INTRODUCTION

This pathfinder is a research guide to materials which address the various legal issues raised by the emerging viability of computerized expert systems. Although this guide attempts to overview the issues critical to the evolution of this unique area of the law by cataloging and annotating applicable statutes, cases, texts, articles, notes, and comments, it is not exhaustive.

The development and use of expert systems within society raises new and important questions of law. How will tort and contract law be applied to expert systems? What role will expert systems play in the practice of law? What proprietary rights will inure to the developers, manufacturers, and owners of expert systems and from the output of those systems? Finally, what forms of product approval and administrative regulation will expert systems be subject to?

This pathfinder is divided into four sections. Part I will focus on legal issues of tort and contract liability stemming from the development, sale and use of expert systems. Part II addresses the past, present and future role of expert systems as tools in the legal profession. Part III concerns itself with legal issues of ownership both of expert systems and their output. Finally, Part IV focuses on the subject of administrative regulation of expert systems and their developers.

Each section is further subdivided by topic or by type of source material, and begins with a short introduction summarizing the legal issues relating to expert systems which are currently at the forefront of this emerging technology. In developing a compilation of source materials available to answer these and other questions raised by the emergence of expert systems as a viable technology, the primary focus will be on materials that specifically address the issues that are unique to expert systems. In addition, materials which have general application to all computer software will be cataloged where they provide insight to expert systems issues. When a question is currently best answered by material

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of general applicability to all computer software, only that material which is considered to be of major significance will be included.

I. TORT AND CONTRACTUAL LIABILITY STEMMING FROM THE USE OF EXPERT SYSTEMS

Tort and contract theories relating to expert systems pose some of the most interesting and novel questions facing the legal profession today. Does strict liability for defective products apply to expert systems? If so, what constitutes a defective system? When should a negligence standard apply? What constitutes negligence in the design and manufacture of an expert system? What other theories of tort liability may apply when expert systems cause injuries?

In many jurisdictions strict products liability is not available for purely economic harms. This may be a desirable way to shield developers and manufacturers of expert systems from the somewhat harsh standards of strict liability for defective products. However, the economic harms doctrine would not protect developers of medical expert systems where personal injuries may occur due to design defects. Should doctors then assume full responsibility for any tort liability resulting from the use of the medical expert systems? Should the proper standard be one of strict products liability or professional malpractice? Should legislative answers be provided to promote the development of this technology?

Additional questions are raised when the injured party is in contractual privity with the software vendor. Do the provisions of the Uniform Commercial Code pertaining to the sale of goods apply to software, or is software actually an intangible good or a service? Should exculpatory clauses which are normally allowed by the U.C.C. be disallowed in the case of computer systems because of unique considerations of unconscionability?

A. Statutes

1. Contract Law


A full warranty cannot be accompanied by any type of disclaimer of any warranty which has been created under state law. Limited warranties cannot limit the liability provided by implied warranties except as to the duration of the implied warranty. Disclaimers of consequential damages found in a full or limited warranty must be conspicuous.


Defines when a contract term is unconscionable, and the effect of a finding of unconscionability.
Unless excluded or modified, the sale of goods contains an implied warranty of merchantability when sold by a dealer of those goods. It is unclear whether software is considered to be “goods” under Article Two of the U.C.C.

Unless excluded, a product carries an implied warranty of fitness for the particular purpose intended by the purchaser, provided that the seller knows of such purpose.

Implied warranties of merchantability and of fitness for a particular purpose may be disclaimed by clear language evidencing that intent. The phrase "[t]here are no warranties which extend beyond the description of the face hereof" is expressly sufficient as a disclaimer.

Notice must be given to the seller a reasonable time after the buyer discovers or should have discovered a breach.

Warranty actions must be commenced within four years of the purchase of a product.

2. Tort Law

Defines the unauthorized practice of medicine.

The assertion of an untrue statement by a person who has no reasonable grounds for believing it can give rise to a cause of action for fraud. Thus, a negligent misrepresentation can be actionable.

Defines the liability of manufacturers and vendors of products and goods to consumers for injuries stemming from the use of those products and goods.

RESTATEMENT (SECOND) OF TORTS § 402(a) (1965).
Defines when a seller is strictly liable for injuries caused by defective products.

Defines when a negligent misrepresentation is actionable.
B. Cases


Plaintiff leased a computer system and software from the defendant. The system was returned because the plaintiff was dissatisfied with its performance. Plaintiff brought actions alleging contractual breaches, as well as a tort claim for negligent misrepresentation. The court held that, under Restatement (Second) of Torts § 552, a claim for pecuniary losses caused by a negligent misrepresentation is allowed provided the parties have sufficient privity. The court distinguished the rule that pure economic harms are not recoverable in a strict products liability claim. The court also held that the tort claim would lie despite the existence of contemporaneous contractual claims.


Plaintiff sued for damages resulting from the loss of stored data caused by the breakdown of a computer system. The court held that since the only recovery sought was for economic damages, no cause of action lay in strict products liability or in negligence. Plaintiff was relegated to contractual remedies.


Plaintiff’s allegation that defendant negligently recommended the purchase of its own computer system was sufficient to state a valid cause of action for fraud. Also where a contract for a computer system is fraudulently induced, a limitation of action period contained in the contract is invalid.


Plaintiff airline was estopped from recovering money from passengers who had innocently purchased counterfeit tickets and had been allowed to use the tickets. The airline argued that it was unable to discover that the tickets were counterfeit prior to the time they were used because it did not possess sufficient computer technology. The court held that plaintiff’s failure to use computer technology to detect the fraud constituted a breach of the duty to exercise reasonable care.


Plaintiff sought to redress grievances caused by the sale of a computer system and software which did not function as represented. The court held that an action based on negligence for purely economic harms was not allowed in Illinois. A claim based on warranty was allowed.

Damages for economic harm are not recoverable under a products liability theory. Rather, injury to person or property must be shown before a products liability action may be maintained.


The court refused to extend professional malpractice liability to software developers, reasoning that allowing a new cause of action in tort for malpractice would expose software producers to greater liability without sufficient justification.


Plaintiff alleged that the defendant was negligent in the design, manufacture, and installation of a computerized accounting system. The system was installed in January, 1971 and never worked as had been represented by the defendant. Plaintiff's personnel continued to attempt to debug the software until sometime in 1972 with no success.

Suit was brought in August, 1975, but the court held that the negligence actions were barred by New York's three year statute of limitations since the damage was apparent at the time of the original installation. The court refused to apply the "continuous treatment" doctrine, viewing the attempted debugging during 1972 as analogous to a machinery manufacturer trying to fix a machine rather than to a continuing professional relationship.


In a contract dispute, the court held that that a computer program is covered by the U.C.C. provisions pertaining to the sale of goods.


Reliance on erroneous computer output where examination of non-computer files would have detected error held a violation of standard of due care.


The court held that personal property taxes could not be levied against computer programs because of their intangible nature.

Clements Auto Co. v. Service Bureau Corp., 44 F.2d 169 (8th Cir. 1971).

The court allowed a cause of action for fraud where a computer system purchaser justifiably relied on a false representation of the system's suitability for the purchaser's application.
C. Articles, Notes, and Comments


This comment surveys the use of medical expert systems and explores the legal issues emanating from this rapidly expanding technology. Medical expert systems are categorized into two groups: expert systems used by laypersons, and systems utilized only by professional medical personnel. As to the former category, the article concludes that the underlying policy considerations relating to mass-marketed consumer goods warrant extension of strict products liability to medical expert systems. Regarding the latter category, the author believes that the argument for strict products liability is less compelling due to the bifurcated sales/service nature inherent in the use of these expert systems, and thus that a negligence standard should be applied.


This note examines litigation that arises when the purchaser of a custom computer system finds the delivered system to be inadequate or unworkable. The note evaluates when the statute of limitations should commence to run in such instances, including an in-depth analysis of policy considerations. It concludes that the statute of limitations should accrue upon installation of the computer system rather than upon discovery of the defect.


This note deals with the question of whether computer software constitutes a product or a service. Answering this question is crucial to determining whether strict products liability should be applied to software developers and vendors. The author concludes that the determination should hinge upon how the software is marketed. Off-the-shelf software which is mass-marketed should be treated as a product, whereas custom designed software should be viewed as a service. However, the authors suggest that even custom designed software might be treated as a product if it affects a large number of consumers.


This note examines the many cases where computer system users have sought recourse from the manufacturers or sellers of such systems for damages caused by system failures. Standard contract forms routinely exculpate the seller from consequential damages. Plaintiffs in these cases often seek to avoid the contract terms by using unconscionability theories. After exploring the arguments for
discarding traditional freedom of contract principles in such circumstances, the author concludes that there is insufficient justification for not holding plaintiffs to the terms of their contracts since computer system purchasers are capable of making intelligent purchasing decisions. The author also emphasizes that the imposition of higher standards of liability upon computer system manufacturers could stifle technological development and competition, which would hurt consumers in the long run.


This comment reasons that Article Two of the U.C.C., while applicable to computer hardware transactions, is not and should not be applicable to computer software because of the intangible nature of computer programs. It concludes that existing causes of actions in contract and tort provide software users with adequate protection from harm caused by defective software.


Miles Zaremski, chairman of the ABA Committee on Law and Medicine, states that programmers and software suppliers could face legal liability for medical malpractice, comparing defective expert systems to a faulty thermometer. However, Dr. Homer Warner, developer of the HELP medical diagnosis expert system, disagrees, reasoning that the expert system only aids the physician, who is still responsible for accepting or rejecting the expert system's analysis.


In this report, the committee considers whether causes of action in tort should be allowed in computer system failure litigation. The report concludes that, with the exception of intentional fraud, the contract terms should control and traditional contract law should apply. The committee took the position that the interest in freedom of contract outweighs arguments that commercial purchasers should be given greater protection due to the complexity of computer purchases and the serious effects computer failures can have upon a business. The report also contains a dissenting opinion.

The report was prompted by the increasing frequency with which non-contractual theories of liability have been asserted. The report emphasizes that most jurisdictions do not allow claims for negligence and strict liability when only economic harms are alleged. Claims under the Lanham Act, 15 U.S.C. § 43(a), are also not allowed because that Act was intended to protect persons engaged in commerce from unfair competition; purchasers thus have no standing to sue under the Act.

This comment examines two questions assumed to be necessary to resolve the issue whether strict products liability should be applicable to computer programs. First, are computer programs a product or a service? Second, can strict products liability be applied to "intangibles" (as the author describes computer programs)? The author concludes that at the very least computer programs should be treated as a hybrid transaction involving a product and a service, and therefore strict products liability actions should be allowed.


This note examines whether users of computer programs have a cause of action against computer manufacturers or software consultants for computer malpractice. Since the potential harm which can be caused by negligently developed or installed software or hardware is great, the author concludes that plaintiffs should have a cause of action in tort for computer malpractice.

The author also argues that treating software developers as professionals would affect when the statute of limitations would begins to run under the doctrine of "continuous treatment." When applicable, this doctrine provides that the statute of limitations does not begin to run until the relationship between the professional and her client ends.


Computer system acquisition can be a high risk venture for many purchasers. Often, vendors will attempt to drastically limit their liability for system failures through contract exculpatory clauses. This article acknowledges that if the U.C.C. is applicable to these transactions, computer system purchasers will have substantially more protection than they would have otherwise. The article maintains that courts are often confused by the hybrid nature of computer system acquisition transactions, which include both sales and services. The U.C.C. adds to the confusion by referring to both a "sale of goods" and "transactions in goods." The article concludes that courts should recognize that U.C.C. § 2-105(i) provides rules governing for specially manufactured goods, which should apply to goods produced through labor intensive services. Additionally, equipment leases should be viewed as Article Two transactions.

This article examines various legal theories under which computer software malfunctions might be redressed. An express warranty from the manufacturer in the purchasing contract covering the malfunction is the easiest answer to prevent future controversy. If no such warranty exists, the courts should consider both negligence and strict liability theories. With regard to negligence, the article reasons that expert testimony should be required since the principle of *res ipsa loquitur* should not be applicable. As for strict liability, the article concludes that given the potentially devastating harm that can occur and the general applicability of the strict liability policy rationale to "products," strict liability actions may be appropriate for defective software.


This article addresses the potential tort liability of manufacturers and users of medical computer programs under the traditional theories of negligence and product liability. The authors conclude that the makers of the medical expert systems and doctors who rely on the information generated by such systems should be held strictly liable for any injuries caused by program defects.


This note argues that the most important consideration for determining liability for defective software should be how the software is marketed rather than the nature of the software itself. The author concludes that the determination of whether strict products liability should be applied to computer software should hinge upon policy considerations rather than upon arbitrary definitions of products or chattels.


This article provides an overview of various theories upon which a computer system purchaser may recover against a manufacturer or developer. The theories examined include: the breach of an express warranty; the breach of implied warranties; the breach of a third party beneficiary contract; negligence; and strict products liability. Additionally, the author discusses ways that the parties to a computer system transaction can allocate the risks of computer system failures at the outset of the transaction.

This note explores the question of whether the purchase of a computer program is a “transaction in goods” and thus covered by Article Two of the U.C.C., or whether a computer program is a “service” and thus not covered by Article Two. The article analogizes software to books or records, which have as their essence merely ideas but become a good when reduced to an individual copy. The author argues that when someone purchases a computer program she is purchasing a concrete set of instructions which a computer executes, not simply a set of ideas. Therefore, the article concludes, computer programs should be given Article Two protection.


This article explores theories under which computer users and vendors might be liable for harm caused by the failure or negligent design of computer systems. The theories discussed include the breach of implied or express warranties and various types of tort liability. Additionally, the article suggests ways for vendors and users to avoid or limit their liability risks.

II. USE OF EXPERT SYSTEMS IN THE PRACTICE OF LAW

As the technology of expert systems continues to develop, lawyers will be provided with a fundamentally new resource for solving legal problems. Indeed, transfers of knowledge are at the very heart of the legal profession. Accordingly, much of the material in this section consists of texts and articles which discuss the technological state of the art of legal expert systems and the policy issues underlying their development and implementation.

Yet, as legal expert systems have increasingly become a reality, legal problems related to such systems have simultaneously been bred. For example, is a manufacturer or user of a legal expert system who is not a licensed attorney in violation of prohibitions against the unauthorized practice of law? Many cases have held that the sale to the general public of self-help kits does not constitute the unauthorized practice of law because it does not involve the giving of individualized advice. However, given that expert systems operate interactively, should courts hold that they are inherently more than self-help kits, and thus involve the unauthorized practice of law? This question seems to be an open one. If the expert systems do potentially constitute the unauthorized practice of law, then can the infirmity be wholly cured if the expert system is developed and marketed by a licensed attorney?
A. Statutes

Defines what constitutes the unauthorized practice of law and prescribes the penalties therefor.

Requires all attorneys practicing in New York to be examined and licensed.

Defines what constitutes the unauthorized practice of law and prescribes the penalties therefor.

B. Cases

In re Thompson, 574 S.W.2d 365 (Mo. 1978).
The court held that the advertisement and sale of do-it-yourself “divorce kits” does not constitute the unauthorized practice of law.

The mere sale and advertisement to the general public of forms and documents necessary for obtaining a divorce does not constitute the unauthorized practice of law. However, when a non-attorney advertises professional guidance and gives advice concerning the use of the divorce forms, a violation of the statutory provisions prohibiting the unauthorized practice of law has occurred.

The court held that merely publishing, advertising and selling do-it-yourself divorce kits does not constitute the “practice of law.” However, any personal contact with kit consumers involving consultation, explanation, recommendation, or advice does constitute the practice of law and laypersons are prohibited from engaging in such activity.

Florida Bar v. Stupica, 300 So.2d 683 (Fla. 1974).
The court held that the publication of a “divorce kit,” containing forms and explanations to be used in obtaining a divorce, constitutes the unauthorized practice of law. This holding represents the minority view.

The court held that the general publication and distribution of a “divorce yourself kit” does not constitute the unauthorized practice of law.

The court held that the sale of a package of forms and instructions to be used to obtain a dissolution of marriage by a layman constitutes the unauthorized practice of law.

The court held that the publication and distribution of *How to Avoid Probate*, a book giving general advice on probate matters and providing sample forms, does not constitute the practice of law because the book is directed to the general public and not to any specific individual.

C. Articles, Notes, and Comments


This article analyzes and discusses the mechanics, capabilities and goals of an existing expert system called CCLIPS. CCLIPS is designed to instruct an attorney in the intricacies of a highly complicated civil code in light of specific practice problems presented to it. The goal of the development of this expert system is to provide lawyers with the capability for conceptual data retrieval and other forms of advanced legal research and automation. The article also discusses the implications and benefits to the legal profession of the development of this and other advanced legal expert systems, and examines ways in which the legal profession can assist in the realization of those benefits. The article contains technical appendices in order to provide expert system developers with a more scientific survey of how CCLIPS was designed.


The article examines the past, present, and future of legal expert systems beginning with the history of computerized expert systems and a functional description of how an expert system works in lay terms. An analysis of the characteristics of an “ideal expert system” based on the needs of attorneys is provided, and the whole array of existing expert systems are analyzed in light of this ideal program.


This article explores the impact of the emergence of computer technology upon the legal and other professions. The issues focused upon include whether attorneys are under a duty to use computer systems as an aid in the services they provide, the effect of relying or not relying on a computer system in providing professional services, whether there is recourse to the computer system manufacturer
when such a system causes injury to a client, and finally what problems of unauthorized practice might emerge resulting from the widespread availability of "do-it-yourself" computer programs.


This article provides an introduction to expert systems in the law and examines the benefits to be derived from the development of expert legal systems. The article further analyzes how "jurisprudential rigor" can be implemented through legal knowledge acquisition, representation, and utilization. The article concludes by identifying problems which must be surmounted for continued advancement in this field.


This article hypothesizes that the "most critical task in the development of an intelligent legal information system...is in construction of a conceptual model of the relevant legal domain." The article then goes on to explore the considerations relevant in the construction of such a model.


This article discusses a legal expert system called CCLIPS which was being developed to process the Louisiana Civil Code. The article provides information on the goals of the system and the mechanics of how it works, as well as discussing significant policy considerations behind the development of the program. The author has written a more recent article discussing, *inter alia*, the improvements in the system made since 1983, which appears in this issue of *High Technology Law Journal*.


The author discusses a recommendation by an ABA committee that computer systems that provide legal analysis only be used by lawyers. The author disagrees with the recommendation, noting that it was *not* adopted by the ABA. The author reasons that computer systems only perform logical analysis, whereas an attorney makes professional judgments. This distinction leads him to conclude that the use of expert systems by laypersons will not constitute the unauthorized practice of law.

However, part of the author's premise is based on the limited sophistication of past expert systems. As legal expert systems become more sophisticated, the distinction between logical analysis and professional judgments will become increasingly more tenuous.

The author discusses an artificial intelligence program he developed called TAXMAN, which provides a legal analysis of the taxation effects of corporate reorganizations. The article also discusses the methodology of legal reasoning and how a computer program can emulate that reasoning.


This article outlines a legal expert system called JUDITH, being developed at the Universities of Heidelberg and Darmstadt in Germany.


This comment suggests and explores the possibilities of using the logical principles underlying computer programming languages in legal drafting, with the goal of eliminating or reducing ambiguities.


This article proposes that research be undertaken to determine the capacity of computers, through the use of artificial intelligence techniques, to model legal reasoning. The authors maintain that such research will have two important benefits: first, legal thought processes might become better understood; and second, computer systems might be developed which can perform legal analysis functions. The article explores possible thought process techniques by analyzing an expert system called “Heuristic DENDRAL.” The article concludes by speculating on the future of artificial intelligence in the legal profession.


This article discusses legal data retrieval systems and when their use might constitute the unauthorized practice of law. The author distinguishes between systems which merely retrieve raw data and those which provide a legal analysis. The author argues that the former should be available to the public at large, but that the latter should be limited in use to those authorized to practice law in at least one jurisdiction within the United States.
D. Miscellaneous


Estate planning and will-drafting self-help software has been developed, and sales are significant. For example, Nolo Press has sold 9,000 copies of "Willwriter" without the help of a distributor or an advertising campaign.


According to this article, IBM currently has approximately seventy expert systems under development, some of which apply to law.


Computer analysis is being used in the Northern District of Ohio by Judge Thomas D. Lambros in approximately ninety state and federal asbestos cases. The new approach received mixed reviews in the first ten cases in which it was used.

III. OWNERSHIP PROTECTION EXTENDING TO EXPERT SYSTEMS

This area of the law has seen an explosion of literature in recent years. Since the main focus of this pathfinder is on legal questions presented by the emergence of artificial intelligence rather than on intellectual property issues arising from computer software, this section is less comprehensive. Rather, only a sampling of the literature available on proprietary rights is included, with fuller coverage of materials which specifically pertain to expert systems.

A. Protecting the Expert System

1. Copyright Protection for Computer Software

a. Statutes


These sections define the subject matter and scope of copyright protection. Section 102 extends copyright protection to original works of authorship fixed in any tangible medium of expression from which they may be perceived or reproduced, and withholds protection from any idea, procedure, process, system, method of operation, concept, principle, or discovery.


Section 101 defines "computer program," and section 117 provides a limited right to copy computer programs. A copy can only be made
if it is either necessary in the utilization of the computer program or if the copy is for archival purposes.


An example of a sui generis approach to ownership protection which could be a model for protection of expert systems and their output.


Specifies material which is not subject to copyright.

b. Cases


The court held that protected expression within a computer program included “the manner in which the program operates, controls and regulates the computer in receiving, assembling, calculating, retaining, correlating and producing useful information either on a screen, print-out or by audio communication.” 609 F. Supp. at 1320. Thus, the substantial translation of a program used in managing dental laboratories from one programming language to another constituted a copyright infringement.

NEC Corp. v. Intel Corp., No. 84-20799 WAI (N.D. Cal. 1986).

The court held that copyright protection applies to microcode.


The court held that the translation of a program from one assembly language to another was an infringement of a valid copyright.


The court found copyright infringement where a computer program had been translated from one language to another. In reaching its conclusion, the court considered the defendant’s conduct in the preparation of the allegedly infringing copy.


The translating of a computer program from one programming language to another, accompanied by incidental modifications, did not constitute infringement. This result is at odds with Whelan, Johnson, and SAS.


An operating system expressed in binary form is copyrightable subject matter.

The court held that a computer program imprinted on a silicon chip was copyrightable.


The 1976 Copyright Act and its subsequent amendments preempt the state common law of trade secrets for video game programs.


A computer program imprinted on a silicon chip is copyrightable. The court rejected defendant's arguments that a Read Only Memory ("ROM") chip did not constitute a tangible medium of expression.


Copyright protection is available to program flowcharts, source code, and assembly code, but not to object code. This result is now in doubt due to the Copyright Act amendments of 1980 and cases interpreting them.

Gross v. Seligman, 212 F. 930 (2d Cir. 1914).

The plaintiff must prove that the alleged copy has a substantial similarity to the copyrighted work.


Actual appropriation of language is necessary for copyright infringement.

c. Texts


A compilation of articles and statutes on the protection and marketing of computer software and semiconductor chips.


This book is reviewed in this issue of High Technology Law Journal.

C. Millard, Legal Protection of Computer Programs and Data (1985).

This book is reviewed in this issue of High Technology Law Journal.


This treatise provides a comprehensive examination of intellectual property law relating to computer technology. Copyright, patent,

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1. The reader should also reference the Annotated Bibliography of Books Received, Part B (Intellectual Property Rights and Unfair Competition), in this issue of High Technology Law Journal.
trade secret, and unique issues of ownership are covered in depth. Additionally, extensive coverage of computer system transactions, tort liability stemming from the sale or use of computer systems, antitrust considerations, international trade considerations, and "information age issues" is provided. Mr. Nimmer was honored by the American Association of Publishers which named this treatise the Best Law Book of 1986.


A cross between a user's guide and a treatise, this book attempts to deal with legal problems involving most of the major issues in computer law. Software protection, contracts for computer services, antitrust, privacy protection, and computer crime are covered, as well as problems involving the regulation of the telecommunications industry, the importing and exporting of high technology products, and the use of computers in the banking industry.


A treatise with annual supplements. Subjects covered are the development of computer technology, patent, copyright, trade secret, and international trade protection of computer software.

d. Articles, Notes, and Comments


This article deals with two questions raised by the current explosion in computer software products: whether § 301 of the 1976 Copyright Act preempts state trade secret law; and, if it does not, whether it is possible to obtain protection under both the 1976 Copyright Act and state trade secret law simultaneously. The article examines the case law of both protection schemes and concludes that the Copyright Act does not preempt state trade secret law, and that dual protection under both schemes is possible.


This article deals with novel protection schemes which should be accorded emerging technologies. Focusing first on the protection to be given to the non-code aspects of software, such as software's look and feel, the article goes on to propose a generalized scheme for protecting ownership rights in emerging technologies.


The author of this article believes that the complex problems of ownership protection of computer software should not be solved by legislative action, but are better resolved by simple common law principles applied to specific problems as they arise. The author
posits that most complicated legislative solutions, such as the Internal Revenue Code or the 1952 Patent Code, quickly become obsolete. Furthermore, many complex areas of the law, such as torts, contracts, and property, are handled through the application of common law principles. The author argues that intellectual property protection for software should be based on a concept of the misappropriation of expression (but not of ideas). The article concludes that implementing such a principle through the common law can help to avoid painful legislative mistakes.


After reviewing recent articles advocating *sui generis* legislation for the protection of computer software, Professor Raskind analyzes existing copyright statutes and case law in conjunction with the interests of authors, manufacturers, distributors, and users of software. The author argues that a *sui generis* approach is not necessarily required to protect these interests and that incremental change to existing copyright law may be the best means available to accomplish the goal of clearly defining the scope of ownership protection and the scope of permissible use.

Goldstein, Infringement of Copyright in Computer Programs, 47 U. PITT. L. REV. 1119 (1986).

According to the author, two arguments are generally made in support of extending copyright protection to computer software. First, copyright law offers allegedly inadequate protection to ensure vigorous pursuit of desirable technological advances. Second, computer software, being utilitarian in nature, is said to be out of place among other forms of intellectual property which copyright was primarily created to protect. In this article, Professor Goldstein argues that both of the above arguments are inadequate to reject copyright protection of software. The article concludes "that we can live with copyright protection for computer programs."


This note discusses current limits of copyright protection of computer software and proposes criteria for determining when copying is proper. The author argues that courts should not consider the development process of an allegedly infringing work in connection with substantial similarity, but instead should consider the overall structure of the programs. The note concludes that screen displays should be considered part of the copyrighted software.

This article argues that rather than comparing competing programs for "substantial similarity" as is normally done, an infringement inquiry should focus on the conduct of the alleged infringer.


This article examines the applicability of existing intellectual property law and the Semiconductor Chip Protection Act of 1984 to microcode. The article concludes that Congress should state explicitly whether either of these schemes is applicable to microcode.


The author argues that machine readable programs should be given ownership protection on a *sui generis* basis. Applauding the approach taken in protecting semiconductor chips, the author argues that trying to fit machine-readable programs into principles of traditional copyright law under CONTU recommendations is inconsistent with the doctrine that utilitarian works should not be copyrightable.


The author sets out to explain why the number of articles written about protecting computer software was so large. He reasons that it is due to the difficulty of solving the problem and not necessarily to its importance. The article goes on to explain why the author believes the problem is so difficult.


In this article, Professor Samuelson argues that CONTU erred when it determined that programs in machine-readable form should be allowed copyright protection because both statutory and case law make clear that utilitarian works are not copyrightable.


This Report of the Proprietary Rights in Software Committee of the American Bar Association Section of Science and Technology examines several aspects of ownership protection for computer software. The Report disagrees with the conventional view that trade secret law is the best form of protection for computer software. According to the Report, the traditional view is based on the notion that software is primarily of an intangible nature, is not generally patentable, and is easily changed to defeat copyrights. The Committee believes that software should qualify for patentability without being
tied to some other unique mechanical process because it is tangible in nature. The Report contains a dissenting opinion.


This note presents an overview of software technology, the scope of copyright protection for software, the history of the substantial similarity test, and an analysis of actual applications of the substantial similarity test to computer software. The author proposes modifying the substantial similarity test in favor of an “iterative” test. An iterative test would focus on whether the copy was a “restatement in substantially the same form of a substantial portion of the copyrighted work.”


This comment examines copyright, patent, and trade secret protection available to software developers and explores the reasons why software developers are dissatisfied with the existing state of the law. The article goes on to propose that a new “softright” act be passed which would continue the disclosure goals of current copyright and patent laws and prohibit disclaimers of implied warranties of merchantability and fitness for a particular purpose. In return, software developers would be allowed significant recoveries, including punitive damage awards and “liberal attorney fee awards” in cases where illegal copying is proved.


This note begins with an overview of the substantial similarity test and its applications in the video game genre. The author argues that, while courts correctly recognize that copyright protection extends to video games, they often incorrectly analyze whether infringement has taken place. The note concludes that the goals of copyright protection would best be served if courts look at not only “visual videographic game features,” as is currently done, but additionally examine the similarity between overall game play.


This note argues that the 1976 Copyright Act, in plain language, protects computer programs in all forms, including object code. Furthermore, such protection is consonant with copyright goals of encouraging investment in creative labor. The note concludes that object code as well as source code should be afforded copyright protection.

This note addresses intellectual property problems caused by the prevalence of technological advances. First, the author considers that rapid advances in technology have increased the ease with which intellectual and cultural works can be copied. Next, the author stresses that technological advances also give rise to an increased number of available works to be copied. Finally, the author proposes a protection scheme whereby copyright infringement would be determined by examining both the relationship between the original and the copy and the type of economic gain sought by the user of the copy.


a. Statutes


A person may secure patent protection for any invention or discovery of a process, machine, manufacture, or composition of matter, or any new and useful improvement thereof that is new and useful, novel, and nonobvious. The requirements for obtaining a patent application include a written specification of the invention and how it is manufactured, a drawing, model or specimen of the invention, and the inventor’s oath that he believes himself to be the original inventor of the subject matter in question. The specification requirement thus obliges an inventor to disclose his invention.


Other than the patent owner, one who “makes, uses or sells any patented invention” has infringed a patent.

b. Cases


The court affirmed Merrill Lynch’s patent on its “cash management account.” The court rejected arguments that the patent dealt only with a method of doing business and held that the account as implemented by Merrill Lynch was statutorily patentable under 35 U.S.C. § 101.


The Court held that software that controlled a rubber molding process constituted patentable subject matter.


The Court held that a computer program implemented in a computer hardware configuration described in a “means plus function” format was patentable due to its proximity to the machine.

The Court held that a program which merely adds post-solution activity to a mathematical formula is not sufficient to transform an unpatentable principle into a patentable process.


The Court held that computer programs which represent obvious advances are unpatentable.


The Court held that a program is unpatentable if it would preempt a mathematical algorithm and effectively be a patent on the algorithm itself.

c. Articles


This article analyzes the Supreme Court decision in *Gottschalk v. Benson*, which held that algorithms are unpatentable because they are analogous to laws of nature. The author believes that the case was wrongly decided based on previous case and statutory law and underlying patent policy considerations, and further believes that the decision has left nothing but confusion and turmoil in its wake. The article concludes that patent protection for those algorithms which meet the requirements of novelty and nonobviousness are needed to encourage technological development in the field of computer software.


This article represents a "computer-scientist’s perspective on the issue of patentability and algorithms" and is mainly a response to Professor Chisum’s article appearing in the same issue. The author argues that even if *Gottschalk v. Benson* had been decided differently as Professor Chisum urges, there would still exist much confusion regarding algorithm patentability primarily due to the ambiguity of the definition of an algorithm and problems associated with finding substantial similarity. The article concludes that regardless of whether or not algorithms are patentable, confusion in this area of the law will continue to exist until a more workable model for understanding algorithms is developed.


The United States Patent and Trademark Office has reportedly approved a patent application for an expert system that runs on an IBM personal computer. Only the portion of the underlying algorithm that was related to the physical process of the expert system was patentable. The attorney representing the expert system
manufacturer said that patent protection was often impracticable for software due to marketing considerations.


This article discusses the patentability of computer software in view of the holding in White Consolidated Industries v. Vega Servo-Control, 713 F.2d 788 (Fed. Cir. 1983). The article focuses generally on the outlook for obtaining patent protection for computer-related inventions and discusses the theory and policy underlying disclosure requirements, the mechanics of meeting disclosure requirements, and the ramifications of a failure to disclose.


The article distinguishes between patent claims for inventions described functionally rather than structurally. The author argues that functional language is better suited for computer systems and discusses how such language can be drafted in light of United States Patent Office requirements.


This article discusses the advantages and disadvantages of securing proprietary rights in computer software through patent protection. The article then goes on to discuss the case history of patentability of computer software and concludes that the current trend is towards increased ease of patentability of software.

3. Trade Secret Protection for Computer Software

a. Statutes

Restatement (First) of Torts, § 757 (1939).

Misappropriation of a trade secret gives rise to a cause of action in tort.


Everything acquired by an employee by virtue of his employment, except the employee's compensation, belongs to the employer.

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2. The reader should reference the trade secret statutes found in Research Pathfinder, Biotechnology and Law, 1 High Tech. L.J. 233 (1986), for additional material.
b. Cases


The court held that when an invention to be patented embodies a trade secret, patent disclosure laws require that the trade secret be disclosed in order for the patent to be effective.


In this landmark decision, the Court held that federal patent law does not preempt state trade secret law, at least to the extent that such trade secret law does not conflict with the operations of federal patent and copyright laws. The Court recognized that the protection of trade secrets promotes research and the dissemination of knowledge, as well as maintaining commercial ethics.


The issue in this case was the validity of license agreements covering inventions that either were, or later became, patented. The Court held that a licensee of an invention that was patented at the time the license agreement was formed may attack the validity of the patent. The court also held that a licensee of an invention that is patented after the license agreement is formed may attack the validity of the patent. However, the Court refused to rule on the question of whether a licensee may attack the license agreement before an invention is patented on the grounds that the invention is "unpatentable." Such a possibility was rejected by the Court in Sears, Roebuck & Co. v. Stiffel Co.


The Court held that a state unfair competition law which prohibited copying articles not protected under the federal patent system was invalid because it was in conflict with the federal patent scheme and was thus prohibited by the Supremacy Clause. Initially, this case raised the question of the continued validity of state trade secret law. However, subsequent cases have shown that state trade secret laws, if properly drafted, will be upheld by the courts.

c. Articles and Notes


This note criticizes White as deterring inventors from patenting inventions which embody trade secrets. The author suggests that alternative means to trade secret disclosure should be found so that patent law's goal of disclosure and information exchange, at least as to the non-secret portion of the invention, would not be deterred. Suggested alternatives include a depository system for the secret
components of an invention or licensing of the secret components as part of the patent.


This note provides an expose of current trade secret law and discusses two competing theories of trade secret liability: a property theory and a confidential relationship theory. The author opines that the property theory is more consonant with the goal of trade secret law to encourage technological development. The note goes on to discuss the requirement of showing irreparable harm in order to obtain injunctive relief against an alleged misappropriation and discusses what constitutes irreparable harm.


This article examines existing case and statutory law providing for trade secret protection of computer software as well as the mechanisms and scope of that protection. The author points out that, while trade secret law may not offer wholly satisfactory protection for computer software and may discourage disclosure, it is still the most prevalent protection scheme in practice because of difficulties in obtaining protection from copyright or patent law. Furthermore, recent promulgation of criminal trade secret statutes has furthered the protection offered by the trade secret approach.

\section*{B. Protecting the Output of the Expert System}

\textit{1. Articles and Notes}


In this article, Professor Samuelson considers the question: who, if anyone, should be entitled to the ownership rights for computer-generated works? The article explores five different possibilities. Ownership rights might be allocated to the program user, to the programmer, to both jointly, to no one, or to the computer. The article goes on to analyze the reasons for and against each of the alternatives and concludes that the program user should be allocated full ownership rights to computer generated output.


This article examines the history of copyright protection of derivative works. The author emphasizes 17 U.S.C. §§ 106 and 107 (1982), which according to the author, clearly establish copyright protection for derivative works. The author then considers several areas of copyright law where underlying policy seems to suggest that derivative rights should be treated differently than reproduction rights.
The article then concludes that in determining rights to be accorded derivative works, the courts should apply the underlying principles of copyright law to resolve issues raised by the ever increasing breadth and volume of derivative works.

Note, Can a Computer Be an Author? Copyright Aspects of Artificial Intelligence, 4 COMM/ENT L.J. 707 (1982).

As the technology of artificial intelligence emerges, computers are rapidly creating products that once were thought to be the exclusive domain of man. Computer programs have written articles appearing in national magazines, automatic code generators are now available, and devices using automatic programming techniques are becoming marketable. This article discusses whether these artificial intelligence products should be given copyright protection, and if so, who the copyright owner should be. The article concludes that the courts should allocate ownership on an ad hoc basis.

Milde, Can a Computer be 'An Author' or an 'Inventor'? 51 J. PAT. OFF. SOC'Y 378 (1969).

This article discusses whether computer generated works fall within the constitutional requirements of being either the writing of an author or the discovery of an inventor in order to receive copyright or patent protection. The article concludes that Congress should enact legislation attempting to articulate its policy on this question since rationales exist for the courts to adopt either alternative.

IV. REGULATION OF EXPERT SYSTEMS

As expert system technology becomes more complex, governmental regulation and programmer licensing may be needed. This seems particularly plausible for expert systems that are sold directly to end users. Such regulation may, in addition to protecting consumers, benefit manufacturers and developers by establishing standards of competence for expert systems. Regulation would also probably make it more difficult, though surely not impossible, for a plaintiff to establish negligence on the part of a manufacturer who fully complied with the requirements of a regulatory body.

Two types of regulation seem plausible. The most commonly discussed is that of licensing computer programmers. Another possibility would be to require product approval before an expert system could be brought “online” or marketed to the public, in the same manner that the Food and Drug Administration regulates drugs. In considering either of these proposals, the effectiveness of the proposed regulation in achieving the goal of error-free expert systems must be balanced against the effects of increased development costs made necessary by regulation.
A. Statutes

Deals with the regulation of labor conditions of certain industries and occupations.
29 C.F.R. § 541.302(h) (1986).
Computer programmers and analysts are not professionals under the Fair Labor Standards Act.
Regulates fraud and related activities in connection with access devices.
Regulates fraud and related activities in connection with computers.
All data processing services for regulated banking institutions, whether performed in-house or by an outside contractor, are subject to regulation and examination.

B. Cases


C. Articles

"Computers allow man to make mistakes faster than he ever before dreamt possible." Id. at 256. This article explores the potential catastrophic results of computer system design errors and recent attempts to regulate computer programmers. The author argues that the decision to regulate should be based on the public need for such regulation, and that considerations of industry degradation should be at most secondary.
The article examines the 1974 proposal by the Society of Certified Data Processors ("SCDP") that data processing personnel be required to obtain a license through a state licensing board. The SCDP proposal was considered by three states, all of which rejected it. The article advocates a modified SCDP proposal which would require that only those data processing personnel who work on computing systems which affect the public in "critical areas" be required to obtain licenses.