COMPUTER TRANSACTIONS: POTENTIAL LIABILITY OF COMPUTER USERS AND VENDORS

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I. INTRODUCTION

The computer industry has developed in the past twenty-five years into a multi-billion dollar business. The use of computers and data processing services has touched nearly every aspect of American society, resulting in increasing reliance upon the benefits provided by such technology. Society's reliance upon the automated machine has, in turn, created the novel and perplexing problem of computer legal liability. Who is liable to whom when one's computer breaks down? When a computer user furnishes erroneous data to others, what is the nature and extent of his liability? When a business or other insti-tution relies upon its own erroneous computer data, what is its liability exposure? This Article will review the social milieu in which computer liability issues arise. It will explore the alternative legal theories upon which liability of the computer manufacturer and user might be based, from the negligent use of computer information to the implied or express warranties of computer vendors. Finally, it will suggest various methods by which users and dealers might avoid or reduce their liability exposure.[1]

II. SOCIAL MILIEU OF COMPUTERS

It is difficult to live in American society today and avoid contact with the ubiquitous computerized information system. Anyone who has sought insurance from a major life and health insurance company might very well have had the details of his health and personal life investigated by computer research. The Medical Information Bureau of

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    1. The Article will not cover liability arising out of violations of the criminal laws, patent, trademark, copyright, or trade secrecy laws, SEC Regulations, antitrust laws, or privacy protection laws.

Greenwich, Connecticut, for example, sells investigative reports on insurance applicants to its member companies at a rate of 20 million per year.[2]   Of even greater significance is the fact that births and deaths are now frequently recorded in computer data banks.   In addition, federal law enforcement agencies maintain extensive computer records on large segments of the population.   On occasion these records contain erroneous data.   The disclosure of such information can have severe consequences.   A recent incident illustrates the danger.   On January 18, 1970, Paul Cowan was arrested for possession of marijuana in Brooklyn, New York.[3]   He was never prosecuted and two months later the charges were formally dismissed.   He later moved to Boston, and in September, 1970, he applied for a license to drive a cab.   Although his application was accepted and a license issued, a routine check with the Federal Bureau of Investigation subsequently revealed an "open" charge against Cowan in New York.   On the basis of this computer report, Cowan's license was revoked because he was deemed "not a suitable person to be so licensed."   Cowan's case is interesting, and indeed unusual, not because erroneous information had been recorded in some data bank and routinely disclosed, but because Cowan actually discovered the error.

The increased reliance on computers by commercial business has also created many legal problems.   Accounting functions are often performed automatically by computers with little or no human oversight.   Consequently, errors in the computer's operational programs may go undetected and are compounded with each accounting cycle.   Such errors can place significant burdens on unsuspecting consumers.   In one case,[4] for example, customers of a gasoline utility company were billed by computer.   No actual readings of the customers' gas meters were entered into the computer data bank; rather, the computer automatically estimated the charges and sent the bills.   Under this system, one customer received a series of estimated bills for ten to fifteen dollars.   After an actual reading was taken, however, the customer received a bill for almost two hundred dollars,[5] an amount far beyond

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2. *See* A. WESTIN & M. BAKER, DATA BANKS IN A FREE SOCIETY 88, 90 (1972).

3. Neier, *Marked for Life, Have You Ever Been Arrested?* N.Y. Times, Apr. 15, 1973, § 6 (Magazine), at 16, col. 1.

4. Palmer v. Columbia Gas of Ohio, Inc., 342 F. Supp. 241 (N.D. Ohio 1972), *aff'd*, 479 F.2d 153 (6th Cir. 1973).

5. 479 F.2d at 157 n.2, 158.

her budget limits. In such a case may the customer resist demands for immediate payment of the accumulated sum?

Another problem arises when the computer fails to record payment. Payment notices usually contain the following statement: "If payment has been made, please disregard this notice." This disclaimer is included because computer-billing systems automatically bill customers unless their payments are received early enough to be entered into the creditor's computer. The problem arises where a customer ignores a utility's shut-off notice because he has sent his payment. If the utility company's computer either makes an error or fails to record the payment, the utility may be shut off without further notice to the unsuspecting customer.[6]

A different type of problem arises for the businessman who attempts to compete in the computer era by purchasing a system designed to meet his particular needs. Because the ordinary businessman usually knows little about purchasing computer services, he generally relies on the vendor's representations. If the system fails to live up to those representations, who is liable to whom and for what damages? The purchaser in such a situation is often faced with the onerous task of proving that the computer system, which he was incapable of designing or developing, has technical shortcomings that are the cause of his injury.[7] Computer users today, however, cannot be expected to understand and bargain on an equal basis with the suppliers of computer services. It is, therefore, the responsibility of the courts to examine such transactions and distribute the burdens fairly.

Another interesting and as yet unsettled problem posed by the rapid development of the computer industry concerns the legal status of the technological products of computer systems. For example, is a computer program "property" in a legal sense, capable of being the subject matter of a civil or criminal suit? If a computer program is a new type of property, how can it be protected or, in the event of loss or theft, valued?[8] The method by which the legal system will eventually accommodate computer property is an unresolved yet intriguing question.

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6. The automatic shut-off of utility services may raise constitutional questions. *See* notes 49-50 *infra* and accompanying text.

7. *See* notes 68-70 *infra* and accompanying text.

8. *See, e.g.,* Hancock v. Decker, 379 F.2d 552 (5th Cir. 1967) (trial court correctly held that computer program index cards were property with an ascertainable value in excess of $50 such that by taking them the defendant committed felony theft).

These examples illustrate only a few of the numerous settings in which computer liability issues may arise. The special problems of computer legal liability have been further exacerbated by the phenomenal developments in computer technology itself.

III. HISTORY

The precipitous expansion of computers into the commercial market began in the middle 1950s. This expansion can be divided into three eras, each identified by the technical capabilities of its respective machines.[9] The earliest computers were characteristically made with thousands of vacuum tubes, were comparatively slow and bulky, and required a tremendous amount of energy to power them. Consequently, the commercial marketing of these computers was restricted to governmental agencies such as the defense department and the larger industrial corporations.[10]

The adaptation of the transistor to computers in the late 1950s facilitated the development of smaller and faster units, and ushered in the second generation of computers.[11] The transistor breakthrough was followed in 1964 by the development of the integrated circuit. Integrated circuitry consists of the "fabrication of a complete electronic circuit on a single encapsulated chip . . . rather than the older printed circuit boards that had their components attached as discrete parts."[12] These circuits allowed further reductions in size, breakdowns, and operating costs, and enabled the development of faster and more capable machines. This technological advance, together with the shift to byte logic, introduced the third generation of computers.[13]

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9. *See generally* D. SANDERS, COMPUTERS IN SOCIETY (1973); Rosen, *Electronic Computers: A Historical Survey*, 1969 COMPUTING SURVEYS 7.

10. D. SANDERS, *supra* note 9, at 8.

11. Saul Rosen said of the transistor, "By 1956 it was already apparent that transistors could be used in very large numbers and at very high speeds to produce computers whose performance would dwarf that of the largest vacuum tube computers ever built." Rosen, *supra* note 9, at 25.

12. F. GRUENBERGER, COMPUTERS AND THE SOCIAL ENVIRONMENT 14-15 (1975).

13. The actual technical line separating the second generation from the third is unclear. It is held by some to be the development of the integrated circuit, by others to be the shift to byte logic, a development which allowed the efficient use of the same machine by business and science, and by still others to be the overall improvement in the capabilities of computing machines. *Compare* SANDERS, *supra* note 9, at 58, *and* Rosen, *supra* note 9, at 29, *with* F. GRUENBERGER, *supra* note 12, at 15.

A comparison of the capabilities of computers from each generation is essential to an understanding of the liability issues and theories arising from computer use.

A. Size

The size of computer hardware has been drastically reduced by the invention of the integrated circuit. The ENIAC, a popular first generation computer, contained 18,000 vacuum tubes, weighed 30 tons, and required 1500 square feet of floor space.[14] If built today, first generation computers such as the ENIAC would need fewer than 700 integrated circuits.[15] As noted, the integrated circuit compresses on minute encapsulated chips all the components formerly attached to printed circuit boards.[16] The Illiac IV computer, introduced in 1973, squeezes 1200 transistors, 1200 resistors, and 71 diodes on a one-tenth square inch chip.[17] At least one scientist predicts that within a decade the technology will exist to place enough components in a cubic inch of material to equal one-fourth the density of a nerve cell in the human brain.[18] In addition, while a computer in 1956 required 10,000 cubic feet of floor space for efficient operation, the same amount of computing power today can be placed in ten cubic feet. And the technology exists to place that ten cubic feet of computer into space the size of a typewriter.[19]

B. Speed

The operational speed of computers has increased so greatly over the past twenty-five years that the unit of measurement has changed. While first generation computer speed was measured in milliseconds, or thousandths of a second, second generation computers measured time in microseconds, or millionths of a second, and third and fourth generation computers measure time in nanoseconds, or billionths of a second. At present, some computers measure speed in trillionths of a second and ultimately they may operate at the speed of electricity —about one foot per nanosecond.[20] A second measure of computing

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14. *See* D. SANDERS, *supra* note 9, at 38.
15. *See* D. SANDERS, *supra* note 9, at 58.
16. *See* note 12 *supra* and accompanying text.
17. *See* D. SANDERS, *supra* note 9, at 58.
18. *See* D. SANDERS, *supra* note 9, at 58-59.
19. *See* F. GRUENBERGER, *supra* note 12, at 10.
20. *See* D. SANDERS, *supra* note 9, at 59-60 & n.6.

power is the speed at which computers can perform transactions. The ENIAC could perform 300 multiplications per second. Present computor transaction speeds vary with machine size. Today's large computers can execute 100,000,000 instructions per second; medium to large computers can execute one million instructions per second; and minicomputers can perform as many as 250,000 instructions per second.[21]

C. *Memory*

Storage space for information, like computer speed, has increased dramatically since the introduction of the first commercial computers. Early computers had a primary storage capacity of 2000 to 4000 "words." By contrast, present computers can store over a million words and, with the development of vertual storage (external online storage), a single computer may be able to store from 500 billion to a trillion alphanumerical characters.[22]

D. *Reliability*

The technological advances over the past twenty-five years have greatly improved the reliability of computer systems. The mean time between failures, for example, has increased from hundreds of hours to thousands of hours. And with the introduction of self-repairing computers in which a new reserve part would automatically replace a broken part,[23] the mean time between failures could be extended further, or even eliminated, if several replacements for each part were always available and the broken parts periodically repaired.

E. *Cost*

The rapid development of computer technology has also resulted in the continuous reduction of computing costs: they have been cut in half every two years. In the late 1940s, one could purchase 600,000 executed instructions for three dollars, whereas today one can purchase ten million instructions for a dollar. If the present trend continues, the price of executed instructions will drop to 50 to 100 billion instructions per dollar by 1984 and two billion per penny by the year 2000.[24]

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21. *See* F. GRUENBERGER, *supra* note 12, at 7.
22. *See* D. SANDERS, *supra* note 9, at 60-61.
23. *See* D. SANDERS, *supra* note 9, at 60-61.
24. *See* F. GRUENBERGER, *supra* note 12, at 9.

F. *Social Consequences*

Improvements such as the integrated circuit, virtual storage,[25] and microprogramming (a process that combines basic instructions into higher and lower level instructions)[26] have produced significant social developments.   Small businesses, once priced out of the computer market, are now able to install their own computer systems.   The development of the minicomputer has greatly accelerated this trend.   Although these computers have the same basic hardware as their larger counterparts, they are small, relatively inexpensive, and suitable for general business use.[27]   Another major technological development that has made computer power available to small businesses is the practice of time sharing, whereby several businesses tie into a main computer by means of input/output terminals.   By distributing the cost of operating the main computer, more and more businesses can now benefit from computer technology.   As a result of these developments, legal problems arising from computer use now affect the nation's entire business community.   Moreover, these concerns are likely to become more widespread as computers are developed further, thereby intensifying the need for some form of meaningful social control over the effects of this new technology.

IV. LIABILITY OF COMPUTER USERS

The common law theory of negligence provides one basis for imposing liability on the computer user.   Under this theory, a computer user will be liable to a plaintiff if the quality of computer use breaches a legal duty which the user owes to the plaintiff and which is the proximate cause of the plaintiff's harm.[28]   Although this is merely the ordinary standard of due care, there are special problems in proving negligence in the computer industry which merit attention.

A computer malfunction will probably occur within one or two nano-

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25. Virtual storage is a process whereby memory information moves to and from an auxiliary memory storage area to a main core storage area without interception by the user. *See* F. GRUENBERGER, *supra* note 12, at 53.

26. *See generally* M. WEIK, STANDARD DICTIONARY OF COMPUTERS AND INFORMATION PROCESSING 188 (1969).

27. Today a minicomputer costs between $8,200 and $24,000, with an average cost of $12,000 to $15,000.   This is well within the purchasing or leasing ability of many smaller companies.   Auerbach Task Force, LATEST DEVELOPMENTS IN EDP 94 (1971).

28. W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 32 (4th ed. 1971).

seconds (billionths of a second). Because humans are unable to monitor these machine functions closely, proof of computer error is extremely difficult. In addition, there are few established minimum standards that govern the conduct of the computer user. Consequently, plaintiffs who suffer injury because of a computer error will attempt to rely on the doctrine of res ipsa loquitur. In order to establish a res ipsa case, the plaintiff must show that the event—the computer error—does not usually happen in the absence of someone's negligence; that the instrumentality — the computer — was in the defendant's exclusive control; and that the plaintiff did not contribute to his own injury.[29] The successful application of this doctrine to the computer field will ultimately depend on the degree to which courts recognize the "usual reliability" of such machines.[30]

A. *Computer Breakdowns*

In *Port City State Bank v. American National Bank*,[31] the Tenth Circuit addressed the issue of computer reliability. The plaintiff in *Port City* brought an action to recover on two checks which the defendant failed to return by the appropriate deadline because of a breakdown in its newly installed computer system. The court refused to impose liability for negligence because the breakdown was considered an "emergency" within the meaning of a statute that excused deadline violations for emergency reasons,[32] and because the defendant had used due diligence in posting the checks by alternative methods and in repairing the machine. The court apparently concluded that the machines used in this operation were not sufficiently reliable to hold the defendant-user responsible for their breakdown. It can be inferred, however, that the failure to act with such due diligence as the circumstance requires to repair a failing computer will render the user liable for negligence.[33]

B. *Provision for Erroneous Computer Data*

Suppliers of computer-processed information may be held liable for

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29. *Id.* § 39.
30. *Id.*
31. 486 F.2d 196 (10th Cir. 1973).
32. *Id.* at 200.
33. *Id.* at 200-01.

providing erroneous data to those with whom they have contracted and to third parties who reasonably rely on the erroneous information. In *Independent School District No. 454 v. Statistical Tabulating Corp.*,[34] the defendant (STC) had processed statistical data for Marshall and Stevens (Marshall), a consulting firm which had contracted with plaintiff to appraise the value of a school building. In processing this data, STC made some computation errors that resulted in plaintiff's building being underinsured. The school was subsequently destroyed by fire, and plaintiff brought an action against STC for negligence and breach of implied warranties. In support of its motion to dismiss, defendant argued that the school district was not in privity with STC's contract with Marshall and therefore could not maintain an action against it.[35] The district court denied the motion, and ruled that under Illinois law one may be liable in negligence to another "for providing inaccurate information which was relied on and caused economic loss, *although there was no direct contractual relationship between the parties.*"[36] The district court emphasized that the defendant knew of the plaintiff's intended use for and reliance upon the statistical data.[37] Its decision, therefore, is limited to those cases in which the third party's injury was foreseeable by the negligent actor.[38] Although there is some confusion in the law,[39] the same rule has been applied to negligent oral misrepresentations made to third parties. Generally, one who negligently makes a false representation is liable to those third parties whom he either intends to reach and influence by the representation, has a special reason to expect will be influenced thereby, or owes a public duty pursuant to statute.[40]

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34. 359 F. Supp. 1095 (N.D. Ill. 1973).

35. *Id.* at 1097.

36. *Id.* (emphasis added) (the district court cited Rozny v. Marnul, 43 Ill.2d 54, 250 N.E.2d 656 (1969), as authority for the stated rule).

37. 359 F. Supp. at 1098.

38. The court concluded: "Recovery by a foreseeable user will promote cautionary techniques among computer operators." *Id. Accord*, M. Miller Co. v. Central Contra Coste Sanitary Dist., 198 Cal. App. 2d 305, 18 Cal. Rptr. 13 (1961). *But see* Texas Tunneling Co. v. City of Chattanooga, 329 F.2d 402 (6th Cir. 1964) (third party cannot recover for injuries that resulted from defendant's negligent misrepresentation of information).

39. *See* Prosser, *Misrepresentation and Third Persons*, 19 VAND. L. REV. 231 (1966).

40. *Id.* at 240-50. *See* Rusch Factors, Inc. v. Levin, 284 F. Supp. 85 (D.R.I. 1968).

C.   *Reliance Upon Erroneous Computer Output*

A user who relies upon a computer that has previously yielded erroneous information may be held liable for negligence and, under certain circumstances, be required to pay consequential or punitive damages. A group of cases, all involving the same defendant, Ford Motor Credit Company, illustrates the point. In *Ford Motor Credit Co. v. Hitchcock*,[41] Ford's computer erroneously reported that the appellee's automobile installment account was overdue. When Ford sent one of its agents to repossess the car, Hitchcock presented him with two money order receipts and a copy of a cashier's check verifying that her payments were current. Ford's accounting department had apparently neglected to enter these payments onto its computerized accounting ledger. The agent relayed this information to his superiors, who nonetheless directed him to take possession of the automobile.[42] Hitchcock subsequently brought suit for actual and exemplary damages, alleging that the repossession had been made in "bad faith."[43] The Georgia Court of Appeals, in upholding the jury's award of exemplary damages, held that the evidence supported the jury's finding that Ford's reliance on its computer printouts was unjustified, and that its repossession of Hitchcock's automobile was "willfully and wantonly made with full knowledge of lack of all probable cause for so doing."[44]

Two other cases involving Ford Motor Credit Company[45] reached the same result. In *Ford Motor Credit Co. v. Swarens*,[46] the Kentucky Court of Appeals upheld the jury's award of punitive damages and commented, "Trust in the infallibility of a computer is hardly a defense, when the opportunity to avoid the error is as apparent and repeated as was here presented."[47] Thus, where the computer user fails to take

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41. 116 Ga. App. 563, 158 S.E.2d 468 (1967).

42. *Id.* at 569, 158 S.E.2d at 471.

43. *Id.* at 567, 158 S.E.2d at 470.

44. *Id.* at 565-66, 158 S.E.2d at 473. The court of appeals noted that under state law there must be evidence of "willful misconduct, malice, fraud, wantonness, or oppression, or that entire want of care which would raise the presumption of a conscious indifference to consequences" in order to impose punitive damages. *See* Southern Ry. v. O'Bryan, 119 Ga. 147, 149, 45 S.E. 1000, 1000 (1903); Central of Ga. Ry. v. Sowell, 3 Ga. App. 142, 59 S.E. 323 (1907).

45. Price v. Ford Motor Credit Co., 530 S.W.2d 249 (Mo. Ct. App. 1975); Ford Motor Credit Co. v. Swarens, 447 S.W.2d 53 (Ky. 1969).

46. 447 S.W.2d 53 (Ky. 1969).

47. *Id.* at 57. *See also* Neal v. United States, 402 F. Supp. 678 (D.N.J. 1975):
    The computer is a marvelous device that can perform countless tasks at high speed and low cost, but it must be used with care. This is because it can also make errors at high speed. Those who use computers for record and account-

reasonable precautions to determine the accuracy of computer informa-
tion, he may be not only liable for negligence, but also subject to
exemplary damages for reliance upon computer information in reckless
disregard of knowledge that it may not be accurate.[48]

Reliance on faulty computer information may occasionally raise con-
stitutional questions. In *Palmer v. Columbia Gas of Ohio, Inc.,*[49] errors
in the defendant's computerized accounting system resulted in the auto-
matic termination of services to several customers. In a class action
suit for injunctive and declaratory relief and for damages, the United
States Court of Appeals for the Sixth Circuit concluded that the defen-
dant's automatic termination of utility services violated the fourteenth
amendment due process rights of plaintiff customers, who were en-
titled, at a minimum, to human intervention in the termination
process.[50]

V. LIABILITY OF COMPUTER VENDORS

The phenomenal development of computer technology has created
a tremendous increase in the demand for computer equipment and ser-
vices. The sale and leasing of computer hardware equipment and
related input/output terminals, and the design and programming of
computer systems, are multi-billion dollar enterprises. What is the
liability exposure of computer hardware[51] and software[52] dealers?

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ing purposes, including the government, are accordingly obliged to operate
them with suitable control to safeguard the reliability and accuracy of the in-
formation.
Id. at 680.

48. *See* notes 41-47 *supra. See also* Klingbiel v. Commercial Credit Corp., 439 F.
2d 1303 (10th Cir. 1971); Pashalian v. Big-4 Chevrolet Co., 348 S.W.2d 628 (Mo. Ct.
App. 1961).

49. 342 F. Supp. 241 (N.D. Ohio 1972), *aff'd,* 479 F.2d 153 (6th Cir. 1973).

50. 479 F.2d at 159-66. The due process aspect of this case has been limited to
its facts. Northrup v. Federal Nat'l Mortgage Ass'n, 527 F.2d 23, 31 (6th Cir. 1975).
The *Palmer* court explained that the state's pervasive regulation of public utilities
brought the fourteenth amendment into play. 479 F.2d at 161-65.

51. Computer hardware is the mechanical equipment that electronically processes
data. A computer hardware system might consist of several component parts: central
processing unit, input unit, output unit, storage unit, and data transmission unit. The
central processor performs the logic and mathematical functions of the hardware system.
The input unit, which might be a card reader, magnetic tape drive, typewriter, telephone
support computer, or data storage device, furnishes the data on which the processing unit
performs its operational functions. Output units convert and present data in human
readable form for immediate or future use. *See* SANDERS, *supra* note 9, at 57, 106,
114-32.

52. Computer software refers to the programs and routines used in conjunction with

A. *Contract Liability*

A contract for the sale or lease of computer hardware or software, for computer services, or for the development of computer programs or systems, often serves as the basis for imposing liability upon the dealer.

1. Hardware Vendors

The liability exposure of computer hardware vendors is generally similar to other machine vendors. Special problems may arise, however. For example, the vendor who contracts to build a special purpose computer, or to build a computer with a novel design utilizing yet un-developed technology, faces the problem of allocating the risks of de-velopment. Who will bear the loss if the technological breakthrough is not achieved?

United States v. Wegematic Corp.[53] presented the Second Circuit with such a problem. In *Wegematic*, the defendant contractor had sub-mitted a bid to the Federal Reserve Board to furnish an intermediate type, general purpose electronic digital computing system. The Fed-eral Reserve Board had invited proposals for the production of such a system, stressing the need for an early delivery date. The defen-dant's proposal offered the sale or lease of a novel computer design, which it described as "a truly revolutionary system utilizing all of the latest technical advances,"[54] and promised delivery nine months after the contract was awarded. On the basis of this offer, the Board

computers. These programs fall into three major categories: translation, application, and operational programs. Translation programs convert programming languages into machine language or some other class of computer programming language. Early trans-lation programs were written manually in machine language by the programmer, a task that was quite tedious and intellectually exacting. With the advent of translating pro-grams, however, the job of programming is now shifted in part to the computer itself. Application programs process data in a manner specifically designed for a certain user (e.g., payroll). Finally, operating programs regulate the operation of a computer by di-recting it through its processing steps. Recent advances in operating programs have led to the development of multiprogramming and timesharing. *See* notes 26-27 *supra* and accompanying text.

The past decade has witnessed tremendous improvements in computer hardware and software technology. In particular, the development of software compatibility and hard-ware modularity has greatly expanded the use of computers. Software compatibility al-lows a series of machines to use the same software equipment. Hardware modularity, on the other hand, permits users to add and subtract computer capacity as it becomes needed.

53. 1 C.L.S.R. 341 (S.D.N.Y. 1969), *aff'd*, 360 F.2d 674 (2d Cir. 1966).

54. 360 F.2d at 675.

awarded a contract for $231,800, with a delivery date of June 30, 1957, and a liquidated damages clause requiring the defendant to pay $100 per day for delay. The contract also provided that in the event the defendant failed to comply with any provisions of the agreement, the Board could procure comparable equipment from another manufacturer and charge the contractor for any excess cost incurred thereby. Defendant contractor accepted the contract subject to these provisions. In mid-October 1957, the contractor announced that because of engineering difficulties it would be impractical to deliver the ordered equipment and requested cancellation of the contract without damages. The plaintiff thereafter purchased comparable equipment from another manufacturer, and sued the contractor for damages under the terms of the contract. The trial court awarded the plaintiff damages of $235,806; $46,300 for delay under the liquidated damages clause, $179,450 for the excess cost of the replacement equipment, and $10,056 for wasted preparation expenses.[55]

At trial, the defendant argued that delivery was made impossible by basic engineering difficulties, correction of which would cost one to one and a half million dollars and would require one to two years of work with no certainty of success. In short, defendant claimed that the technological breakthrough required for manufacturing the data system had not been achieved and, under applicable federal law, the "practical impossibility" of completing the contract excused its nonperformance.[56] The court held that the applicable "federal" law of sales could be found by analogy to the Uniform Commercial Code (U.C.C.), Article 2, section 2-615, "Excuse by failure of presupposed conditions."[57] This section excuses nondelivery under the contract where performance "has been made impracticable by the occurrence of a contingency the nonoccurrence of which was a basic assumption on which the contract was made . . . ," *except* where the seller has assumed a greater obligation. The issue, then, was whether the defendant contractor had assumed the risk of achieving the technological breakthrough.[58] Although the parties to the contract could have expressly allocated the risk of development by incorporating an exculpatory clause protecting the manufacturer, they did not do so. Absent such a provision, and in view of the fact that the defendant had agreed to

55. *Id.*
56. *Id.*
57. *Id.* at 676.
58. *Id.*

pay liquidated damages for any delay and had authorized the purchaser to procure comparable machinery from other sources in the event of nondelivery, the court held that the defendant was bound by his repressentations.[59]   To hold otherwise, the court reasoned, would permit manufacturers in fields of developing technology "to express what are only aspirations and gamble on mere probabilities of fulfillment without any risk of liability."[60]   The hardware manufacturer's failure to expressly allocate the risks of development, therefore, results in his assuming liability for any failure to achieve the promised technology.

2.   Software *and* Service Vendors

Computer software equipment[61] is usually sold in a package consisting of software, services, and professional counseling by vendors.   In the landmark computer case of *Clements Auto Co. v. Service Bureau Corp.*,[62] for example, the vendee had agreed to purchase from the Service Bureau Corporation (SBC) an automated accounting system designed to perform inventory control functions.   The system failed to operate properly and overpurchased obsolete merchandise.   Moreover, because the input method was slow and expensive, the accounting reports were too error-prone and voluminous to be of use to the vendee. As a result, the purchasing company was forced to assign two full-time executives to supervise the operation of the system.   The company then brought suit seeking rescission and reformation of the contract on the grounds of breach of implied warranty, breach of contract, and fraudulent misrepresentation.   The district court denied recovery on all grounds except the last, upon which it awarded the plaintiff damages of $480,811.33 for losses due to inventory obsolescence, executives' salaries, increased clerical costs, and rental costs and fees paid to SBC and other equipment suppliers.[63]

The court denied plaintiff's action for breach of implied warranty on the basis of a clause in the contract which provided: "SBC makes no warranties, expressed or implied, other than the express war-

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59. "We see no basis for thinking that when an electronics system is promoted by its manufacturer as a revolutionary breakthrough, the risk of the revolution's occurrence falls on the purchaser." *Id.*

60. *Id.* at 676-77.

61. *See* note 52 *supra.*

62. 298 F. Supp. 115 (D. Minn. 1969), *aff'd in pertinent part,* 444 F.2d 169 (8th Cir. 1971).

63. 298 F. Supp. at 133-34, 142.

ranties contained in this agreement."[64]   Similarly, the court rejected plaintiff's breach of contract claim because the contract merely stipulated that SBC would provide certain design services, in contrast to the broad oral representations made by SBC representatives.[65]   Yet, even though SBC provided the promised design services (programming and production of reports), and the system's failure resulted from defects with input production rather than programming, the vendor was held liable.   The court reasoned that SBC, by virtue of its broad representation that the proposed system would "constitute an effective and efficient tool,"[66] undertook responsibility for the efficient operation of the *total* system, including input production, and is therefore liable for its failure.[67]   Consequently, contracts for data processing services should clearly state which party bears the risk for losses resulting from errors in particular aspects of the system, including errors in input data, accidental destruction of records, or violation of the data's security. In addition, the contract should provide for liquidated damages for the aggrieved party.   The inclusion of such provisions in the purchasing agreement will often obviate the need for the injured party to prove breach of contract or negligence.

3.   Hardware *and* Software Vendors

In *Carl Beasley Ford, Inc. v. Burroughs Corp.*,[68] the plaintiff orally contracted with the Burroughs Corporation (Burroughs) for a computer and programs that would produce accounting records.   Both the computer and programs were delivered late and, when installed, failed to produce records in compliance with the contract.   In an action for damages for breach of contract, the defendant argued that its responsibility

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64. *Id.* at 139.
65. The court explained:
   In contrast to the broad representations made by SBC, the contracts signed by the parties merely provide that SBC will perform certain designated services—either programming or production of reports.   The contracts uniformly provide that SBC will take due care in such work.   They also expressly disclaim any other warranties or representations by SBC.
   SM Supply asks that these contracts be construed to provide that SBC promises to provide SM Supply inventory control.   Such a broad construction of the contracts — whether considered singly or as a whole — is not proper.   Each contract designates the services to be supplied.   In light of this explicit designation . . . SM Supply's claim must be rejected.
Id. at 140.
66. *Id.* at 130.
67. *Id.* at 131.   *See generally* Ducker, *Liability for Computer Software*, 26 Bus. Law. 1081 (1971).
68. 361 F. Supp. 325 (E.D. Pa. 1973), *aff'd*, 493 F.2d 1400 (3d Cir. 1974).

under the contract extended only to supplying machines and services *capable* of producing the desired results. System failure, the vendor pointed out, might be caused by a number of factors over which it had no control, including the purchaser's inability to operate complex machinery. The court rejected this argument, however, and held Burroughs liable for its failure to deliver a total system that *produced* the expected results.[69] Cognizant of the difficulty vendees would face in rebutting charges of incompetent operation, the court noted in dicta:

> In this breach of contract suit, plaintiff might well have carried its burden simply by proving that defendant had promised to produce a result (accounting records suitable for its purposes) and that defendant had failed to do so, leaving it to defendant to establish, as a matter of defense, that the errors were due to plaintiff's own personnel.[70]

Given the obvious discrepancy between the expertise of vendors and purchasers of computer hardware and software products, the procedural approach suggested by the *Beasley* court is the likely and equitable judicial response.

Although the results reached in the *Beasley* and *Clements* cases are similar, they are distinguishable in two respects. First, because *Beasley* did not involve a written contract with the standard warranty disclaimer and merger clauses, the court was able to hold that the vendor had breached the oral contract on grounds that were very analogous to a breach of implied warranty of fitness for purpose.[71] By contrast, the *Clements* court explicitly rejected the plaintiff's implied warranty claim, and rested its decision on the tort claim of misrepresentation.[72] Second, the court in *Beasley* may have been persuaded by the great disparity in expertise between the vendor and the vendee. Whereas the vendor in *Clements* was engaged only in the production and sale of computer software and services, the *Beasley* vendor manufactured and marketed the computer hardware products as well as the accompanying software equipment and services.

4. Software Vendors

The vendor of computer software can contract to provide a single

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69. 361 F. Supp. at 331.

70. *Id. See* Note, *Liability for Defects in Computer Software*, 53 J. URB. L. 279, 281-84 (1975).

71. 361 F. Supp. at 331-34.

72. *See* notes 62-67 *supra* and accompanying text.

computer program or a series of programs that constitute a system. The parties to such an agreement anticipate that the program or system will be used on the vendee's computer. The operation of the system, therefore, is dependent upon persons other than the vendor.

In *Sanitary Linen Services Co. v. Alexander Proudfoot, Co.*,[73] the defendant, a vendor of computer programs, agreed to aid the plaintiff in the "installation of schedule and method improvements designed to provide greater control over utilization of man and machine hours and to effect operating economies."[74] Under the terms of the contract, the vendor was to produce a "workable system" with savings accruing.[75] The system failed to perform as expected, and the plaintiff brought suit alleging both breach of contract and breach of express and implied warranties. The court, finding for the vendee, held that although there could be no implied warranties in a contract for personal services, the savings that resulted from the system were minimal; consequently, the vendor failed to perform its promise to provide a workable system. The court concluded:

> Proudfoot has maintained throughout that what it was selling was services and not results. The district court found that there were some slight benefits from Proudfoot's activities. We conclude that these savings or benefits were not of any consequence in determining whether the service of developing and installing a system was accomplished as promised. They did not rise to the level of preventing the failure of consideration from being material.[76]

Beasley and *Sanitary Linen* established that a vendor who simply fails to produce the promised results might be liable to the software purchaser for breach of contract or failure of consideration.[77] In so ruling, the courts have adopted the purchaser's perception of the agreement and rejected the seller's contention that he is a mere purveyor of a service. The *purpose* of the contract — *i.e.*, successful results for the purchasers—may provide the key to determine who should bear the risk of system failure.

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73. 304 F. Supp. 339 (S.D. Fla. 1969), *aff'd*, 435 F.2d 292 (5th Cir. 1970).
74. 435 F.2d at 293.
75. *Id.* at 294.
76. *Id.*
77. *See also* Burroughs Business Machs., Ltd. v. Feed-Rite Mills, Ltd., 42 D.L.R. 3d 303, 5 Computer L. Serv. Rep. [C.L.S.R.] 885 (Man. Ct. App. Can. 1973); Ducker, *supra* note 67.

5.   Contractual Limitations of Liability

a)   *Effective Limitations*

The leading case dealing with the contractual limitation of liability is *Farris Engineering Corp. v. Service Bureau Corp.*[78]   In *Farris*, plaintiff contracted with Service Bureau Corporation (SBC) for a complete and accurate inventory computation system that would compute total inventory costs and other accounting figures such as material, time, labor, and overhead unit costs.   After SBC had performed its services under the contract but before payment, the purchaser brought suit alleging that SBC had breached the contract by making numerous errors and by failing to perform within the agreed time schedule.   The written contract contained an exculpatory provision that limited damages to the contract price and excluded any liability for consequential or exemplary damages.   Based on this provision, the court denied the plaintiff's claim for damages arising out of the faulty operation of the data processing system and for additional expenses incurred as a result of the breach.   The district court noted that under New Jersey law exculpatory clauses in private agreements are valid so long as they do not adversely affect the public interest.[79]   Thus, in states such as New Jersey, vendors may effectively limit their liability by including an exculpatory clause in the contract.

Liquidated damage clauses provide another means by which the computer vendor can limit his liability.   In the *Wegematic* case, the district court commented upon the utility of such clauses:

> There is authority to the effect that where the parties to a contract have specified that a certain amount of liquidated damages are to be paid in the event of a certain breach or breaches such provision fixes the damages that are reasonable for such breach or breaches and the party injured may not, in addition, recover actual damages sustained in excess of the amount or amounts fixed.[80]

Rules and regulations promulgated by a public utility illustrate an additional method by which some suppliers of computer services may

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78.   276 F. Supp. 643 (D.N.J. 1967), *aff'd*, 406 F.2d 519 (3d Cir. 1969).

79.   276 F. Supp. at 645.   *See also* Hunt v. Perkins Mach. Co., 352 Mass. 535, 226 N.E.2d 228 (1967); Note, *supra* note 70, at 285.

80.   1 C.L.S.R. 341, 356 (S.D.N.Y. 1964), *aff'd*, 360 F.2d 674 (2d Cir. 1966).   *See* notes 53-60 *supra* and accompanying text.

limit their liability.[81] In *Waters v. Pacific Telephone Co.*,[82] a real estate broker brought an action for damages against the Pacific Telephone Company (Pacific) for failure to furnish adequate services in violation of section 451 of the California Public Utilities Code.[83] Pacific's alleged acts of negligence included lack of proper maintenance services, incompleted calls, unauthorized removal of phones, improper installation of phones, and a variety of other "frustrating experiences" stated in plaintiff's complaint.[84]

Pacific argued that under paragraph 14(a) of its tariff schedule,[85] the customer is entitled to recover a "credit allowance" only for the period that the customer's telephone is out of service. The Supreme Court of California agreed and stated:

> [T]he (Public Utilities) Commission has adopted a policy of limiting the liability of telephone utilities such as Pacific for acts of ordinary negligence to a specified credit allowance, as set forth in approved tariff schedules which form a contract with telephone service customers.

81. Telephone companies promise to be a major channel for data communication among computer users. Because of the highly regulated nature of this utility, individual contract negotiations with customers are unlikely; thus, liability limiting devices are often incorporated into the utility's rules and regulations and registered with a public utilities commission. *See* Cole v. Pacific Tel. & Tel. Co., 112 Cal. App. 2d 416, 417, 246 P.2d 686, 687 (1952).

82. 12 Cal. 3d 1, 523 P.2d 1161, 114 Cal. Rptr. 753 (1974).

83. CAL. PUB. UTIL. CODE § 451 (Deering Supp. 1977) provides in pertinent part:
Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.
    All rules made by a public utility affecting or pertaining to its charges or service to the public shall be just and reasonable.

84. 12 Cal.3d at 5, 523 P.2d at 1163, 114 Cal. Rptr. at 755.

85. Paragraph 14(a) of Pacific's tariff schedule, filed with and approved by the [Public Utilities] [C]ommission, and incorporated into Pacific's contract with plaintiff, provided . . . :
    "14.   INTERRUPTIONS AND FAILURES OF SERVICE
    "(a)   Credit Allowance for Interruption to Service
    "Upon request of the subscriber the Company will allow subscribers credit in all cases where telephones are 'out of service,' except when the 'out of service' is due to the fault of the subscriber, for periods of one day or more from the time the fact is reported by the subscriber or detected by the Company, of an amount equal to the total fixed monthly charges for exchange service multiplied by the ratio of the number of days 'out of service' to the number of calendar days in the billing month.
    "A day 'out of service' will be considered to exist when service is not available for a period of twenty-four consecutive hours. When any 'out of service' period continues for a period in excess of an even multiple of twenty-four hours, then the total period upon which to determine the credit allowance will be taken to the next higher even twenty-four hour multiple.

> Since an award of substantial damages to plaintiff would be contrary to the policy adopted by the commission and would interfere with the commission's regulation of telephone utilities, we have concluded that . . . the instant action (for damages) . . . was properly dismissed.[86]

In reaching this result, the court relied heavily on a California statute that limited its review of any order or decision of the Public Utilities Commission to a writ of mandamus.[87] Consequently, the *Waters* decision may not apply in other states. It does suggest, however, that regulated industries may restrict their liability for ordinary negligence arising out of their computer-dependent operations by adopting limiting devices such as credit allowances and adjusting their rates accordingly.

b) *Ineffective Limitations on Liability*

A limitation of liability clause in a contract may be ineffective if a court finds that the actual agreement made by the parties is broader than the written instrument. In *Beasley*,[88] for example, the defendant attempted to limit his liability by inserting an exculpatory clause in the written contract excluding liability for consequential damages. Although the written contract related only to the sale of computer hardware, the jury found that the actual agreement between the parties extended to software equipment and services as well, and that the exculpatory clause did not apply to these items; accordingly, consequential damages relating to this aspect of the transaction were permitted.[89]

Thorton v. Shoe Lane Parking, Ltd.,[90] an English case relevant by analogy to computer contracts problems, illustrates another instance in which liability disclaimers may prove ineffective. In *Thorton*, the plaintiff pulled into a parking lot driveway and placed his money in a

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"In no case will the credit allowance for any period exceed the total fixed charges for exchange service for that period."
12 Cal. 3d at 5 n.4, 523 P.2d at 1163 n.4, 114 Cal. Rptr. at 755 n.4 (emphasis added by court).

86. 12 Cal.3d at 4, 523 P.2d at 1162, 114 Cal. Rptr. at 754.

87. CAL. PUB. UTIL. CODE § 1759 (Deering Supp. 1977) provides that:
No court of this State, except the Supreme Court to the extent specified in this article, shall have jurisdiction to review, reverse, correct, or annul any order or decision of the commission or to suspend or delay the execution or opertion thereof, or to enjoin, restrain, or interfere with the commission in the performance of its official duties, except that the writ of mandamus shall lie from the Supreme Court to the commission in all proper cases.

88. 361 F. Supp. 325 (E.D. Pa. 1973), *aff'd mem.*, 493 F.2d 1400 (3d Cir. 1974).

89. 361 F. Supp. at 332-34.

90. [1971] 2 W.L.R. 585, 4 C.L.S.R. 641 (C.A. 1970).

machine that issued a parking ticket. The printed contract on the back
of the ticket stated that the "agreement" was subject to several condi-
tions posted inside the lot. One of these conditions limited the parking
lot owner's liability. The court held that the ticket did not provide
Thorton with sufficient notice of the conditions to bind him, and noted:

> The customer pays his money and gets a ticket. He cannot refuse it.
> . . . He may protest to the machine, even swear at it. But it will re-
> main unmoved. He is committed beyond recall. He was committed
> at the very moment when he puts his money into the machine.[91]

It may be argued, therefore, that where machines or computers dis-
pense contracts and function as virtual contracting agents, conditional
clauses such as liability limitations may be ineffective because the
requisite notice to the other party is lacking.

In addition, contractual provisions negating liability for certain types
of risks may be unenforceable as against a state public policy.[92] For
example, the defendant in *Clements*[93] argued that a contract provision
excluding liability for special or consequential damages applied to fraud
actions based on innocent misrepresentations. The defendant con-
tended that such fraud actions do not contain an element of bad faith[94]
and should therefore be treated in the same manner as breach of con-
tract actions, in which provisions excluding consequential damages had
been consistently upheld. The Eighth Circuit rejected this argument
and held that Minnesota's avowed public policy in favor of providing
effective remedies for fraud rendered such provisions ineffective.[95]
Hence, in states such as Minnesota there is no effective contractual
method of limiting liability for this type of risk.[96]

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91. *Id.* at 588, 4 C.L.S.R. at 644.

92. *See, e.g.,* Clements Auto Co. v. Service Bureau Corp., 298 F. Supp. 115 (D.
Minn. 1969), *aff'd in pertinent part,* 444 F.2d 169 (8th Cir. 1971) (exculpatory clause
held inapplicable against fraud action). *But see* National Cash Register Co. v. Modern
Transfer Co., 224 Pa. Super. Ct. 138, 302 A.2d 486 (1973) (exculpatory clause held
effective against fraud claim where clause contradicted alleged fraudulent representation
and where plaintiff failed to aver that alleged misrepresentation was fraudulently omitted
from written contract).

93. 298 F. Supp. 115 (D. Minn. 1969), *aff'd in pertinent part,* 444 F.2d 169 (8th
Cir. 1971).

94. Minnesota is one of the few states that permits recovery for innocent misrepre-
sentations. The trend, however, is clearly in favor of such a claim. *See* W. PROSSER,
supra note 28, at 710.

95. 444 F.2d at 188-89.

96. *See generally* Philpott, *Imposing Liability on Data Processing Services — Should
California Choose Fraud or Warranty?,* 13 SANTA CLARA LAW. 140, 152-53 (1972).

6.   Computer Waiver of Legal Rights

Suppose an event occurs that gives one party the right to rescind the contract but that party's computer, following previous instructions, performs an act that affirms the contract. What if the party had decided to rescind? Does the computer in these cases act as the contracting agent of the user? Do the doctrines of estoppel or waiver apply to bind the computer user to a contract he neither intended nor desired? Finally, what liability does the computer user in such situations incur?

In *State Farm Mutual Automobile Insurance Co. v. Brockhorst*,[97] the defendant was involved in an automobile accident at 12:45 a.m. on October 4, 1969. This accident occurred about one and a half months after the defendant had defaulted on his premium payments and his insurance policy had lapsed. Brockhurst immediately mailed a check for the amount owing on his policy and personally reported his actions to his agent. The agent explained the facts to his superiors and forwarded the defendant's check to the main office. When the insurance company's computer received the check, it automatically reinstated his policy retroactively as of 12:01 a.m., October 4, 1969, forty-four minutes before the accident occurred. State Farm subsequently refunded Brockhorst's premium, stating that no coverage of any type was available to him, and sued for a nonliability declaratory judgment. The court held that because the defendant had not concealed any of the facts, and because State Farm had knowledge of both the time of the accident and the mailing of the premium check, the insurance company had *waived* its right to refuse reinstatement when the computer issued a new policy extending coverage prior to the time of the accident.[98] The court reasoned:

> A computer operates only in accordance with the information and directions supplied by its human programmers. If the computer does not think like a man, it is man's fault. The reinstatement of Brockhorst's policy was the direct result of the errors and oversights of State Farm's human agents and employees. The fact that the actual processing of the policy was carried out by an unimaginative mechanical device can have no effect on the company's responsibilities for those errors and oversights. State Farm's reinstatement of Brockhorst's policy while in

97.   453 F.2d 533 (10th Cir. 1972).

98.   *Id.* at 535. *See also* Farm Bureau Mut. Auto. Ins. Co. v. Bobo, 214 F.2d 575 (4th Cir. 1954) (retention of premium payment beyond thirty days grace period); Alabama Farm Bureau Mut. Cas. Ins. Co. v. Hicks, 272 Ala. 574, 133 So. 2d 221 (1961) (retention of delinquent premium payments with full knowledge of accident during

full possession of information establishing its right to refuse reinstatement constituted a binding waiver, and the reinstated policy effectively extended coverage for the period during which Brockhorst's accident occurred.[99]

Such cases often turn on whether there are sufficient facts from which a judge or jury can infer an intent to waive the right to rescind the contract.[100] A series of New York cases illustrate the difficulties in proving the requisite intent. In *Johnson v. Mutual Benefit Health & Accident Association*[101] and *Prudential Insurance Company of America v. Brown*,[102] two New York state courts reached opposite conclusions on the issue of waiver notwithstanding essentially identical fact patterns in both cases. The relevant facts were: (1) the insured's application contained a material misrepresentation pertaining to the insured's health; (2) the insurer learned of this misrepresentation and returned to the insured his prior premium payments; (3) because of an error in some mechanical procedure, an automatic notice of somes sort was sent to an insured by a business machine (in *Johnson* a premium notice was sent; in *Brown* two dividend notices were sent); and (4) in both cases, a premium was accepted by mistake and retained because the insurer felt it would be futile to return it.

The New York Supreme Court, Appellate Division, Third Department, noted in *Johnson* that the issuance of a premium payment notice was "cogent evidence of an intent to abandon rescission."[103] The court observed:

> The demand . . . for the payment of a premium, and the acceptance and retention of the same by the company, must be considered as evidence of a waiver of the right to rescind in the absence of a more convincing explanation . . . . The only argument on the part of the appellant to explain the demand and acceptance of the premium is to the

period of default); American Nat'l Ins. Co. v. Cooper, 169 Colo. 420, 458 P.2d 257 (1969) (retention of delinquent premiums with full knowledge of accident during period of default); Van Hulle v. State Farm Mut. Auto. Ins. Co., 44 Ill. 2d 227, 254 N.E.2d 457 (1969) (acceptance of past due premium with notice of loss).

99. 453 F.2d at 537.

100. Waiver is "essentially a matter of intention." Alsens Am. Portland Cement Works v. Degnon Contracting Co., 222 N.Y. 34, 37, 118 N.E. 210, 210 (1917) *quoted in* Prudential Ins. Co. v. Brown, 30 Misc. 2d 147, 215 N.Y.S.2d 652 (Sup. Ct. 1961). *See* Gutman v. United States Cas. Co., 241 App. Div. 752, 753, 270 N.Y.S. 160, 161 (1934) ("[w]hether a waiver has occurred is a matter of intention").

101. 5 App. Div. 2d 103, 168 N.Y.S.2d 879 (1957), *modified on other grounds*, 5 N.Y.2d 1031, 158 N.E.2d 251, 185 N.Y.S.2d 552 (1959).

102. 30 Misc. 2d 147, 215 N.Y.S.2d 652 (Sup. Ct. 1961).

103. 5 App. Div. at 107, 168 N.Y.S.2d at 883.

effect that the company is a large one and the incident was an inter-departmental mistake.[104]

Three years later, however, the New York Supreme Court, West-chester County, in *Brown*, found the *Johnson* rationale unpersuasive. Under the test established in *Brown*, waiver requires conduct that consti-tutes "a deliberate recognition of the policy."[105] The evidence must demonstrate a voluntary choice to waive a right, and "[n]egligence, over-sight, or thoughtlessness does not create it."[106] Because the electronic "error" that caused the issuance of the individual notices fell into this latter category, the insured had failed to establish the requisite in-tent.[107] The *Brown* court, however, failed to distinguish or even mention the prior decision in *Johnson*. To add to the confusion, the New York Supreme Court, Appellate Division, First Department, in *Garbin v. Mutual Life Insurance Co.*,[108] approved *Johnson* and held that an insurer who had accepted premium payments after discovering the insured's misrepresentation waived his right to rescind the contract. Although the Supreme Court in *Garbin* reversed the lower court hold-ing based on *Brown*, it failed to distinguish the cases. *Garbin*'s facts were substantially more favorable than either of the prior cases to a finding of knowing waiver;[109] it is arguable, however, that there are no valid distinctions that can be drawn between the *Johnson* and *Brown* cases. Consequently, liability may be incurred because a computer program is not set up to cut-off premium notices, reject premium payments, or otherwise handle contractual relations in accordance with the intentions of the computer user. Proving an intent to waive the right to rescind, however, *may* require more than the fact that the com-puter issued the contract.

7.   Computer Estoppel

Contractual obligations can also result from an application of the doc-

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104. *Id.* at 106-07, 168 N.Y.S.2d at 883.

105. 30 Misc. 2d at 151, 215 N.Y.S.2d at 657.

106. *Id.* at 150, 215 N.Y.S.2d at 656 (quoting Alsens Am. Portland Cement Works v. Degnon Contracting Co., 222 N.Y. 34, 37, 118 N.E. 210, 210 (1917)).

107. *Id.*

108. 75 Misc. 2d 552, 348 N.Y.S.2d 69 (Civ. Ct. N.Y. 1973), *rev'd*, 77 Misc. 2d 689, 356 N.Y.S.2d 741 (Sup. Ct. 1974).

109. In *Garbin*, the insured had materially misrepresented several facts about his medical history on companion medical insurance policies. Although the insurer dis-covered the misrepresentation thirteen months before the insured's death, it continued to demand, accept, and retain quarterly pension payments. The court rejected de-

trine of estoppel. "A waiver is a voluntary act of election between two or more courses of action. An estoppel, on the other hand, is an abatement of rights through the intervention of law because of equitable considerations; it contemplates an act to the prejudice of one party in reliance on the conduct of another" before it will be applied.[110] In the insurance cases discussed above, the insureds could have asserted the doctrine of estoppel if they had detrimentally relied on the insurer's acceptance of the premiums.[111] The doctrine was successfully applied in *Colonial Life & Insurance Co. v. Wilson*.[112] In *Colonial Life*, the defendant was insured by the plaintiff under an "Executive and Professional Accident Policy." The policy was paid each year by a set of "Series Checks" which were issued by the insurer on IBM cards and signed and returned by the insured. One check was cashed each month by the insured for that month's premium. Colonial Life repeatedly assured Wilson that his policy would remain in force so long as he signed and returned each series check. If the check was sent by mail, it had to be postmarked by the last day of the grace period. Late notices sent by the company after the first of each month contained the statement, "If these checks have already been mailed please disregard this notice."[113]

In an action for a nonliability declaratory judgment, the jury found that although Wilson signed and mailed the checks in the latter part of July and August, Colonial Life did not receive them. This resulted in the cancellation of his policy.[114] Under the general rule, unless a premium check is expressly accepted as payment, it is only conditional payment until honored and paid on presentment.[115] Colonial Life was estopped from asserting the claim of conditional payment, however, because of its assurances to Wilson that signing and mailing the checks would be sufficient to keep the policy in force. The statement con-

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fendant's explanation that failure to cancel the policies was due to inadvertence. 77 Misc. 2d at 690, 356 N.Y.S.2d at 742.

110. 30 Misc. 2d at 149, 215 N.Y.S.2d at 655. *See* 16 J. APPLEMAN, INSURANCE LAW AND PRACTICE, § 9081 (1944).

111. *See, e.g.,* Reserve Life Ins. Co. v. Howell, 225 Or. 71, 357 P.2d 400 (1961), *overruled on other grounds,* Bunn v. Monarch Life Ins. Co., 257 Or. 409, 478 P.2d 363 (1970).

112. 246 F.2d 922 (5th Cir. 1957), *cert. denied,* 355 U.S. 927 (1958).

113. *Id.* at 926.

114. *Id.*

115. *See* 3A A. CORBIN, CORBIN ON CONTRACTS §§ 633, 635 (1960).

tained in the late notice reinforced Wilson's claim that he had no knowledge of the cancellation. The court stated:

> If there are risks involved in this system, it is the Insurer's system to alter. If the risk of this system, or that of possible perjury by interested parties outweighs the evident savings in personnel and operating costs which leads its executives to declare that the procedure is highly beneficial to it, the Insurer can change it. The Insurer can refrain from advising the Assureds that mailing of checks will assure "that your policy will be kept in force for another twelve months' period" or that "by signing and returning these checks today, you can be assured that your future is protected." Until that is done, the Assured, unaware that his "Series Checks" have gone astray, if he complies with those directions, has the benefits of those assurances.[116]

The doctrines of estoppel and waiver may also be applicable to a computer purchasing contract. In *Associated Tabulating Service, Inc. v. Olympic Life Insurance Co.*,[117] the defendant was a fledgling insurance company not yet involved in the actual selling of insurance policies. Associated Tabulating Service (Associated), a computer service bureau, performed data processing services for several insurance companies. Olympic Life was in the market for such services and after some negotiations and exchange of letters and proposals, Olympic Life and Associated began doing business. Associated charged the defendant five dollars per policy for its services, a price that allowed for the ammortization over five years of the original cost of the data processing operation. Although this was a contract term mentioned during negotiations, no formal contract was ever entered into. One and one-half months after services began, Olympic abruptly halted the business relationship. Associated thereupon sued for breach of contract and reliance damages under a theory of promissory estoppel. The court awarded the reliance damages and found that Olympic "by its words and conduct . . . made promises or assurances to Associated which led it reasonably to believe that it had a five year contract for the data processing."[118] Although Olympic was probably too inexperienced to understand the nature of its data processing relationship with Associated, it was nevertheless held liable for its conduct.

In another case involving the doctrine of estoppel, liability was incurred for the purchase of a computer hardware system, even though

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116. 246 F.2d at 928-29.
117. 414 F.2d 1306 (5th Cir. 1969).
118. *Id.* at 1311.

that system never performed its intended functions. In *National Cash
Register Co. v. Marshall Savings & Loan Association*,[119] the defendant
contracted with National Cash Register (NCR) for the purchase and
installation of an electronic data processing system. The contract pro-
vided for payment as soon as NCR delivered, installed, and certified
that the system was ready for use. NCR completed installation and
certified by a letter to Marshall that the computer system had been de-
livered, installed, tested, and was available for use. The final step of
converting Marshall's data for use in the system was never completed,
however. This prevented defendant from commencing day to day op-
erations; Marshall refused to pay until total conversion was accom-
plished, and NCR sued for breach of contract.

The court held that although the installed system could not be used
until the data's conversion was completed, Marshall, by neither disput-
ing nor rejecting the certification letter, was estopped from now claim-
ing that the system was not "ready for use."[120] NCR, the court found,
had taken the position at the time of the transaction that "ready for
use" meant when the system was physically installed.[121] Marshall had
unequivocally accepted that interpretation of the contract term when
it failed to object to the letter of certification at the time it was sent.
The purchaser was liable, therefore, for the entire purchase price of
a data processing system it could not operate. Thus, a computer pur-
chaser (or seller) may be estopped from pursuing an otherwise valid
claim for goods and services by its prior words or conduct.

B. *Warranty Liability*

Warranties can also create liability for hardware and software
vendors, and may arise under either Article 2 of the U.C.C.[122] or
under the common law doctrines of express and implied warranties.

1. Express Warranties

Express warranties have thus far had a limited application to the
computer field because vendors rarely include such provisions in their
purchasing contracts. Section 2-313(1)(a) of the U.C.C. defines an
express warranty: "Any affirmation of fact or promise made by the

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119. 415 F.2d 1131 (7th Cir. 1969).
120. *Id.* at 1132-33.
121. *Id.* at 1133.
122. Express warranties are covered by U.C.C., Article 2, § 2-313 (1972 version).

seller to the buyer which relates to the goods and becomes part of the basis of the bargain creates an express warranty that the goods shall conform to the affirmation or promise." In those cases, therefore, where a hardware or software vendor represents such things as speed of calculation, memory capacity, or type of language used, the purchaser should be able to recover for breach of express warranty if the enumerated features are not satisfactory. If other features fail to perform, however, the express warranty may be interpreted by the court as a limitation precluding recovery for the nonperformance of all items except those expressly warranted in the contract.[123]

2. Implied Warranties

The U.C.C. creates two types of implied warranties: section 2-314 provides: "[A] warranty that the goods shall be merchantable is implied in a contract for their sale if the seller is a merchant with respect to goods of that kind."[124] And section 2-315 establishes:

> Where the seller at the time of contracting has reason to know any particular purpose for which the goods are required and that the buyer is relying on the seller's skill or judgment to select or furnish suitable goods, there is unless excluded or modified . . . an implied warranty that the goods shall be fit for such purpose.[125]

Such warranties arise from the act of making the sale, and are independent of any oral or written agreements.[126] As such, they are implied in every sale of computer "goods" unless expressly excluded or modified.[127]

The first issue, therefore, is whether computer software is a "good" under the appropriate provision of the U.C.C. Section 2-105(1) defines goods as "all things (including specially manufactured goods) which are movable at the time of identification to the contract for sale."

See note 123 *infra* and accompanying text. Implied warranties are of two types: merchantability, covered by U.C.C. § 2-314 (1972 version), and fitness for particular purpose, U.C.C. § 2-315 (1972 version). *See* notes 124-126 and 133-136 *infra* and accompanying text.

123. *See, e.g.,* Honeywell Information Sys., Inc. v. Demographic Sys., Inc., 396 F. Supp. 273, 275 (S.D.N.Y. 1975) (express warranty to repair or replace defective equipment held good defense against claim of poor performance).

124. U.C.C. § 2-314 (1972 version).

125. U.C.C. § 2-315 (1972 version).

126. U.C.C. § 2-314 (1972 version). *See* Sperry Rand Corp. v. Industrial Supply Corp., 337 F.2d 363, 368 (5th Cir. 1964).

127. U.C.C. § 2-316 (1972 version).

Relying on this provision, the court in *Computer Servicenters, Inc. v. Beacon Manufacturing Co.*[128] held that data processing was a service rather than a "good" and therefore not subject to implied warranty liability under the U.C.C. Although the court did not address the status of computer software equipment and system development transactions in general, the decision in *Computer Servicenters* suggests that courts might be restrictive in their interpretation of the term "goods" as applied to data processing and similar contracts.[129]

Even though the subject matter may be a good under section 2-105(1), the nature of the computer transaction may remove it from the scope of Article 2. In *Leasco Data Processing Equipment Corp. v. Starline Overseas Corp.*,[130] the plaintiff contracted to purchase a computer from a defendant-designated seller and to lease it to the defendant for five years and five months at a fixed monthly rental of $274.20. After three years the defendant defaulted, claiming that the machine had become inoperable. In an action for rent due on the balance of the contract, the defendant charged in his counterclaim that the transaction was within Article 2.[131] The court held that the agreement was a title retention and lease governed by Article 9 of the U.C.C. rather than a sale of goods under Article 2; accordingly, it rejected defendant's counterclaim and observed, "Article 2 of the Uniform Commercial Code—(Sales) . . . expressly excludes from the application of its provisions . . . 'any transaction which although in the form of an unconditional contract to sell or present sale is intended to operate only as a security transaction.' "[132] Thus, the type of transaction *intended by the parties* has a significant bearing on what legal protections will apply.

If the transaction falls within the scope of Article 2, the implied warranty for purpose[133] provides the purchaser with one of his most effective safeguards. This warranty applies if the court finds that the seller had reason to know, at the time of the transaction, of a particular purpose for which the goods were to be used. Thus, if the seller par-

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128. 328 F. Supp. 653 (D.S.C. 1970), *aff'd*, 443 F.2d 906 (4th Cir. 1971).

129. *See* McGonigal, *Application of the Uniform Commercial Code to Software Contracts*, in 2 Computer L. Serv. § 3-3 Art. 4 (1974).

130. 74 Misc. 2d 898, 346 N.Y.S.2d 288 (Sup. Ct. 1973), *aff'd mem.*, 45 App. Div. 2d 99, 360 N.Y.S.2d 199 (1974).

131. *Id.* at 900, 346 N.Y.S.2d at 290.

132. *Id.* at 901, 346 N.Y.S.2d at 290.

133. U.C.C. § 2-315 (1972 version). *See* note 125 *supra*.

ticipates in the installation of the purchaser's data processing system by recommending equipment, performing design work, or furnishing programs, courts are more likely to infer an implied warranty of fitness for a particular purpose; the cooperating seller in such circumstances is presumed to know of the particular purpose for which the computer equipment, program, or system is to be used.[134]

In *Sperry Rand Corp. v. Industrial Supply Corp.*,[135] the Fifth Circuit addressed the question of whether a vendor of computer products could be liable for breach of an implied warranty of fitness for a particular purpose notwithstanding the incorporation of an express warranty clause in the written contract. In *Industrial Supply*, appellee had informed several computer manufacturers that it was interested in purchasing an electronic recordkeeping system. The appellant made a survey of Industrial's operation, and recommended a Univac Electronic Computer, which Industrial agreed to purchase. The computer subsequently malfunctioned, and the purchaser brought an action against the seller for breach of contract. The written agreement contained both an integration clause and an express warranty covering adjustments and replacement of defective parts, which, the seller argued, excluded the application of any implied warranties. The court rejected this claim and held that because the subject of the express warranty was not inconsistent with the asserted implied warranty of fitness for use, recovery under the implied warranty was not barred.[136] Because Sperry Rand had surveyed Industrial's particular needs, it was liable for breach of implied warranty, in spite of contract limitations calculated to prevent such liability.

There are valid ways, nevertheless, for the computer vendor to limit his liability for implied warranties. Section 2-316(2) of the U.C.C. permits disclaimers of the implied warranty of merchantability, but requires that such disclaimers specifically mention "merchantability" and, in the case of a writing, be conspicuous.[137] Implied warranties of fit-

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134. *See, e.g.,* Sperry Rand Corp. v. Industrial Supply Corp., 37 F.2d 363 (5th Cir. 1964). *See generally* Note, *supra* note 70, at 291.

135. 337 F.2d 363 (5th Cir. 1964).

136. The court reasoned:
    [W]hile there may be a valid express disclaimer of an implied warranty, the right to assert such a warranty is not precluded by express warranties which are not inconsistent, and since the implied warranty arises independently of the contract of sale, it is not to be rejected because of an integration clause.
Id. at 371.

137. U.C.C. § 2-316(2) (1972 version) provides:
    (2) Subject to subsection (3), to exclude or modify the implied warranty of

ness for a particular purpose also may be excluded by general language, but only if it is in writing and conspicuous.[138]   In addition, section 2-316(3)(b) operates to negate implied warranties "when the buyer before entering into the contract has examined the goods . . . as fully as he desired or has refused to examine the goods . . . [when] an examination ought in the circumstances to have revealed to him [any defects]."[139]

C.   Tort Liability

The vendor of computer hardware and software products may also incur liability for his negligence or intentionally tortious conduct, or by virtue of the application of strict liability doctrines.

1.   Misrepresentation

The law of misrepresentation provides purchasers of computer products with an additional cause of action for damages arising out of their computer transactions.   This tort claim may be based upon an intent to deceive, negligence, or strict liability,[140] and requires proof that the seller's representations were false, material, and reasonably relied upon by the purchaser.[141]   In addition, partial disclosures that convey a false impression about a material aspect of the transaction may constitute misrepresentation, rendering the seller liable for his omissions.[142]

In *Strand v. Librascope, Inc.*,[143] recovery for misrepresentation was

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merchantability or any part of it the language must mention merchantability and in case of a writing must be conspicuous, and to exclude or modify any implied warranty of fitness the exclusion must be by a writing and conspicuous. Language to exclude all implied warranties of fitness is sufficient if it states, for example, that "There are no warranties which extend beyond the description on the face hereof."

See Bakal v. Burroughs Corp., 74 Misc. 2d 202, 343 N.Y.S.2d 541 (Sup. Ct. 1972).

138. *See* Reeves Soundcraft Corp., 2 U.C.C. Rep. 210, 1 C.L.S.R. 285 (A.S.B.C.A. 1964).

139. Implied warranties also arise from the common law, but because the relevant sections of the Code provide broader protections, the common law implied warranty is rarely applied.   For a discussion of computer software under Article 2, see Note, *supra* note 70, at 291-96 and cases cited therein.

140. A small but growing number of states have adopted strict liability for innocent misrepresentations. *See* note 94 *supra.*

141. *See* W. PROSSER, *supra* note 28, at 699-720.

142. *See* Equitable Life Ins. Co. v. Halsey, Stuart & Co., 312 U.S. 410, 425-26 (1941); Strand v. Librascope, Inc., 197 F. Supp. 743, 753-54 (E.D. Mich. 1961). *See generally* 1 F. HARPER AND W. JAMES, THE LAW OF TORTS 586-88 (1956).

143. 197 F. Supp. 743 (E.D. Mich. 1961).

based on the defendant vendor's failure to make a full disclosure re-
garding its product's stage of development. Strand, a private citizen en-
gaged in the manufacture of digital computers, contracted with defend-
ant to purchase several hundred magnetic read/record heads to be used
in constructing an electronic digital computer. The vendor, Libra-
scope, was an experienced manufacturer of computer components and
knew of Strand's particular needs. Based on Strand's specifications,
Librascope recommended its MH-10R magnetic head. It failed to dis-
close, however, that this head was experimental and had a tendency
to develop "noise" and "crosstalk," and that more reliable alternatives
were available. Moreover, defendant's engineers repeatedly insisted,
even after Strand had informed them that he was experiencing "noise
problems" with the head, that his troubles were caused by mistakes in
his system's design rather than any defect in their product. The
court found these acts and omissions by Librascope to be deceptive and,
under Michigan law, held the corporation liable for misrepresenta-
tion.[144]

The court found several considerations decisive in determining
whether defendant's misrepresentations were material. Librascope, as
an experienced manufacturer, possessed superior knowledge and ex-
pertise in the field of electronic digital computers and had more famili-
arity with component equipment than Strand.[145] Furthermore, the
defendant had within its exclusive possession certain complex technical
information relating to the research and development of the new record
head. Finally, it knew of plaintiff's particular needs and specifications,
and was aware of the great reliance plaintiff placed upon its knowledge,
honesty, and good faith. In view of these circumstances, the court
found that elementary fair conduct required complete disclosure by
Librascope of the state of development of its new product, "since such
disclosure was necessary to prevent Strand from drawing conceptions
or inferences known by Librascope to be unwarranted."[146]

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144. *Id.* at 755. The district court noted that under Michigan law "the plaintiff
must show that the misrepresentations were material, as measured by an objective stan-
dard, and that he did, in fact, rely upon them." Hall v. Johnson, 41 Mich. 286, 289, 2
N.W. 55, 57 (1879). *See* note 94 *supra.*
145. 197 F. Supp. at 752, 754. *See* Clements Auto Co. v. Service Bureau Corp., 298
F. Supp. 115 (D. Minn. 1969), *aff'd in pertinent part*, 444 F.2d 169, 183 (8th Cir.
1971) ("The Minnesota Court has frequently looked to the relative knowledge of the
parties in determining whether reliance on the representation was justified.").
146. 197 F. Supp. at 752-53.

In *Fruit Industries Research Foundation v. National Cash Register Co.*,[147] on the other hand, the Court of Appeals for the Ninth Circuit held that where a purchaser *knew* of certain inadequacies in the operation of a vendor's computer before purchase, it had no right to rely upon the vendor's misrepresentations concerning those inadequacies.[148] This result is consistent with the decision in *Strand*. The court in *Fruit Industries* emphasized the computer expertise of the purchaser and his ability to foresee the particular deficiencies that arose.[149] It concluded that since this business transaction, unlike that in *Strand*, was conducted by "two sophisticated businessmen, dealing at arm's length," the purchaser's alleged reliance upon the misrepresentations of the seller was unjustified.[150]

The court in *Fruit Industries* also denied recovery for defendant's alleged misrepresentation that plaintiff would obtain enough customers to operate the new system profitably.[151] The court ruled that this was not a misrepresentation of an existing fact but a present statement of intent precluding recovery.[152] This result seems to contradict the decision in the *Clements* case,[153] in which the vendor was held liable for his misrepresentations regarding the predicted or intended results of the system's design.[154] The court in *Clements* reached its result, however, by viewing the proposed computer system as one product and statements about that system as descriptions of its inherent capabilities.[155] Even under this view, the statement in the *Fruit Industries* case

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147. 406 F.2d 546 (9th Cir. 1969).

148. *Id.* at 549. The court held that Washington's general policy of allowing recovery for fraud despite the victim's negligence in relying on the misrepresentations did not apply where the victim knew the facts allegedly misrepresented to be false. *Id.*

149. *Id.*

150. *Id.*

151. *Id.*

152. The court explained that such promises "cannot satisfy the first necessary element of actionable fraud, misrepresentation of an existing fact, unless there existed a present intent not to attempt the future fulfillment of the promises." (citations omitted). *Id.* at 549-50. *See* W. PROSSER, *supra* note 28, at 720; Keeton, *Fraud — Misrepresentation of Opinion*, 21 MINN. L. REV. 643 (1937).

153. Clements Auto Co. v. Service Bureau Corp., 298 F. Supp. 115 (D. Minn. 1969), *aff'd in pertinent part*, 444 F.2d 169 (8th Cir. 1971). *See* notes 62-67 *supra* and accompanying text.

154. *See* note 67 *supra* and accompanying text.

155. 444 F.2d at 181. Although the vendor's statement that the proposed system would "constitute an effective tool to be used in inventory control" could be construed as a prediction of what the system will do, the court held that under Minnesota law it was also "a statement of inherent capabilities of a particular product." *Id.*

does not fall into the same category: in *Clements*, the product had to supply a service, whereas in *Fruit Industries*, the seller did.

The *Clements* court also held that the merger and liability limitation clauses contained in the purchasing contract did not insulate the vendor from liability for his material misrepresentations.[156]   Therefore, the court admitted evidence concerning those representations which would have been excluded by the parole evidence rule if the action had sounded in contract.[157]   Under the governing Minnesota decisions, the parole evidence rule precludes the admission of evidence concerning fraudulent representations only where the contract provision contradicts the alleged misrepresentation.[158]

2. Negligence

The general law of negligence, when applied to the computer industry, raises some difficult but interesting problems.   Negligence has been defined as the "failure to do what the reasonable man would do under the same or similar circumstances."[159]   Although the application of this standard of reasonable care is as "wide as all human behavior,"[160] the standard itself is community-related, and evidence of the usual conduct of others under similar circumstances is generally relevant and admissible.[161]   Thus, if the computer vendor does what everyone else in the industry has done, there is at least an inference that his conduct conforms to the standard of reasonableness.   In the young and dynamic field of computers, however, no usual or customary mode of behavior for computer vendors has yet developed.   Consequently, there is no real community standard against which the vendor's conduct can be measured.   This applies to the acts and omissions of computer manufacturers and vendors, both in providing computer-related services and in constructing and designing their hardware and software products.

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156. *Id.* at 177-180. *See* National Equipment Corp. v. Volden, 190 Minn. 596, 252 N.W. 444 (1934). *See also* Applied Data Processing, Inc., v. Burroughs Corp., 394 F. Supp. 504 (D. Conn. 1975) (liquidated damage clause held ineffective to limit consequential damages arising out of vendor's fraud).

157. 444 F.2d at 178-79.

158. *Id.* at 179. *See* National Cash Register Co. v. Modern Transfer Co., 224 Pa. Super. Ct. 138, 302 A.2d 486 (1973).

159. W. Prosser, *supra* note 28, at 151.

160. *Id.* at 166.

161. *Id. See also* Denning Warehouse Co. v. Widener, 172 F.2d 910 (10th Cir. 1949); Hellweg v. Chesapeake & Potomac Tel. Co., 110 F.2d 546 (D.C. Cir. 1940); Cadillac Motor Car Co. v. Johnson, 221 F. 801 (2d Cir. 1910).

An additional problem is posed by electronic computers that are used to control activities that may cause physical injury. The automated operation of trains, use of automatic aircraft landing devices, and control of chemical or atomic plants or electric utility distribution grids illustrate a few of the many situations in which computer failure may greatly affect human safety. Where such computers make a purely mechanical error that causes personal injury, the difficulty in establishing liability for negligence is often acute.[162] In particular, it is sometimes impossible to isolate the source of the mechanical error. Accordingly, third parties injured in such situations may be able to recover only under the principle of res ipsa loquitur[163] or the developing doctrine of strict tort liability.[164]

3. Strict Liability

The doctrine of "strict liability in tort" is now an accepted basis of legal responsibility in several jurisdictions.[165] Under this doctrine, a manufacturer or distributor of a defective product which is unreasonably dangerous to the user or consumer is subject to strict liability for personal injuries caused by the product.[166] The plaintiff suing under this

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162. *See* Freed, *Your Computer Witness for the Prosecution*, MANAGEMENT REV. (1962); *Liability for Computerized Losses*, in 141 FOR THE DEFENSE (1972). The computer's printouts may be the only evidence substantiating the mechanical malfunction. Computer printouts, however, are heresay statements unless they fall within an exception to the rule against heresay. *See* Note, *Appropriate Foundation Requirements for Admitting Computer Printouts into Evidence*, 1977 WASH. U.L.Q. 59, 62-73, 78-90. *See generally* C. McCORMICK, HANDBOOK OF THE LAW OF EVIDENCE § 224 (2d ed. E. Cleary 1972); 5 J. WIGMORE, A TREATISE ON THE ANGLO-AMERICAN SYSTEM OF EVIDENCE IN TRIALS AT COMMON LAW § 1364 (rev. ed. J. Chadbourne 1974).

163. *See* notes 29-30 *supra* and accompanying text.

164. *See* notes 165-176 *infra* and accompanying text.

165. The doctrine of strict liability in tort is now accepted and applied by most state courts. In Greens v. Clark Equipment Co., 237 F. Supp. 427, 429 (N.D. Ind. 1965), the district court observed that strict tort liability is "hardly more than what exists under implied warranty when stripped of the contract doctrines of privity, disclaimer, requirements of notice of defect, and limitation through inconsistencies with express warranties." (citations omitted). *See generally* W. PROSSER, *supra* note 28, at 656-58; Keeton, *Products Liability — The Nature and Extent of Strict Liability*, U. ILL. L.F. 693 (1964); Wade, *Strict Tort Liability of Manufacturers*, 19 Sw. L.J. 5 (1965).

166. RESTATEMENT (SECOND) OF TORTS § 402A:

    (1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property; if

    (a) the seller is engaged in the business of selling such a product, and (b)

doctrine must show that there was some defect in the product which makes it unreasonably dangerous.[167] The doctrine applies to purchasers, consumers, or third persons, whether or not negligence is shown;[168] its application, however, has thus far been limited to the sale of "goods," not services.[169]

There are two important cases concerning strict product liability that apply to the computer industry. In *Southern California Retailer's Credit Service Co. v. Statistical Tabulating Corp.*,[170] Statistical Tabulating supplied plaintiff with an accounting system that was designed to produce a set of weekly and monthly reports. The reports proved unsatisfactory, and plaintiff brought suit based on breach of contract and strict products liability. In support of the latter claim, plaintiff argued that the end result of the system, accounting reports, was a product; the defendant contended that the reports were a service, thereby precluding recovery for products liability.[171] Although the court overruled the

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it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.

(2) The rule stated in Subsection (1) applies although (a) the seller has exercised all possible care in the preparation and sale of his product and (b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

167. Dunham v. Vaughn & Bushnell Mfg. Co., 42 Ill. 2d 339, 247 N.E.2d 401 (1969) (defective means the product does not meet the reasonable expectation of the ordinary consumer as to its safety). *See generally* Freedman, *"Defect" in the Product: The Necessary Basis for Products Liability in Tort and Warranty*, 33 TENN. L. REV. 323 (1969); Keeton, *Products Liability: Liability Without Fault and the Requirement of a Defect*, 41 TEX. L. REV. 855 (1963); Trayner, *The Ways and Meanings of Defective Products and Strict Liability*, 32 TENN. L. REV. 363 (1965).

168. Recovery under the doctrine of strict tort liability was originally limited to direct users or consumers of the defective product. Recently, however, several courts have expanded the scope of the doctrine to include foreseeable third parties. *See, e.g.*, Wasik v. Borg, 423 F.2d 44 (2d Cir. 1970); Trojan Boat Co. v. Lutz, 358 F.2d 299 (5th Cir. 1966); Elmore v. American Motors Corp., 70 Cal. 2d 578, 451 P.2d 84, 75 Cal. Rptr. 652 (1969); Piercefield v. Remington Arms Co., 375 Mich. 85, 133 N.W.2d 129 (1965); Darryl v. Ford Motor Co., 440 S.W.2d 630 (Tex. Ct. App. 1969). *See* Prosser, *The Fall of the Citadel (Strict Liability to the Consumer)*, 50 MINN. L. REV. 791 (1966).

169. The general rationale for excluding the sale of services from the application of strict tort liability is that services, unlike goods, are not offered to the public in mass produced quantities. *See* La Rossa v. Scientific Design Co., 402 F.2d 937, 938 (3d Cir. 1968). In the case of a manufacturer of computer products, the term "goods" can include, in addition to machines and equipment, output in the form of punched cards, magnetic or punched tapes, storage disks, and printed instructions.

170. DATAMATION, July 1969, at 115.

171. *See* note 169 *supra* and accompanying text.

defendant's demurrer to a strict liability claim, the basis of its decision was not disclosed. Since the case was never fully adjudicated, its precedential value is limited; nevertheless, it does suggest that strict liability might apply to computer-related items.

In the second case, *LaRossa v. Scientific Design Co.*,[172] plaintiff brought an action for wrongful death based on a theory of strict tort liability. Plaintiff's decedent was an employee of Witco Chemical Company (Witco), a manufacturer of chemical products. Under a written contract with Witco, the defendant was to design, engineer, and supervise the construction of a new chemical plant. One of the final steps in completing this operation consisted of loading a catalyst in the form of pellets into a reactor. The plaintiff argued that this loading process produced a carcinogenic dust, the inhalation of which ultimately caused the decedent's death. She further alleged that the defendant, in agreeing to perform these services for Witco, had impliedly warranted to all those concerned that it would insure their safety. The court noted that this claim[173] was one of strict liability in tort which, although broad in scope, "still bears the imprint of its origin in contractual warranty."[174] Because the court concluded that the basic policy favoring the application of the strict tort liability doctrine—the difficulty consumers face in tracing a defect in mass produced products to its origin[175]—does not apply to suppliers of professional services such as the defendant, it held that suppliers would be liable only if they were negligent.[176]

Although the *LaRossa* case did not directly involve the computer industry, it suggests a basis for holding that suppliers of computer software services are outside the reach of strict tort liability. If computer software services, like engineering and design services, are considered "professional services," the suppliers' of software items cannot be

172. 402 F.2d 937 (3d Cir. 1968).

173. *Id.* at 940.

174. *Id.* at 941.

175. According to the *La Rossa* court, it was this public policy consideration that compelled the New Jersey Supreme Court in Henningsen v. Bloomfield Motors, Inc., 32 N.J. 358, 161 A.2d 69 (1960), to recognize the doctrine of strict products liability. *See* Prosser, *supra* note 168, at 793-94.

176. 402 F.2d at 942-43. The exclusion of suppliers of professional services from strict liability in tort has also been upheld in Pepsi Cola Bottling Co. v. Superior Burner Serv. Co., 427 P.2d 833 (Alas. 1967); Lane Lumber & Builders Supply, Inc., v. D.E. Britt Assocs., 168 So. 2d 333 (Fla. 1964); Gagne v. Bertran, 43 Cal. 2d 481, 275 P.2d 15 (1954), *cited in* 402 F.2d at 943 n.17.

held strictly liable for injuries arising out of their computer transactions.[177] Nevertheless, the court in *Southern California Retailer's Credit* seemed prepared to adopt a products liability theory. Thus, the scope of computer "goods" may be liberally interpreted, thereby enhancing the possibility of imposing strict liability for defects in computer software products.

VI. CONCLUSION

This Article has considered the main categories of liability exposure for manufacturers and users of computer hardware and software products. In the area of contract liability, the remedies and amount of damages may be expressly limited, provided the parties have carefully drafted the agreement.[178] Liability on a theory of warranties may be restricted by appropriate disclaimers and specific descriptions of the computer features or software services to be provided.[179] Where the computer manufacturer or software provider surveys the purchaser's computer needs, or participates in the system's design or installation, the courts are more likely to find that the vendor has knowledge of the particular purpose for which the system is intended, thus broadening his potential liability.[180]

Liability for negligent system design has also been considered.[181] The central, unresolved issue is the standard of care in the design and furnishing of computer equipment or services which courts should apply. What design and audit precautions must be employed by the vendor to insure against equipment and output failures in order to meet the standard of care which the court is likely to impose? Because of the general aura of mystery and infallibility surrounding computers, courts are likely to require a high degree of care in the creation of design features and devices used to prevent failure of control computers and computer programming errors.[182]

In the case of tort liability, the *Clements* case[183] illustrates the danger

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177. *See* notes 169, 174-77 *supra* and accompanying text.
178. *See* notes 78-96 *supra* and accompanying text.
179. *See* notes 137-39 *supra* and accompanying text.
180. *See* notes 134-36 *supra* and accompanying text.
181. *See* notes 159-64 *supra* and accompanying text.
182. *See* notes 162-64 *supra* and accompanying text.
183. 298 F. Supp. 115, *aff'd in pertinent part*, 444 F.2d 169 (8th Cir. 1971).

of making representations outside of the contract. Under certain cir-
cumstances, the failure to honor those representations may constitute
fraud.[184] Furthermore, because of the unequal bargaining position of
the parties and the customer's need to rely upon the vendor's representa-
tions concerning highly technical equipment, courts appear willing to
interpret future predictions to be present or past representations of
fact.[185]

Strict tort liability will apply to transactions between the computer
hardware or software seller of goods and direct users and consumers.
The range of software included within that term, however, has yet to
be determined. Additionally, it is doubtful whether the doctrine will
apply to third persons who are not direct users or consumers of the
seller's product.[186]

As this Article has shown, the law of computer liability is still evolv-
ing. It is important during this period that the societal values which
have developed over two centuries of America's growth not be eroded
by this new technology. This will require continuous reflection upon
the nature of the computer, its role in society, and its appropriate
control by legal norms and institutions.

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184. *See* notes 140-50 *supra* and accompanying text.

185. *See* notes 151-54 *supra* and accompanying text.

186. A caveat to RESTATEMENT (SECOND) OF TORTS § 402A disclaims any opinion
by the Restatement Reporter as to whether the doctrine of strict liability is applicable
to persons other than users or consumers. *See* note 168 *supra*.

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