

Copyright Protection of Computer Software: History, Politics, and Technology

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Abstract

The protection of computer software, especially in the area of user interface design, called "look and feel," is the subject of great controversy today. The underlying causes of the controversy are examined and the need for new approaches in dealing with the problem is established, particularly in the light of a recent landmark case in this area, *Lotus Development Corp v. Paperback Software, International*

In order to determine what these approaches might and might not be, it will be useful to study the role of the Congress, the courts, the Federal bureaucracy and industry practice in shaping copyright reform during the twentieth century. Each of these contributors to the formation of copyright law has developed areas of special competency and encountered limits on their actions, as will be seen through the examination of selected case histories.

This paper concludes by analyzing the impact that each of these four groups is likely to have on solving the look and feel problems we face in the computer industry today in the light of their historical experiences.

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Biographic Note

Scott Garren has spent the last 25 years in the computer industry. As a system programmer at the Harvard College Observatory/Smithsonian Astrophysical Observatory and Digital Equipment Corporation he developed complex software products of the type discussed in this paper. In a variety of marketing roles at Digital Equipment Corporation and other smaller computer manufacturers he was involved in deciding those companies' positions regarding industry standards such as is covered in chapter 7.

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Introduction

" The Law embodies the story of a nation's development through many centuries, and it cannot be dealt with as if it contained only the axioms and corollaries of a book of mathematics. In order to know what it is, we must know what it has been and what it tends to become. We must alternately consult history and existing theories of legislation. But the most difficult labor will be to understand the combination of the two into new products at every stage."

- The Common Law, Oliver Wendell Holmes, Jr. (1881 1)

In June, 1990, Federal District Court Judge Keeton handed down a ruling in the closely watched case of *Lotus Development Corporation v. Paperback Software, International and Stephanson Software, Ltd.*¹ This case was the latest in a series of cases exploring the limits of copyright protection of computer software. The subject is a controversial one. It has sparked demonstrations of programmers at Lotus Development Corporation's headquarters, It has caused the Senior Corporate Council in charge of intellectual property and antitrust litigation at IBM to write a book expounding his views on the subject (Clapes 1989). It has been the subject of Congressional hearings, and it has devoured hundreds of pages of coverage in law journals.

The subject generates passion because computer software is a large and rapidly growing business. According to the National Research Council (1984 29) in 1984 there were over 14,000 enterprises in the United States producing programs for sale, and the value of software sold was growing at over 30% a year. By 1984 sales had reached \$8 billion dollars in the United States alone. Software is also a key to the

¹740 F.Supp. 37; 15 USPQ 2d 1577; CCH Comp. Law 46,310 U.S. District Court, District of Massachusetts No. 87-76-K June 28, 1990

sale of computer hardware worth over \$100 billion world wide. In many industries competitive status is impacted significantly by the quality of a company's software. Given these high stakes, it is not surprising that legal controversies have arisen over software. The outcome of these battles will have an important impact on the world economy in the decades ahead.

The system that creates and implements the laws that govern the protection of software in the United States is complex. It consists, first, of the legislatures - both state and federal- which formulate legislation; the courts, which interpret that legislation in the context of individual cases; an administrative bureaucracy that administers the laws passed by Congress; and all of this takes place in the context of accepted industry practice. There has been much written about the issue of legal protection of software in the legal, business and general press. Little attention, however, has been paid to the complex system by which this protection has evolved and is currently provided.

In this thesis I will examine the problems we face today in applying copyright law to the protection of computer software. I will then examine the functioning of the Congress, courts, bureaucracy and industry practice in shaping copyright law during the twentieth century. By observing the workings of this system in various similar situations in the past we can gain important insight into the ways in which the components of this system behave and the forces influencing them. Based on these insights gained, I will then explore the roles that these players are likely to have in resolving the problems we face today.

Chapter 1: Copyright Protection For Computer Software

The first working prototype of an electronic, digital computing device was built in 1938 (Burks 1988). Through the next 40 years of computer development there was relatively little legal activity regarding the protection of software. Computers were rare and expensive items sold only to large corporations. Computer programs were written almost exclusively either by computer manufacturers to make the systems more useable, useful, and thus more easily sold, or they were written by the purchasers of these big computer systems to reflect the specific business needs of their organizations. Software written by computer manufacturers did not need protection because it was closely tied to the manufacturer's unique hardware. Software written by users was easily protected as trade secrets, since it was not available for sale and did not leave the user's premises.

Computer systems were big and expensive and were purchased only by very large or wealthy organizations. The purchasers of such systems accepted the fact that there was no commercially available software that would make the computers useful. Such software had to be created from scratch. While there were a limited number of patents issued covering software, most legal protection of this investment in software it was under the law of trade secrets and contracts.

By the late 1970's, the computer industry was changing as the mini-computer was becoming commonplace. The cost of computers was declining rapidly and their numbers grew in proportion. The numbers of programmers in the world increased to match the growth in demand, the size of the market place for software expanded, and so did interest in the legal protection of software.

Objects such as software are an instance of what lawyers call intellectual property. There are four areas of the law that provide protection for intellectual property: patents, copyrights and trademarks and trade secrets. Patents protect ideas embodied in "process, machine, manufacture, or composition of matter".² Copyright covers communication through the written or spoken word, music or other works of authorship.³ Trademark covers identity, as embodied in word, name, symbol or device.⁴ Trade secret law covers valuable commercial information developed by a company that gives it commercial advantage over its competitors. Patents, copyright and trade secrets all offer possible solutions to the problem of protecting the growing investment in software.

Patents are the vehicle for protecting novel, non-obvious and useful machines, processes, articles of manufacture and composition of matter. Edwin Land's patents on various processes of instant photography and Xerox's patents on the dry copy process are well know examples of patents. Patent protection is broader than that provided by copyright. Whereas a copyright merely prevents the copying of a work, a patent prevents the use of the patented item in any form or matter. While the scope of protection provided by a patent is greater than that offered by a copyright, it is made available by Congress much more sparingly. Only novel items that would not be obvious to the skilled practitioner in the field can be granted patent protection whereas anything original to an author is protected by copyright.

²35 USC S. 101

³Strong (1990 13)

⁴Davis (1985 163). Trademarks are potentially very valuable properties that must be vigorously protected but do not play a significant role in the area we are investigating.

Trade secrets are covered by state law rather than federal law and so vary from place to place but the definition of a trade secret in the California Penal Code is typical of that in most states:

"'Trade Secret' means the whole or any portion or phase of any scientific or technical information, design, process, procedure, formula, or improvement which is secret and is not generally available to the public, and which gives one advantage over competitors who do not know or use the trade secret; and a trade secret shall be presumed to be secret when the owner takes measures to prevent it from becoming available to persons other than those selected by the owner to have access thereto for limited purposes."⁵

Trade secret law provides important protection for source code of software products, file formats, and other internal details involved in the design, manufacture and marketing of software products. According to Davis (1985 33) the requirement of secrecy and limited distribution, which is an essential part of the definition of a trade secret, means that any widely distributed software product is not a trade secret and is not protected by this body of law. Since the appearance and behavior of a program to its users are its most public aspect, trade secret law is not relevant to the disputes we are addressing here.

This last area of intellectual property protection, copyright, is the main subject of this paper. Copyright is an internationally recognized set of laws that protect the creators of various forms of communication in many different media. Copyright covers writing, painting, music, mime, architecture, graphic design, and computer software and databases, to mention a few. The kinds of media covered include just

⁵Davis (1985 31)

about anything: paper, film, video, sound recordings, film and computer readable media are some of the most important media protected by the copyright statute.

When legal protection of software products became desirable, the authors of software turned primarily to copyright. If patents offer stronger protection than copyrights, one might wonder why copyright was more often chosen as the legal vehicle to provide protection of software. Surely the seventeen years covered by patents would be sufficient for most software, since it is unlikely that any software written today would have much commercial value given the likelihood that more powerful computers and systems would be developed in the intervening seventeen years and render such software obsolete.

Patents, however, are not the main vehicle used to protect software because of the limits on the availability of patents, because of the bureaucratic systems used to administer them and because of the disclosure requirements built into the patent system. According to Davis (1985 160) there are many reasons why patents do not provide the main basis for the protection of software. Patent applications are long, complex documents that require a patent lawyer's expensive assistance to complete.⁶ The Patent Office then can take years to review the application and rule on its validity. No protection is available until the patent is granted, and preliminary injunctions are rarely granted against alleged infringers. Thus it is likely to take five years from patent application until one can actually stop an infringer. This is not acceptable given the fast pace of development in the software market today. Moreover litigating a patent infringement is more complex and costly than litigating

⁶It takes over two years to process most patent applications and the associated legal fees range from \$2,500 to \$25,000.

copyright infringement, and there are no provisions in patent law for recovering legal fees.

Last, and most importantly, patents can only be granted to ideas of considerable novelty, ideas that are not obvious to the trained practitioner, whereas copyright requires only originality, that is independent creation by the author. Most software today contains far more originality than novelty as these terms are used in this legal context. Thus while software patents are available and can offer strong protection to the holder, they are not the primary means of software protection relied upon in industry today. The Patent Office currently is issuing about 100 patents a month as compared with Schmidt's (1981 347) estimate of 15,000 computer programs written every day in the United States all of which are automatically protected by copyright.

In 1976, in their general rewriting of the copyright statutes, Congress saw a need to protect software and added it to the list of protected classes. However, as they were unclear as to exactly what software should be protected and how broad that protection should be, they qualified the new law by saying it was not to be interpreted as offering any broader protection than the earlier, 1909 law. Since the extent of coverage of software under the 1909 law was completely unsure, the 1976 revision was cold comfort to the software industry (Clapes 1989 17). Congress was in fact just buying themselves time on this issue since they had, two years earlier in 1974, created the National Commission on the New Technological Users of Copyrighted Works, know by the shorthand CONTU, to fully explore these issues and make legislative recommendations to Congress.

CONTU met over the course of several years, heard testimony from witnesses from many sectors of the computer industry, and published a thick report. For all of this,

their legislative recommendations were few and modest. They recommended to Congress that a definition of a computer program be added to the law, as well as wording providing for user's right to make a backup copy of copyright software for archival purposes, and allowing the user to load software into his computer for use without infringing the copyright.

Against this background of legislative action has unfolded a sequence of court cases that has granted very broad protection to computer software under copyright. Since the history of these cases has been described previously, I will not repeat them in detail great here.⁷ I will, however, summarize the key questions addressed by these cases to give a feel for the current status of software protection under copyright.

- o Software is copyrightable in object code as well as source code, in ROM as well as other media.⁸
- o The translation of a program from one language or operating environment to another is the creation of a derivative work and is the exclusive right of the copyright owner.⁹
- o The detailed structure, sequence and organization of a program is protected by copyright.¹⁰

⁷Lynch, Steinber and Clapes (1987) and Clapes (1989) present the history from a strongly pro-protection viewpoint. Clapes is Senior Corporate Council at IBM in charge of intellectual property and anti-trust at IBM. Samuelson (1984) and Karjala (1987) present the view for limited protection. Davis (1985) is a discussion of the practical implications for the software practitioner.

⁸*Williams Electronics v. Arctic International* 685 FSupp2d 870 (3d Cir. 1982) and *Apple Computer Inc. v. Franklin Computer Corp.* 545 FSupp. 812 (D.E.D. Pa. 1982)

⁹*SAS Institute, Inc. v. S&H Computer Systems, Inc.*, 605 FSupp. 816 (M.D. Tenn. 1985)

¹⁰*Whelan, Inc. v. Jaslow Dental Laboratory, Inc.* , 609 FSupp. 1307 (E.D. Pa. 1985)

In these cases the courts took copyright doctrine worked out over many years in settling issues regarding literary and dramatic works and applied them to software. There are certainly many similarities between software and works of literary creativity that make such parallels plausible. Success in both areas involve perfecting the elements of logic, structure, and flow to best express the author's intent.

Brown (1988), Karjala (1987), and Strong (1990), among others, have argued, however, that the utilitarian nature of software makes it different from other literary works. They argue that the nature of the task that software is trying to accomplish, along with the need for efficiency in the end product limit the range of possible expression and thus make it unreasonable to protect software or if protected at all only against the most literal of copying.¹¹ There may be very narrow areas where such logic applies but the significant dissimilarities among the many word-processing applications, database products and many other classes of applications contradict this logic. Any computer user who has grown accustomed to using a particular product and then is forced to adapt to another one can attest to the wide range of expression that is possible for software programs whose basic purpose and logic may be the same. Indeed diversity of applications seems inevitable in the real world of software.

There is another set of court cases involving software's presentation to the user, the so called user interface, which has created much greater controversy than the cases mentioned above. It is exactly on the issue of the user's investment in learning how to use software products that these court rulings have floundered. These cases are

¹¹Clapes (1989) argues, correctly in my view, that literature also involves efficiency. The best literature is often that which most directly and compellingly, indeed efficiently, leads the reader to the authors goal.

known as "look and feel" cases since they address the way the software looks to the user in terms of screen design and layout, and the way they feel, or react to input from the user.

A series of "look and feel" case rulings at the District and Circuit court levels have drawn the same lines of strict protection around the user interface of computer applications as was drawn around other software features. In this series of cases the courts have found:

- o That a copyright protects at least the expressive elements of the display screens created by a program.¹²
- o That computer screen displays may be copyrighted separately as audio-visual works.¹³
- o That commands and simple one or two letter abbreviations are protected by copyright.¹⁴

These decisions have caused great controversy in the computer industry and legal profession. They have the effect of causing software companies that wish to write a product that improves on the operation of a competitive product to write a gratuitously different user interface just to avoid copyright infringement. That is, their programs must look different not because such a difference is an improvement

¹²*Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127 (N.D. Cal. 1986)

¹³*Digital Communications Associates, Inc. v. Softclone Distributing Corp.*, 659 F.Supp. 449 (N.D. Ga. 1987)

¹⁴*Idem*

over the original or because they could not independently develop a similar user interface but merely because the look had been copyrighted.

In my view, these cases are both bad for the computer industry, bad for the law and, in the end, bad for the country. They value the author's investment in writing user interface software above the far larger investment of time users of these software products make in training costs while learning to master such products. As a concrete example, it has been estimated by Weigner (1989 130) that the average Lotus 1-2-3 spreadsheet software user spends \$1,000 in training costs of all sorts while mastering the product. Lotus 1-2-3 has a suggested retail price of \$495. With over 10,000,000 copies of Lotus 1-2-3 in use that means that users have spent over \$10 billion learning to use the product while Lotus spent only about \$305 million in total research and development.¹⁵ The real value of the user-interface of most software is not in the designing and creating of it but rather in the user's effort to master it. Current software look and feel rulings do not take into account this balance of equities between the users and the authors of software products.

Moreover, once users have made this investment in learning how to run a product, they become loath to change. This can be seen very clearly in the case of the typewriter keyboard. The original QWERTY keyboard was designed to put frequently used keys in inconvenient locations to slow down proficient typists who would otherwise jam the temperamental machinery of early typewriters. That we have stayed with this inefficient keyboard design speaks to the great inertia users have in such matters. Imagine if a copyright had been granted for the QWERTY keyboard, giving it's creator a life plus 50 year monopoly. Anyone else seeking to

¹⁵This is the total R&D on all Lotus products. It is unlikely that development of the user interface of their 123 product accounted for more than \$15 million.

improve on the first typewriter would have had to build a different layout for his keyboard. Touch typing skills learned on one manufacturer's typewriter would not be transferable to another machine. Surely this would not be good for society.

Another example of the power of the computer users' desire for standardization is in the Lotus 1-2-3 spreadsheet program and the Ashton Tate Dbase III data-base product. These products are among the best selling software packages today. They both have become corporate standards at many large organizations and are the best selling in their product categories by far¹⁶. Yet research by PC Week has shown them to rank among the very lowest on evaluation criteria that users judge as most important to their work.¹⁷ This phenomenon, like the longevity of the QWERTY keyboard, is powerful testimony to the value of the investment users make in learning new technologies. Copyright doctrine needs to recognize users as a major contributor of value in cases like this.

The cost of this failure to recognize the value of the user's investment is significant. Users pay higher prices because of the monopoly prices that vendors can charge. New technology becomes available much more slowly because of the lower levels of competition that ensue. Users suffer lower levels of productivity because of the poorer quality tools available to them. The users' return on their investment in computer hardware and software is diminished by these higher costs and lower product quality. As the most heavily computerized of all the major industrial nations the United States will suffer lower productivity and our international competitiveness will diminish as a result.

¹⁶See New York Times, 1-Feb-91 pD3(4) and PC Week 13-Nov-89 p163

¹⁷See PC Week, 1-Oct-90 p58 and PC Week 2-Oct-89 p50

The Lotus Case

The case of *Lotus Development Corporation v. Paperback Software International* is in many ways the culmination of this entire chain of cases. It represents an earnest attempt on the part of the judge in the case, Robert Keeton, to definitively address the issues involved in copyright protection of a program's user interface in the context of Lotus 1-2-3, which is one of the biggest selling software products of all time.¹⁸ Since Judge Keeton has issued a wide-ranging ruling, in what is sure to become a widely cited case, it is worth taking a close look at some of his arguments.

The first question Keeton addresses is the copyrightability of computer software. Since Congress adopted the recommendations of CONTU and passed the 1980 amendment to the copyright law there is no question that computer programs are entitled to some type of protection by copyright. The issues remain what aspects of a computer program are protected and what constitutes infringement. Keeton admits that both the statute itself and the CONTU report are silent on the issue of copyrightability of non-literal aspects of computer programs. He then admits that the courts had earlier found in *Synercom*¹⁹ that the order and sequence of data input was inseparable from idea and thus not copyrightable. He points out that this ruling from 1978 was before the CONTU report and the 1980 Congressional action. He also points to other more recent cases which have held that non-literal elements of a computer program are covered by copyright. He uses these facts to justify ignoring *Synercom* in this instance.

¹⁸Lotus has sold 6,000,000 copies of 1-2-3 and has over 10,000,000 users as of the end of 1990, according to Candice Clemens, of Lotus in a telephone communication.

¹⁹*Synercom Technology, inc. v. University Computing Co.* 462 FSupp 1003 (D. N.D. Tex. 1978)

Keeton, in my judgement, is making a mistake here. The other cases he cites are primarily addressing instances where defendants took flow charts, documentation, or the actual computer code itself and used them to copy the overall structure of the original work. These efforts are similar to translations or other derivative works which take the investment of the original author and appropriate it for the benefit of the copier. In *Lotus*, as in *Synercom*, however the issue is preserving the investment the user makes in preparing data and spreadsheets. Paperback Software was not alleged to have had access source code or flowcharts of 1-2-3. Keeton has fundamentally misunderstood the nature of the investment at issue here.

Next Keeton addresses the sharp limitations in the copyright law on the protection of useful objects. The statute defines a useful article as "an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information," and the statute limits the protection of such an object only to such esthetic elements as are clearly separable from the function of the object. Keeton then uses an earlier ruling that held that just because a book was useful did not mean it was a "useful article" under the law and thus exempt from protection. He then asserts that virtually any successful program is useful and that the statute could not possibly have meant to eliminate all protection for software. After all, the copyright statute explicitly defines computer programs and conditions under which their users can copy them. Keeton is again very wide of the mark. An atlas or text book is not a "useful article" under the law since their purpose is precisely to "convey information". The purpose of Lotus 1-2-3 is not to convey information. The information is added by the user. Lotus 1-2-3 has "an intrinsic utilitarian purpose," which is to run spreadsheet programs written by its users. Thus under the law only expressive elements clearly separable from 1-2-3's purpose are protected. The command structure and macro language are essential to its purpose since they are

the building blocks of the user's spreadsheet. Change the command structure and the spreadsheet no longer runs.

Lastly Keeton discusses standards and how they affect this case. Paperback Software claimed that the Lotus 1-2-3 commands were an industry standard and that they had to implement them. Keeton points to another spreadsheet product, Excel from Microsoft, as an example of a successful competitor that was not compatible with Lotus 1-2-3 but instead had provided a translator to make migration possible for Lotus users.

This argument is flawed on two grounds. The first is practical. Microsoft is the biggest PC software company in the world. Excel has been rated by most analysts as a far superior product to Lotus 1-2-3. Yet, according to Computer Intelligence PC Market Monitor Service, Excel has a static 10-12% market share whereas Lotus' market share is stable at 60-70%. For a company like Microsoft a 10-12% market share is not success. The second problem with Keeton's argument is that if the macro and command language were indeed covered by copyright, then Microsoft's translator of Lotus 1-2-3 macros would surely be a derivative work and thus a copyright infringement.

The courts have created a problem for us in these mistaken rulings. How to fix these problems so that we can achieve a balance of equities between the users and producers of software products is an important question. There have been a wide range of suggestions as to how to accomplish this goal, usually involving legislation that would remove software as a class protected by the copyright statute and substitute new legislation of a more limited scope, tailored to the protection of

software.²⁰ All of these suggestions are plausible, and all take large steps toward addressing this dilemma. In many ways, however, they are contradictory and vary significantly in the procedures they recommend.

Somewhere among these suggestions is probably a good solution to our problem, but how do we evaluate them? How can we tell which ones are likely to work? For a change in copyright policy to be accepted it must meet three criteria. First it must be politically viable, especially if it requires Congressional action to implement. Second it must be procedurally practical. This question must be viewed internationally since much of the market and competition is international in scope. Lastly the changes must make sense given the state of computer technology. In order to assess these issues we need to know who is involved in making copyright law and policy and to understand how these groups currently function in establishing copyright practice.

²⁰See Brown (1988), Englund (1990), Kapor (1990), Karjala (1987), Samuelson (1988), Strong (1990).

Chapter 2: How Does Copyright Law Get Made?

Copyright law and practice is a complex mixture of legislation, court interpretation, bureaucratic regulation and industry practice. All of these parts are relevant to the problem of balancing the equities involved in computer software protection. To best see our way through the complexity of the look and feel controversy we need to understand how these components of the copyright legal system have functioned in the past, both remote and recent. In the next four chapters we will look at each of these actors in turn by examining one important historical contribution each one made to copyright practice during the twentieth century. These cases span the time period from 1905 to 1977.

Federal copyright practice is first of all the creation of legislation. The current federal copyright law completely preempts and incorporates common law copyright for all works once fixed in a tangible media (Strong 1990 68), so almost all copyright practice follows from the federal statute. We will look at the workings of the legislature in defining copyright practice through the piano roll case. This case is an important one not only because it illuminates the workings of Congress, but also because it introduced the concept of compulsory licensing, which has promise as part of the solution to our software look and feel problems.

The courts have also played an important part in developing software copyright law and practice. The conservative critics of judicial activism are completely right in their assertions that the courts often make law. Their conclusion that this an inappropriate role for the courts is wrong, in my view, because often there is no other practical alternative. As long as the courts make law they must be understood and dealt with as contributors to the evolving doctrine and practice of copyright law. A

good example of the evolution of copyright protection through the courts rather than through explicit legislation is the protection afforded to motion pictures, a subject which I will examine in chapter 4.

The day to day functioning of the copyright system is implemented by a bureaucracy, the Library of Congress' Copyright Office. The Copyright Office is supposed to implement the wishes of Congress as expressed by law and interpreted by the courts. In many instances, however, the administrators of copyright law find it necessary to act in areas where Congress and the courts have not yet defined policy. In this they can have great influence and have often defined important pieces of copyright policy. The protection of microfilm by administrative decisions, examined in chapter 5, is a good example of the evolution of copyright through bureaucratic action.

Lastly there is the market place. Occasionally an industry will have the good sense and luck to be able to balance their competing equities themselves without resorting to government. A good example of how the different parties decided amongst themselves how copyright law should be applied is photo-copying. This case is detailed in chapter 6.

These four bodies do not operate independently of each other but rather function as separate parts of an integrated whole. For the most part they do not compete with each other but rather they cooperate in a rather symbiotic relationship. Each has a unique structure and function that lends it competence and authority in certain areas and under specific circumstances.

Chapter 3: Copyright And The Workings Of Congress

Copyright as an important rule of law was born of a new technology, the printing press. Early English copyrights were granted by the Star Chamber of Great Britain with a purpose of imposing censorship rather than of protecting the author. According to McFarlane (1980, 26) it was the magistrate of Nuremberg who in 1512 first extended copyright protection to the author of a work by confiscating counterfeits of etchings by Durer. Other than the elimination of censorship as a goal of copyright, from the time of Gutenberg's great invention in 1451 till the early 1900's there was little change in the technologies of communications, and as a result little change in copyright law. In the early part of the twentieth century, however, two inventions resulted in a burst of innovation that had a major impact on communications. They were the player piano and the talking machine, as the phonograph was first known. These inventions created new industries and opened vast new markets for the authors of the software that fed these machines, music. The rapid advance of machine technology, the growth of the market, and the impact on society that played out in the music industry in the early 1900's created the need for changes in the copyright law.

The growth of the mechanical music business has many parallels with the growth we are in the midst of today in the computer revolution. In this section we shall explore the second technological revolution in communications that affected the rule of copyright, and in particular we shall examine the role Congress played in establishing copyright policy.

Music, in the early 1900's, as today, was a major form of entertainment.²¹ Since there was no radio or phonograph, sheet music sold for home performance on the piano or other musical instruments were the major means of providing musical entertainment. According to Sanjek (1984, 5) Steven Foster's successful song, *Old Folks at Home* sold 100,000 copies of sheet music as early as the 1850's. Given the population at the time, this was equivalent of a million seller today. *Till We Meet Again* by Eagan and Whiting sold 3.5 million copies in a few months in 1919. This is equivalent to selling over 8.1 million copies in a few months today, when only the very biggest hits sell over 10 million records in total.

In the early 1900's the first American copyright law of 1790 was still in effect with only minor amendments. This law was appropriate to the circumstances of post-colonial United States. Most writers and composers of economic importance in the 1700's were Europeans, chiefly English or French. The need existed to encourage the growth in the U.S. of the most labor and capital intensive and profitable portions of the publishing business, typesetting and printing. In the service of these needs the law of 1790 provided no recognition of foreign copyrights. Articles covered by U.S. copyright had to be typeset and printed here. This had the effect of making the publishing and selling of books and sheet music quite profitable since there were no royalties paid to foreign authors who accounted for most published works and there was no competition from foreign publishers since works had to be manufactured here.

²¹The following history of the evolution of the American music business and its impact on copyright law is largely taken from Sanjek (1984 v2)

In the music publishing industry the major players joined the Music Publishers Association, a classic 19Th century trust. The MPA enforced non-discount policies on retailers and maintained a "courtesy of the trade" policy that gave works of specific foreign composers to individual MPA members so that they did not compete directly with each other by publishing the same works. The existence of the trust, like those in many other segments of the economy by the late 19Th century, was to have a major impact on the politics of copyright reform and thus the structure of the music industry ever since.

The anti-competitive atmosphere that prevailed in the music publishing business at the turn of the 20Th century meant that there was very little need for aggressive marketing practices. Sales of sheet music were conducted in large part by piano instructors and the rest primarily through small sheet music shops.

The Piano Roll Case

The Victorian period saw a great growth of manufacturing productivity through the use of modern manufacturing practices supported by the availability of increasingly precise machine tools that enabled mass production through the use of interchangeable parts.²² This modern system of manufacturing required large amounts of capital, a requirement that caused many industries characterized by large numbers of small producers to become concentrated. The need for large amounts of capital and the great efficiencies granted those who had access to capital caused small producers to be squeezed out or to be acquired by one of the industry leaders. Prior to the civil war piano manufacture was dispersed across many small producers, many of them primarily music publishers. By 1880, however, Steinway and Sons was

²²The story of the piano roll is again largely from Sanjek (1984 v2)

responsible for 70% of all pianos sold in the U.S. which they manufactured in their New York City plant (at the time the second largest building in the country after the Federal Capital building).

In 1876 a French invention, the pianista, which was the first mechanical piano using the vacuum principal (Sanjek 1988, 380), was shown at the Philadelphia Exposition. In 1890 John McTammany, a Worcester, Massachusetts piano mechanic, invented a mechanical organ designed as a child's toy that was played by turning a crank to advance the music roll and pumping a bellows to work the organ reeds. His patents were purchased by the Mechanical Organette Company, which also purchased the Aeolian Organ Company and the plant of a Boston automatic music roll company. This company was headed by William B. Tremaine of the New York music-publishing family. In 1890 he was succeeded by his son, Henry as president.

Henry reorganized these businesses into the Aeolian Organ and Music Company. By 1902 Tremaine was capitalized with over \$15,000,000. According to Sanjek (1984, 8), this was more than the amount invested in the entire American piano and organ industry just 12 years earlier. To complement this investment in manufacturing Tremaine put together a modern sales and marketing system. These sales and marketing systems were being developed at that period to match the large growth in productive capacity. The music industry was stunned when Aeolian placed a four color advertisement in *Cosmopolitan* in 1902 introducing their new player piano.

To ensure a large supply of compositions for his player pianos Tremaine secretly entered into contracts with all 87 major members of the music publishing trust, the MPA. These agreements gave Tremaine exclusive rights to the publisher's entire catalog of music for thirty-five years in return for a 10% royalty on rolls sold. These

agreements were designed to have a dramatically anti-competitive effect and to solidify Aeolian's dominance of the player piano business.

Tremaine's secret contracts with the music publishers were hobbled by a major problem. For Tremaine's contracts to have the desired effect on his competition the music publishers had to have legal control over the production of piano rolls from their copyrighted music. This issue, whether an object like a piano roll was an infringing copy of the printed score for copyright purposes, had never been adjudicated in the U.S.. Success for Tremaine seemed likely however. In 1902 the German courts ruled that their 1870 copyright law covered talking machine records, which seemed like a very good analogy for the piano roll.²³ Tremaine agreed to pay all legal costs for one of the MPA members to take such a case to the Supreme Court of the United States so that his exclusive contracts would have the desired business effect. The case Tremaine bank-rolled was *White-Smith Music Publishing v. Apollo Company*. Considering the effort that Tremaine put into getting the secret agreements and the money he was willing to spend on a court case, it seems clear that he expected to prevail before the bench. In it's October, 1907 term, however, the Supreme Court ruled against Tremaine and his proxy, White-Smith Music Publishing.²⁴ The Supreme Court decided that piano rolls which were not human readable and which it felt were really a part of a machine, did not infringe on the copyright on the sheet music from which they were recorded. This argument about

²³ In fact, it was only the bureaucratic resistance of the Copyright Office that delayed consideration of the issue in the U.S.. The Copyright Office did not feel equipped to handle music recordings and refused to accept them which effectively left record producers with no copyright which could be infringed and thus the courts were never presented with the issue (U.S. Department of Commerce, 1977).

²⁴ It is no coincidence that the Supreme Court ruled in this narrow way during the middle of Congressional efforts to draft a new copyright law. The courts often pass issues to Congress when they know that timely legislative consideration is likely.

the copyrightability of machine-readable works which seem to be part of a machine will come to the fore again eighty years later as it relates to computer software. But meanwhile, in 1907, Tremaine and the MPA had a problem and turned from the courts to Congress for a solution.

The Politics Of Copyright Reform

The first copyright statute of the United States was passed in 1790. Major revisions were passed in 1831 and 1870. By 1901 the Register of Copyrights, Thorvald Solberg, was lobbying for another general revision of the statutes in his annual report and suggested that Congress appoint a commission of interested parties to draft a new law, according to a U.S. Copyright Office report(1960). Congress instead suggested that the Librarian of Congress, Dr. Herbert Putnam, with the advice of a conference of the various interests involved, draft a new law. Represented on the committee were:

"authors, dramatists, theater managers, architects, artists, composers, book publishers, directory publishers, newspaper publishers, periodical publishers, photoengravers, print publishers, printers, educational institutes, public libraries, advertising agencies, bar associations, and a few miscellaneous groups" (U.S. Copyright Office 1960, 2)

Conspicuously missing from this long list of interested parties were manufacturers of mechanical music machines. In May, 1906, the Librarian of Congress presented his draft legislation to the 59Th Session of Congress. Among other changes, the draft made it illegal to perform a dramatic or musical composition for profit without permission of the copyright holder. In addition it gave to copyright holders control over any mechanical device whatsoever designed to reproduce for the ear any such work. Hearings were held in June and December before a joint committee of

members of the House and Senate Committees on Patents, Trademarks and Copyright. The New York Times reported on December 11 that Mark Twain spoke for 5 hours before Congress in support of the new bill. John Philip Sousa told Congress he wrote better music when he was better paid and Victor Herbert testified on behalf of the mechanical music rights provision (Sanjek 1988 v2 398). C. Howlett Davis brought progress towards passage of the bill to a halt when he testified in opposition, referring to a "complete monopolistic octopus, in which the Aeolian Company forms the head and brains, and the Music Publishers Association the body, the independent publishers the writing arms, and the composers the suckers and baiters." (Sanjek 1988 v2 398) This testimony, coming in an era of intense anti-trust sentiment, caused sufficient controversy to end consideration of the bill for that session.

In the 60Th Session of Congress two laws were introduced, one similar to the bill that failed to pass in the 59Th Congress, favorable to composers and publishers, and one favorable to manufacturers. Negotiations were stalemated. Final hearings began in March, 1908, one month after the Supreme Court handed down its ruling in *White-Smith*. This ruling made it imperative to that composers seek a compromise that would gain some copyright protection to cover mechanically reproduced music.

Copyright Act Of 1909: The Nature Of The Compromise

A requirement for a compulsory license was added to the proposed legislation that forced a composer to license anyone who wanted to perform a composition once he first licensed it. Also proposed was a royalty rate of two cents a recording. A clause was added that would terminate any copyright upon involvement of the copyright owner in actions in violation of state or national laws concerning trusts or monopolies. The composers felt that the two cent rate was too low but accepted it in

order to get the law passed. Manufacturers competing with Aeolian accepted the law because it invalidated Aeolian's exclusive agreements with the MPA members. Aeolian, although it lost its exclusive contracts, would pay only \$.02 per recording rather than the \$.10 to \$.20 that it would have paid under the 10% royalty rates they had offered the MPA. Congress accepted the law as politically palatable because of its anti-trust provisions. The law was approved by Congress on the last day of the 60Th Session and was signed into law by Theodore Roosevelt in his last five minutes as President.

Even in the face of intense pressure from a wide range of interests to conclude a much needed reform of the copyright statute, and convenient political cover in the form of strong public anti-trust sentiment, the Congress was unable to agree on legislation until the parties involved in the mechanical music dispute reached agreement among themselves. The compulsory licensing provision of the 1909 law proved to be a durable compromise which is still governing music publishing today.²⁵ By providing adequate compensation to authors of music while allowing access to compositions to all interested performers, the compulsory license has helped ensure the vibrant growth of the music business from 1909 to the present. Compulsory licensing of user interface software look and feel could help assure similar results in the software business today.

²⁵The mechanical music compulsory license was unique until 1976. Today there are five others covering 1) cable T.V. access to programming, 2) jukebox access to music, 3) public broadcast station access to certain types of copyright material, 4) satellite carrier access to programming, and 5) record rental access to recordings. This last has never been implemented because of objection from the record manufacturers.

Chapter 4: The Courts: Motion Pictures

The courts, in their role as interpreter of precedent, legislative intent and accepted social values in specific instances of conflict, often have the opportunity, and sometimes indeed face the need, to break new ground in formulating public policy. The courts today are proving the major arena for sorting through the issues of software copyright. To better understand what the courts can be expected to contribute to today's problems I will examine one case where the courts set copyright policy: the application of copyright to motion pictures.

Many of the same issues we face today regarding software occurred relative to motion pictures. Are motion pictures protected by copyright? What about the use of copyrighted material, musical and literary, in motion pictures? What rights are assigned to the copyright owner? These issues were all decided by the courts.

The first question was the copyrightability of motion pictures. The issue arose in 1903 in the case of *Edison v. Lubin*. In this case Thomas Edison claimed copyright protection for a series of 4500 photographs that, when projected through a machine, showed the launching of Kaiser Wilhelm's new yacht. The Federal District Court took a strict constructionist point of view and ruled that whereas each of the 4500 photos might have been individually registered and protected, the work as a whole could not be. The District Court admitted that the law might be defective in not mentioning motion pictures, but left it to Congress to rectify the flaw if indeed there was one. On appeal the Circuit Court disagreed and extended protection to Edison's movie as a photograph. Just to make sure that Edison's work would be protected they also said that the movie was a work of fine art, another category protected under the 1870 law.

Why were the courts willing to make a liberal interpretation of the statutes to protect motion pictures in 1903 when they were not willing to do so with piano rolls in 1909? There are three primary reasons for this which have been observed by Olson (1989 110) to be common in the formulation of copyright policy by the courts.

The first stems from the nature of the legal system. Congress almost exclusively deals with issues at the policy level and seldom passes significant legislation that addresses the level of specific cases. The courts are just the opposite. They operate almost totally on the level of specific cases and do not generally set about making policy, although the cumulative weight of specific rulings does add up to policy and the courts generally explain the policy basis of individual rulings. This means the courts are more apt to advance policy in cases that involve specific individuals within the same class, such as the two marketers of motion pictures in the *Edison* case, rather than in cases which involve the balance between two different classes of society, such as the composers and mechanical music machine manufacturers in the *White-Smith* case.

Another factor affecting the court's willingness to make new policy is the accident of the details of the specific case which first presents the policy issue. Again it is important to note that the courts operate entirely within the specifics of the cases presented to it. The specific details of the case that first frames an issue before the courts can have a significant impact on its willingness to act. As Oliver Wendell Holmes (1881 1) said, "The life of law is not logic but experience." For example, the *Edison* case had one party trying to expropriate the considerable effort and creativity of another, whereas it could not have been lost on the courts that *White-Smith*

involved someone trying to obtain a monopoly of available musical composition from an industry trust.

The last explanation for the difference in the willingness of the courts to make new law in its rulings has to do with an accident of timing. When the court ruled on *White-Smith*, Congress was in the midst of considering a comprehensive review of the copyright law, whereas the hearings to revise the copyright statutes did not begin until 1905, two years after the ruling in *Edison*. It seems reasonable to speculate that the urge to pass the responsibility for fixing obvious problems to Congress for resolution will be stronger when there is reason to believe quick action may be forthcoming.

Oddly, in formulating the major copyright revision of 1909, Congress left out any mention of motion pictures despite their well known existence and the earlier court rulings. One can only imagine that this was an oversight based on their general approval of the policy set by the courts in *Edison*. In 1912 Congress amended the act of 1909 to include motion pictures as a protected class. They did not make any changes to section 1 of the statute, which outlines the rights reserved to copyright owners. Section 1 reserves the right to make copies of all classes of works to the copyright owner but reserves the public performance rights only to written dramatic works and musical compositions. The effect of the 1912 amendment was thus to prevent unauthorized copying of motion pictures but seemingly to allow no control over the public performance for profit of legally acquired copies.

Given this precarious state of affairs, the courts would soon get a chance to sort things out. In *Tiffany Productions v. Dewing* the question presented was whether the exhibition of a film beyond the times and places specified in the license was an

infringement of copyright. While the Supreme Court's ruling in *White-Smith* was reversed by Congress to protect musical composition from infringement by publication of records or piano rolls, its assertion that the performance of a record or piano roll was not publication was still in effect. This presented an obstacle to the court in *Tiffany*, since the easy way to protect the rights of the copyright holder -- by declaring that any performance of the movie was publication -- was contradicted by the Supreme Court. The court recognized that as a practical matter it was important to protect the performance rights of the copyright holder and went on a fishing expedition to find grounds to support that protection. They settled on allowing that while Congress had explicitly mentioned dramatic works and motion pictures as separate classes of works in section 5, which lists copyrightable works, they meant to include motion pictures as a form of dramatic work in section 1 where they reserved the performance rights of certain classes of work. This seems to be a dubious conclusion from a logical point of view, but it supported the right conclusion in the case at hand on the basis of experience. Again we see the courts making policy decisions based on the specifics of individual cases before it. This court ruling lasted as a basis for protecting the performance of motion pictures until 1976 when Congress specifically included them in the performance rights section of new legislation.

In 1946 the question arose, in *Jerome v. Twentieth Century Fox*, whether the compulsory license provisions of the act of 1909 applied to motion picture sound tracks. The act, as we have seen in chapter 3, created a compulsory license for any musical composition once published and explicitly mentions phonographs, piano-playing instruments and other "purely mechanical" means. Plausibly, motion picture sound tracks might have been seen as one of these "purely mechanical" means and thus have been covered under the license. The court, looking at the specific details

of the case, however, noted that a mere 500 prints of a motion picture were all that were needed to allow coast to coast exhibition of a successful movie and would net the composer a mere \$10.00. Again we can see the court acting on the specifics of the case at hand rather than operating at the abstract policy level.

This de facto policy formulation through specific cases has served us poorly in the case of computer software. The ill-advised rulings relative to computer software we saw in chapter 1 were in part the result of the court's broad use of copyright to justify rulings motivated by specifics of the case at hand.²⁶ For instance, in the case of *Whelan Associates, Inc. v. Jaslow Dental Laboratories, Inc.*²⁷, which was a landmark case expanding copyright coverage to the non-literal structure and sequence of a program, the defendant, Jaslow, who was found to have infringed on the work of Whelan, obtained a copy of Whelan's source code surreptitiously without Whelan's knowledge or consent. This sort of nasty behavior calls out for punishment and may predispose a judge to rule more widely against the perpetrator than is necessary or wise.

²⁶See Clapes' (1989) discussion of *Whelan* and *SAS* for details.

²⁷*Whelan Associates, Inc. v. Jaslow Dental Laboratories, Inc.* 609 FSupp 1307 (E.D. Pa. 1985)

Chapter 5: The Bureaucracy - Microfilm

The bureaucratic structures of the Executive branch of government also exert an influence over the formulation of copyright policy and practice. The most important of these organizations is the Copyright Office of the Library of Congress. The Copyright Office administers the system whereby writings are registered for copyright. Registration is not necessary to obtain a copyright. Common law copyright²⁸ comes into existence as soon as a work is created and is preempted by Federal law as soon as the work is fixed in a tangible medium(Strong 1990 68). Federal copyright comes into existence as soon as a work is fixed in a tangible medium, written down, etched, painted or whatever. However you must register a work to bring suit to enforce a copyright. You can not get awards of attorney's fees or statutory damages for any infringement that takes place before registration, and you can not collect royalties from any of the compulsory licenses like the one for music discussed above in chapter 3.

Most of the time the Copyright Office follows the lead of the Congress and the Courts in administering the workings of the copyright system, but occasionally a situation arises where Congress and the courts have not addressed issues facing the Copyright Office and thus they have to make their own determination of the law. These determinations often create policy.

One example of administrative policy making copyright law can be seen in the area of microfilm. In this instance the Copyright Office was presented with copyrightable textual material on microfilm for deposit as part of the registration of copyright. In

²⁸Common law copyright is governed by state law and adjudicated through state courts.

view of the Supreme Court ruling in *White-Smith* that an object must be humanly perceivable to qualify as a copy, the applicability of copyright to microfilm was unclear. The Copyright Office decided, perhaps in part because handling them is an easy task, to accept microfilm for registration. This policy was not challenged in court and has become an accepted part of copyright practice. In recognition of this acceptance Congress later included microfilm as a protected media in the 1976 act.

Other executive agencies can also get involved in copyright issues. For example, the Federal Communications Commission has played an important role in resolving the issue of re-transmission of copyrighted material over cable television systems. In 1968 and again in 1974, the Supreme Court ruled that cable system operators were not infringing when they broadcast copyright material, thus freeing cable systems from any need to pay for the material they broadcast.²⁹ This ruling set in motion political action on the part of the copyright owners to get legislation that would change this situation and force cable systems to pay. Congress, however, rarely imposes pain on a legitimate interest group, which cable operators surely are, regardless of the compelling logic of business or policy factors. The cable operators' opposition in Congress stalled any action on this issue from 1968 till 1976, leaving the cable operators free to operate without making royalty payments. Finally the FCC, which felt the effect of these court rulings was unfair, stopped licensing the expansion of cable systems in major metropolitan areas. This action was a serious blow to cable operators which forced them to come to terms with program originators. Resolution of this conflict allowed Congress to pass the Copyright Act of 1976. The Act created a compulsory license to allow cable access to programming and set up the Copyright

²⁹In *Fortnightly Corporation v United Artists Television*. (US SupCt 1968) 158 USPQ 1 and *Teleprompter Corporation et al. v. Columbia Broadcasting Systems, Inc. et al.* (US SupCt 1974) 181 USPQ 65 the court reasoned that cable systems were on the viewer side of the line between performance and viewer.

Royalty Tribunal to set payment rates for this privilege. This model of compulsory licensing based on rates set by an impartial third party offers a possible solution for achieving a practical balance in the software look and feel cases.

Chapter 6: Industry Practice - The Copy Machine

It is sometimes the case that the various parties involved in a copyright dispute can come together and formulate voluntary rules that become an accepted part of copyright practice without the intervention of the courts. These agreements sometimes become codified in legislation at a later time. In the computer industry voluntary industry standards that are negotiated by committees of both users and manufacturers have played an important role in striking a balance between innovation and stability. These standards often start with the copyrighted work of one company that is put in the public domain or licensed at a nominal cost as part of the standard setting process. Such standards may come to play an important role in user interface design in time. To see how this sort of process may unfold, we can look at photocopying, whose impact on copyright has played out over the last 55 years.

Control over the use of photocopying presents a good example of how industry groups can come together to voluntarily formulate copyright practice. The Copyright act of 1909 gave authors exclusive rights to copy their works. In the early 1930's technology like mimeographs and photostat machines became available to libraries. Since these machines were expensive and inconvenient to operate libraries used them only in isolated and limited situations. Even so, publishers recognized the potential infringement of their copyrights. In 1935 an informal group of publishers, scholarly and research organizations, and libraries got together and issued a statement known as the "Gentlemen's Agreement." The agreement outlined circumstances under which a library might reasonably make copies of books and periodicals. This agreement had no binding effect because the signatories were not officials of any groups representing the concerned parties, but nevertheless the

agreement became accepted industry practice. This industry self-regulation was so satisfactory to all involved that when hearings were held in Congress in 1960, in preparation for a general revision of the copyright law, the parties involved told Congress that the new law should not address photo-copying as they preferred to work out an agreement among themselves.

By 1970 the disparity between the low cost of copy machine output and the high cost of subscriptions to scholarly journals was putting pressure on the thirty-five year old Gentlemen's Agreement. In 1971 the Williams and Wilkens Company brought suit against the National Institute of Health's library and the National Medical Library, both organs of the U.S. Government, for wholesale copying of its medical journals for distribution to the staff of the Institute, medical libraries, and practitioners around the country.³⁰ The Commissioner of the Court of Claims ruled that the copying was beyond the realm of fair use and was an infringement of Wilkens's copyright. The full Court disagreed and found for the NIH. Typical of their rulings in matters involving individuals in different classes the court did not make new policy. Instead it called for Congressional treatment of these issues saying "Finally, but not least of all, we underline again the need for Congressional treatment of the problems of photocopying."³¹ In 1976, when Congress was finishing its general revision of the copyright law, it pressured the parties involved into reaching an agreement on these issues that was embodied in section 108 of the statute. Thus the 1935 Gentlemen's Agreement was the rule on fair use of photocopying for forty years.

³⁰*Idem*

³¹*Williams and Wilkens Co. v. United States*. 1973 (487 FSupp 2d 1345)

Chapter 7: Computer copyright: Conclusions

The mechanics of protecting computer software through copyright involves many unresolved questions and issues. The direction taken by some Appeals Courts are, I have claimed, misguided. If not corrected, these interpretations of the law will cost computer users in the United States, which is really to say the entire economy, dearly. So what then are the possibilities for putting copyright practice back on a more equitable track? What does what we have seen of the evolution of copyright law and practice imply about these various possibilities?

The plain necessity is to achieve a balance in the law that recognizes the computer users' investment in learning to use software products. This could be done by any of the four agencies that we have looked at above. Let's look at each and see what history tells us of the likely limits of their impact on this problem.

How Can Congress Help

There have been several suggestions put forward regarding possible Congressional action. Brown (1988 997) suggests doing away with copyright altogether as the basis for protecting software and drafting new legislation specifically to deal with it. A major advantage that copyright has over some newly created law is the wide international recognition that copyright has attained. All the significant industrial countries of the world are members of the Berne Convention, which sets minimum standards that they must all adhere to. The Berne Convention does not solve the problems we are discussing here, but it does give a very firm foundation of basics at an international level. It would be daunting indeed to attempt to overthrow copyright as the basis of software protection world-wide and build a consensus for a total replacement. We have seen how hard it is for Congress to act in the face of

conflicts between legitimate parties. It is virtually impossible to see how this conflict could be resolved at the international level given the contentiousness of the issues involved. Thus Brown's suggestion seems very naive and impractical.

Karjala (1988) mentions the possibility that some form of compulsory license might be the basis for resolving the look and feel controversy. This idea has great intrinsic merit. A body like the Copyright Royalty Tribunal (see page 38) could assign royalty rates for user interfaces that authors wanted to use. Thus access to successful interfaces would be assured and their authors would be rewarded for their use. A truly innovative interface that was easy to learn and use would deserve a high royalty since the users' investment in it would be low, whereas the interfaces for less clever programs that take much user effort to master would fetch lower royalties. This idea, as with other suggestions for legislative remedy, fail however on the practical ground that absent widespread agreement between the legitimate parties, which surely does not exist, Congress has shown a historic inability to act. Before any legislative action is likely to be taken, some external event will have to occur to force compromise on all parties. A Supreme Court ruling with drastic effect, like *White-Smith*, is an example of such an event. It is estimated that Microsoft Windows will have 9 million users by the end 1991. If Apple Computer's suit against Microsoft prevails and has a dramatic impact on those 9 million users by causing Microsoft to recall the product or significantly change it's interface the affected users could become the political force that makes Congress address this issue.

The Role of the Bureaucracy in Software Copyright

I do not see an important role for the Copyright Office in this matter. The disagreement between the constituencies involved are too complex and deep seated for such a bureaucratic organization to be able to air the issues and to develop a

consensus. The Copyright Office can continue to apply pressure for a solution and limit the damage caused until one is found. This seems to be the effect of their refusal to accept computer screens for registration whatever their other motivations might have been.

Another role for the bureaucracy of the Executive branch is in forcing the acceptance of industry standards. For instance, the Department of Defense forced the acceptance of a standardized version of the COBOL programming language by stating that they would not buy systems that did not comply. The impact of their buying power caused every major computer vendor to support the standard.

The Impact Of Industry Practice

The major impact of computer industry practice on copyright has been in the area of voluntary industry standards. When a technology begins to become mature and stable, users begin to see the value of standardization. This standardization typically results in lower costs, easier training and greater life span for the involved products. Vendors can react to the pressure for standards in one of three ways. By opposing the standards and enhancing their proprietary products to make the proposed standards look relatively unattractive, they can, if they are influential enough, hope to derail the move towards standards and thus maintain their competitive advantage. They may also decide to put their technology in the public domain and propose that it be used as the basis of the standard. This approach protects their investment if standards seem inevitable. It can also present a competitive advantage while the standards are evolving until competitors develop products of their own that are compliant with the standards. This is often a means of attacking against an important competitor with an entrenched proprietary product. Finally, the followers in a product area will often enthusiastically embrace a proposed standard, since it

can offer them a way to effectively catch up with the industry leader at a relatively low cost and risk.

Unfortunately, the area of most contention relative to copyright, the user interface, is one of the least mature. User interface technology is evolving rapidly with window and mouse based products being announced almost daily. The Apple Macintosh, Microsoft's Windows 3.0, IBM's OS/2 Presentation Manager as well as a variety of Unix based windowing systems are all competing vigorously with no clear winner in sight. Multi-media and hyper-text based applications are just now emerging from the drawing board and are sure to keep the user interface area in rapid flux for years to come. Given this, there is no reason to believe industry standards will play a significant role in the resolving our look and feel problems.

The Court's Role

Trying their best to follow the unclear wishes of Congress the court have led us to the problems we face today. Ironically, the courts also have great promise as sources of the solution to this problem. We have cited some recent cases in the look and feel area that are mis-guided and are likely to cause continuing problems. These cases have all been decided at the District or Circuit level and thus are not definitive.

Many Circuit courts have not been heard from, thus leaving most District courts to continue searching on their own for a better balance of the interests involved. Since these cases are presented to the courts as conflicts between two parties of the same class they are of a type, as we have seen earlier, that can lead the courts to feel more comfortable taking an activist role in setting new legal precedent. There is much unexplored ground that the courts have yet to cover that may yield better law.

Karjala (1989 33-96) explores past rulings that could be grounds to support a narrower interpretation of the copyright law, among them:

- o The severe limitations in the copyright protection of utilitarian objects which are protected only to the extent that their esthetic aspect can be identified separately from their utilitarian aspects.
- o The limitation of protection of factual or technical works to only near verbatim copying.
- o The refusal of the courts to allow the monopolization of non-patentable utilitarian objects through copyright and other legal means.³²
- o The legislative exclusion of "processes" from copyright protection.

The last has clearly not been heard from courts on the issue of protection of computer software. We must hope that they will either resist the direction set in the early cases discussed here or drop a bomb like *White-Smith* that would force a compromise among the parties involved which might lead to legislative action.

Clearly then, it is to the Court that we must look for progress in the look and feel area. It is important that interested parties become involved in the judicial process, for that is the only important game in town

³² For instance, chart recorders, *Brown Instrument Company v. Warner.*, 161 FSupp 2d 910 (D.C. Cir. 1947) and electrical plugs, *Harvey Hubbell, Inc. v. General Electric Co.*, 262 FSupp 155 (S.D.N.Y. 1919)

Appendix 1: Notes on legal bibliography abbreviations

<u>Abbreviations</u>	<u>Definitions</u>
CCH Comp Law	Commerce Clearing House Computer Law - A for profit periodical of important rulings on computer related law.
F.Supp.	The Federal Supplement - Publishes important District Court rulings. District Court rulings are not usually published.
US SupCt	United States Supreme Court Reporter - A periodical publication of all Supreme Court rulings.
USC	United States Codes - Laws passed by the Congress of the United States.
USPQ	United States Patent Quarterly - A publication covering important patent and copyright related rulings.

The abbreviations in parenthesis after the journal reference identify the specific district or circuit court. Thus "*Whelan Associates, Inc. v. Jaslow Dental Laboratories, Inc.* 609 FSupp 1307 (E.D. Pa. 1985)" refers to the ruling by the District Court of Eastern Pennsylvania in the case *Whelan Associates, Inc. v. Jaslow Dental Laboratories, Inc.* published in volume 609 of the Federal Supplement on page 1307.

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