), *reprinted in* the Appendix in this issue.

109. "If these programs are to be patentable, considerable problems are raised which only committees of Congress can manage. . . ." 409 U.S. 63, 73, 175 U.S.P.Q. 673, 677, 3 CLSR 256, 263 (1972) (footnote omitted).

110. 545 F.2d 152, 156, 191 U.S.P.Q. 730, 734, 6 CLSR 52, 59 (C.C.P.A. 1976), *cert. denied*, — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 466 (1977). Such a proposal was, in fact, submitted to Congress in 1967. Section 106, S. 1042, 90th Cong., 1st Sess. (1967), *reprinted in* the Appendix in this issue.

111. *See* note 109 *supra*.

112. 409 U.S. 63, 64, 175 U.S.P.Q. 673, 674, 3 CLSR 256, 257 (1972).

not mention the constitutional provision, nor was there any suggestion that the Court understood that a "process" might be the modern day "useful art" as set forth in the Constitution. The opinion concluded, on broad policy grounds, that the invention was not patentable.[113] The Court held that Benson's invention was not a "process" and, by inference, was not a "useful art."

Thus, a proponent of legislation to permit software patents is faced with a dilemma. If the *Benson* invitation for congressional expansion of patent coverage was bona fide, then the policy arguments of that case do not apply to "useful arts," which Congress has statutorily defined as "processes." Yet, if these arguments take software outside "processes," they simultaneously take it outside "useful arts." Was not Congress, however unintentionally, invited by the *Benson* Court to perform either an unnecessary or unconstitutional act?

V. THE RULES SINCE *BENSON*

This section seeks to distill the "rule" of *Benson*, as delineated by the various decisions of the C.C.P.A. The case analysis, however, illustrates the uncertainty of the court, both as to the holding of the *Benson* and as to how the *Benson* holding should be applied to the variety of program-related patent claims presented. Each interpretation of the *Benson* "rule," as announced by the C.C.P.A., is set forth in brackets following the case which enunciated that interpretation.

While a logical division of programs is into systems and applications software,[114] this division does not aid in the analysis of program patentability decisions in the C.C.P.A. since *Benson*. System inventions have been found patentable in *Chatfield*,[115] but unpatentable in *Waldbaum*.[116] Application programs have been found patentable in *Flook*,[117] *Noll*,[118] *Deutsch*[119] and *Johnston*[120] and unpatentable in *Richman*,[121] *de*

---

113. *Id.* at 71-72, 175 U.S.P.Q. at 676, 3 CLSR at 262.

114. "Systems software" performs some basic machine functions necessary for all users regardless of the nature of their particular problems; "applications software" deals with a user's particular problem.

D. BENDER, COMPUTER LAW: EVIDENCE & PROCEDURE § 1.05[2], at 1-16.

115. 545 F.2d 152, 191 U.S.P.Q. 730, 6 CLSR 52 (C.C.P.A. 1976), *cert. denied*, — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 466 (1977).

116. *In re* Waldbaum, 559 F.2d 611, 194 U.S.P.Q. 465, 6 CLSR 415 (C.C.P.A. 1977).

117. *In re* Flook, 559 F.2d 21, 195 U.S.P.Q. 9, 6 CLSR 426 (C.C.P.A. 1977), *rev'd*, Parker v. Flook, — U.S. —, No. 77-642 (June 22, 1978).

118. 545 F.2d 141, 191 U.S.P.Q. 721, 6 CLSR 69 (C.C.P.A. 1976), *cert denied*, — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 465 (1977).

119. *In re* Deutsch, 553 F.2d 689, 193 U.S.P.Q. 645, 6 CLSR 408 (C.C.P.A. 1977).

120. *In re* Johnston, 502 F.2d 765, 183 U.S.P.Q. 172, 4 CLSR 1491 (C.C.P.A. 1974), *rev'd sub nom.* Dann v. Johnston, 425 U.S. 219, 189 U.S.P.Q. 257, 5 CLSR 1133 (1976).

121. *In re* Richman, 563 F.2d 1026, 195 U.S.P.Q. 340 (C.C.P.A. 1977).

Castalet,[122] *Waldbaum*[123] and *Christensen*.[124]

Christensen[125] presented an invention for oil exploration. Specifically, one could determine subsurface porosity by filling a bore hole with fluid, generating compression and shear waves, determining resultant values, and then computing the porosity by use of a novel quadratic equation. The court found that *Benson* prohibited patents where the point of novelty is the solution of a mathematical equation as the last step of the claimed method.[126] [Rule 1: Math as the last step is unpatentable.]

A formula was the novel element in *Flook*.[127] The process involved updating the value of alarm limits in an oil refinery. The applicant sought to distinguish *Christensen* on the ground that his calculation was not the last step of the claim. However, the examiner and Board rejected the application on the basis of *Christensen*.[128] The C.C.P.A. reversed the Board, finding the thrust of *Christensen* to be its exact holding, and concluding that patentability was precluded only where there was no post-solution activity.[129] The court also read *Benson* as condemning only claims which "wholly pre-empt"[130] use of the formula, *i.e.*, where the solution *per se* would infringe. [Rule 2: Math alone is unpatentable.]

The court was correct in observing that one could solve the equation for the new alarm limit without infringing the claim. The claim clearly called for a last step of *using* the information (the new alarm value) to adjust the control system.[131] However, the unanswered question which remained was whether the court properly interpreted the "rule" of *Benson*.

Should a decisional rule of law be measured solely by the facts as found by the court, or by indisputably inconsistent, evidentiary facts appearing in the record? The rule of *Benson*, as stated by *Flook*,[132] is wholly consistent with the factual findings of the *Benson* Court. Yet, it is quite inconsistent with the evidentiary facts in *Benson*. The Court in *Benson* found that the claimed invention was a method of transforming

122. *In re* de Castelet, 562 F.2d 1236, 195 U.S.P.Q. 439 (C.C.P.A. 1977).

123. *In re* Waldbaum, 559 F.2d 611, 194 U.S.P.Q. 465, 6 CLSR 415 (C.C.P.A. 1977).

124. *In re* Christensen, 478 F.2d 1392, 178 U.S.P.Q. 35, 4 CLSR 66 (C.C.P.A. 1973).

125. *Id.*

126. *Id.* at 1394, 178 U.S.P.Q. at 37, 4 CLSR at 70. As is made quite clear in Judge Rich's concurring opinion (*Id.* at 1395-96, 178 U.S.P.Q. at 38-39, 4 CLSR at 70-72 (Rich, J., concurring)), the court did not perceive the Supreme Court's *Benson* ruling to be "limited," as the Supreme Court itself later stated. *See* note 62 *supra* and accompanying text.

127. *In re* Flook, 559 F.2d 21, 22, 195 U.S.P.Q. 9, 10, 6 CLSR 426, 427-28 (C.C.P.A. 1977), *rev'd*, Parker v. Flook, — U.S. —, No. 77-642 (June 22, 1978).

128. *Id.* at 22, 195 U.S.P.Q. at 10, 6 CLSR at 428.

129. *Id.* at 23, 195 U.S.P.Q. at 11, 6 CLSR at 429.

130. *Id.*

131. *Id.* at 22, 195 U.S.P.Q. at 10, 6 CLSR at 428.

132. *See* note 130 *supra* and accompanying text.

BCD numerals to binary.[133] If this were so, and Claim 13 can be read as such,[134] then anyone using the method in any context would infringe the claim. However, the Court also found Claim 8 unpatentable.[135] Yet, the only way to infringe Claim 8 was to perform the calculations on a "re-entrant shift register." Doing them manually or using anything but a re-entrant shift register would not infringe the claim.

The court in *Flook* did not explicitly state what it construed the facts of *Benson* to be. A few months earlier, in *Waldbaum*,[136] the C.C.P.A. noted an argument by appellant's counsel that the Court in *Benson* treated both claims together.[137] While refusing to comment on the accuracy of that observation, the court stated that there was nothing in *Benson* to support that argument.[138] Even with its deficiencies, the *Flook* gloss on *Benson* was at least an understandable rule. If one could practice an inventive algorithm or formula without infringing the claim, the claim was proper. That rule lasted exactly two months.

---

133. 409 U.S. at 63, 64, 175 U.S.P.Q. 673, 674, 3 CLSR 256, 256 (1972).

134. 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.

Id. at 74, 175, U.S.P.Q. at 677, 3 CLSR at 264.

135. 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 shiftregister,

(2) shifting the signals to the right by at least three places, until there is a binary "1" in the second position of said register.

(3) masking out said binary "1" in said second position of said register.

(4) adding a binary "1" to the first position of said register,

(5) shifting the signals to the left by two positions,

(6) adding a "1" to said first position, and

(7) shifting the signals to the right by at least three positions in preparation for a succeeding binary "1" in the second position of said register.

Id. at 73-74, 175 U.S.P.Q. at 677, 3 CLSR at 263-64.

136. *In re* Waldbaum, 559 F.2d 611, 194 U.S.P.Q. 465, 6 CLSR 415 (C.C.P.A. 1977).

137. *Id.* at 616, 194 U.S.P.Q. at 469, 6 CLSR at 424.

138. *Id.*

De Castelet's invention was a method of generating a curve, using an algorithm and a computer to control either a milling or drafting machine. The Board found that the claim recited "a machine environment, a particular art or a particular end use."[139] The C.C.P.A. was again forced to recast the rule in *Benson*. It found "practical application" to be the key, asserting that the *Benson* opinion did not find the BCD-to-binary conversion in a data processing apparatus a "practical application"[140] of the discovery, since the process had to use the information to achieve a result other than merely the solution of the equation. [Rule 3: The claim is unpatentable if there is no activity, *i.e.,* practical application, following math.]

Implicit in Flook's method of adjusting the alarm limit was using the new alarm limit. This presumably was the "post-solution activity" of *Flook* found lacking in *de Castelet*. Like *Flook*, the concluding step of *de Castelet* was the transferring of a signal to a model forming means, a milling machine or drawing machine.[141] The claim did not recite what the means did with the information once received. Indeed, on a literal reading, the claims would be infringed if the means did nothing with the signal. As such, the C.C.P.A. found that the claim was directed to a process for solving a "set of mathematical equations per se."[142] In an aside, the court suggested that a more explicit use of the information in the last step would have altered the result.[143] Thus, the rule of *de Castelet* may be nothing more than an exegesis of claims drafting.

Two recent cases involved inventions which improved the operations of computers themselves. The invention in *Chatfield* improved the priority allocations in a multi-programming system.[144] Operations were periodically measured during execution, and the programs causing bottlenecks were assigned a lower priority for the ensuing period. In *Waldbaum*, the invention was concerned with making a register function as a counter.[145]

Chatfield's main claim contained the steps of analyzing system utilization and regulating resource access.[146] Remarkably, this was found not to constitute an algorithm.[147] The dependent claims

---

139. *In re* de Castelet, 562 F.2d 1236, 1239, 195 U.S.P.Q. 439, 443 (C.C.P.A. 1977).

140. *Id.* at 1243, 195 U.S.P.Q. at 445.

141. *Id.* at 1239, 195 U.S.P.Q. at 442.

142. *Id.* at 1244, 195 U.S.P.Q. at 446.

143. *Id.* at 1244, 195 U.S.P.Q. at 446-47.

144. 545 F.2d 152, 154, 191 U.S.P.Q. 730, 732, 6 CLSR 52, 54 (C.C.P.A. 1976), *cert. denied,* — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 466 (1977).

145. *In re* Waldbaum, 559 F.2d 611, 612-13, 194 U.S.P.Q. 465, 465-66, 6 CLSR 415, 416-18 (C.C.P.A. 1977).

146. 545 F.2d 152, 154, 191 U.S.P.Q. 730, 732, 6 CLSR 52, 54-55 (C.C.P.A. 1976), *cert. denied,* — U.S. —, 195 U.S.P.Q. 465, 6 CLSR 466 (1977).

147. *Id.* at 157, 191 U.S.P.Q. at 735, 6 CLSR at 60.

contained explicit formulas.[148] The rule, enunciated by the court, was that the algorithm was not preempted, since the claim was not infringed unless the entire claimed method was performed.[149] Expressed otherwise, if the algorithm may be performed without infringing the claim, the claim is proper. In *Benson*, the Supreme Court was quite clear that use in a computer was the only practical use of the algorithm;[150] and one may assume the same could be said of Chatfield's invention. In *Chatfield*, however, there was more than the mere solution of an algorithm. There was an additional step of "resuming the operation of the computing system"[151] after the priority determination calculations. The *Benson* algorithm contained no such additional step.

Using the *Chatfield* test, it would appear that the *Waldbaum* claims should have been approved. The *Waldbaum* invention was not measured by that test. Rather, it was measured by two remarkably inconsistent tests, enunciated for the first time as the "rules" of *Benson*. First, the claim was found not limited to a practical application, and therefore "abstract and sweeping"[152] and improper. Second, the claim was found to have no practical application except as disclosed.[153]

Presumably either the first or second criticism could be leveled at every invention. For years after its discovery the laser had virtually no practical application; it was largely an exciting laboratory curiosity. Today, new and unexpected uses are appearing daily. A claim to the laser could have been rejected in 1958 under the second *Waldbaum* rule and could be rejected in 1978 under the first *Waldbaum* rule.

The Waldbaum application also contained use claims for the process of making a J-register count the busy lines in a telephone system.[154] The "abstract and sweeping" scope of other claims was absent here. A patent with these use claims would instruct competitors how to use the invention and would reserve only one use to the inventor's assignee. These claims, however, were also denied on the ground that they would preempt the algorithm because no other use was disclosed.[155]

Like *Benson*, the holding in *Waldbaum* is clear. The rule, however, is not. Should Waldbaum have disclosed another practical application for counters? Is optimizing a multi-programming computer more practical and less sweeping and abstract than counting lines in a telephone switching system? Did the court between November, 1976, and July, 1977, discover the real law, rule, or thrust of *Benson*?

148. *Id.* at 154, 191 U.S.P.Q. at 732-33, 6 CLSR at 55.

149. *Id.* at 158-59, 191 U.S.P.Q. at 736, 6 CLSR at 62.

150. *See* note 66 *supra* and accompanying text.

151. 545 F.2d at 154, 191 U.S.P.Q. at 732, 6 CLSR at 55.

152. *In re* Waldbaum, 559 F.2d 611, 616, 194 U.S.P.Q. 464, 469, 6 CLSR 415, 423 (C.C.P.A. 1977).

153. *Id.*

154. *Id.* at 612-14, 194 U.S.P.Q. at 465-67, 6 CLSR at 418.

155. *Id.* at 617, 194 U.S.P.Q. at 469-70, 6 CLSR at 425.

Deutsch[156] was argued the same day as *Waldbaum*, but was decided considerably sooner and with the opposite result. Deutsch disclosed an optimizing system for a multi-plant refinery, whereby the system is optimized less frequently than the individual plants.[157] As far as the opinion indicates, the Deutsch process, as claimed, was the only practical use of the disclosed algorithm;[158] no other use was disclosed. However, the *Waldbaum-Benson* rule was not applied. Rather, the C.C.P.A. held that the test of preemption was whether the algorithm was freely available apart from the purpose claimed.[159] The court assumed that the answer was in the affirmative without stating whether the other uses had to be known, practical, or within the technological arts. This test is similar, if not identical, to that of *Chatfield*, and was undoubtedly inspired by the court's observation that Deutsch's invention was further removed from *Benson* than *Chatfield*.[160]

The invention in *Deutsch* differed from that in *Benson, Chatfield* and *Waldbaum* in being an application rather than a system invention. It also differed in two respects thought significant enough for the court to note. First, it disclosed alternative enabling means.[161] Second, the file contained an affidavit asserting that it was "fully conceivable" that the technique could be employed on a hard-wired or analog computer.[162]

Richman made a mathematical discovery. His claim, like Flook's, was limited to a particular use, namely calculating a bore sight correction angle.[163] Like *Flook*, the use to which this information was put was implicit, but suggested, by the disclosure of airborne radar.[164] Under the *Benson-Chatfield-Deutsch-Flook* test there would have been no preemption, since the algorithm was freely available except for airborne radar bore sight corrections.[165] That rule, however, was not mentioned.

The Richman process, which the court found both novel and unobvious, involved the acquisition of certain data.[166] The court could have, but did not, observe that these novel steps placed *Richman* further from *Benson* than either *Chatfield* or *Deutsch*. The court emphatically rejected the procedure of dissecting a claim into its old and new elements.[167] According to the court, it is no bar to a patent that the novel

---

156. *In re* Deutsch, 553 F.2d 689, 193 U.S.P.Q. 645, 6 CLSR 408 (C.C.P.A. 1977).
157. *Id.* at 690-91, 193 U.S.P.Q. at 646-47, 6 CLSR at 409-11.
158. *Id.* at 692-93, 193 U.S.P.Q. at 648-49, 6 CLSR at 413-14.
159. *Id.* at 692, 193 U.S.P.Q. at 648, 6 CLSR at 413.
160. *Id.*
161. *Id.* at 693, 193 U.S.P.Q. at 648-49, 6 CLSR at 414.
162. *Id.*
163. *In re* Richman, 563 F.2d 1026, 1027, 195 U.S.P.Q. 340, 341 (C.C.P.A. 1977).
164. *Id.*
165. *Id.* at 1028, 195 U.S.P.Q. at 342.
166. *Id.* at 1029, 195 U.S.P.Q. at 343.
167. *Id.*

step is a mathematical calculation.[168] A new test evolved: A claim is unpatentable if it is directed "essentially" to a method of calculating.[169] The court termed this the decisive factor.[170] It stated that neither the inclusion or exclusion of a formula in the claim was determinative of whether the claim was "essentially" a method of calculating.[171]

The court was quite clear on what the Patent Office should say and not say when, upon dissection of the claim, it found novelty solely in an algorithm.[172] By implication, it found Richman's claim, and perhaps Richman's entire invention, essentially a mathematical calculation. Neither the claim nor the opinion stated exactly what Richman proposed to do with the correction factor for the depression angle. This opinion was also classifiable as a lesson in claims drafting.

VI. CONCLUSION

Perhaps an analogy to another area of law is useful. For over a generation, the courts have expanded the thesis that no arguably innocent or unfairly treated person should be convicted of a crime. The unintended effect of this philosophy on both perpetrators and victims of crime, is now being recognized and a new balance is being sought. Similarly, the first rules advanced to prevent overly broad software protection have had the unintended side effect of factually stripping protection from meritorious inventors.

It is unrealistic to think that any simple formulation will ensure that every inventor receives exactly his due—no more, no less. It is *not* unreasonable, however, to hope that the courts will recognize that the patent system operates in the context of competing social interests, that all inventions come in degrees, that a balance is better than a bias in the governing rules, and that predictability is better than capriciousness in the application of these rules to particular facts.

---

168. *Id.* at 1030, 195 U.S.P.Q. at 343.
169. *Id.*
170. *Id.* at 1030, 195 U.S.P.Q. at 344.
171. *Id.*
172. *Id.*

POSTSCRIPT: On June 22, 1978, the Supreme Court announced its decision in *Parker v. Flook*, reversing the C.C.P.A. by a vote of 6 to 3. Justice Steven's majority opinion construed the *Morse* case to require the process, not the algorithm, to be novel. It further asserted that post-solution activity was irrelevant, exalting form over substance. It concluded that the present statute, in light of prior precedents, prevented an expansion of protection. Justice Stewart's dissent found the claim within prior precedent and asserted that the majority was breaking new ground by importing novelty considerations into subject matter questions. [*Ed. Note*: A further discussion of this, and other major cases decided since publication of this issue, will be contained in the first annual supplement.]