

UIC John Marshall Journal of Information Technology & Privacy Law

Volume 8
Issue 1 *Computer/Law Journal - Winter 1987*

Article 1

Winter 1987

The Impact of Digital Technology on Copyright Law, 8 Computer L.J. 1 (1987)

Eric Fleischmann

Follow this and additional works at: <https://repository.law.uic.edu/jitpl>



Part of the [Computer Law Commons](#), [Intellectual Property Law Commons](#), [Internet Law Commons](#), [Privacy Law Commons](#), and the [Science and Technology Law Commons](#)

Recommended Citation

Eric Fleischmann, The Impact of Digital Technology on Copyright Law, 8 Computer L.J. 1 (1987)

<https://repository.law.uic.edu/jitpl/vol8/iss1/1>

This Article is brought to you for free and open access by UIC Law Open Access Repository. It has been accepted for inclusion in UIC John Marshall Journal of Information Technology & Privacy Law by an authorized administrator of UIC Law Open Access Repository. For more information, please contact repository@jmls.edu.

THE IMPACT OF DIGITAL TECHNOLOGY ON COPYRIGHT LAW

by ERIC FLEISCHMANN*

INDEX

I. INTRODUCTION	1
II. NEW DIGITAL TECHNOLOGY: AN IMPETUS TO CHANGE.....	2
A. QUALITATIVE IMPROVEMENTS	3
B. COST AND SPEED IMPROVEMENTS.....	4
III. FAILURES OF EXISTING COPYRIGHT LAW	5
A. ENFORCEMENT.....	5
1. <i>More Infringements</i>	5
2. <i>Privacy Interests</i>	7
3. <i>Public Attitudes Toward Copyright Law</i>	7
B. PRIVATE USE	8
C. DEFINING THE PROTECTED WORK	11
1. <i>Is the Individual Note Protected?</i>	11
2. <i>Defining Authorship</i>	13
IV. ALTERNATIVE SOLUTIONS.....	14
A. THE MARKET SOLUTION	14
1. <i>Technological Controls</i>	14
2. <i>Contractual Agreements</i>	17
3. <i>Theoretical Weaknesses of the Market</i>	18
B. LEGISLATIVE SOLUTIONS.....	19
1. <i>European and American Legislation</i>	19
2. <i>A Proposal</i>	20
V. CONCLUSION	22

I. INTRODUCTION

Copyright law faces a watershed. Although the federal copyright statute was drastically revised in 1976,¹ it does not address the problems

* B.A. Yale College, 1983; J.D. University of Virginia, 1987. Associate, Rackemann, Sawyer & Brewster, Boston, Massachusetts. Copyright 1988, Eric Fleischmann.

1. Copyright Act of 1976, 17 U.S.C. §§ 101-810 (1976).

created by new digital data transmission and recording technology. Neither the courts nor the market has been able to resolve these difficulties. This paper therefore proposes that Congress revises present copyright law.

Copyright law faces three immediate problems due to recent advances in digital technology. First, the advent of new digital systems will result in more infringements, greater difficulty in detecting infringers because of privacy interests, and a continued public acceptance of unauthorized copying. This will make existing copyright law more difficult to enforce. Second, the fair use doctrine will continue to undermine the copyright system by permitting private unauthorized use of copyrighted works. Third, present definitions of copyrightable work will prove overly narrow. If left unresolved, these problems will subvert the intellectual property system.

The advent of new digital technology requires a legislative response. As will be shown, the judiciary has failed to effectively enforce copyrights, delineate allowable private use, or define the scope of the protected work. The market system has also proven unable to deal with these issues. This paper therefore proposes that new copyright laws be enacted to resolve both existing problems and those unforeseen.

II. NEW DIGITAL TECHNOLOGY: AN IMPETUS TO CHANGE

As digital technology replaces analog technology, the problems now facing copyright law will become more urgent. Users of digital systems will be able to record and transmit information of higher quality in less time and at higher speed than is possible with analog systems. As a result, copyright infringements will likely be more frequent, more costly, and more difficult to prevent.

Digital recording and transmission technology is expected to largely replace analog technology by the end of the 1980's. This is already evident in the recording industry. In dollar amounts, retail sales of digitally recorded compact disks ("CDs") now surpass those of analog phonograph albums.² Digital audio tape machines ("DATs"), which unlike compact disks permit re-recording, will probably soon be sold in the United States,³ as will digital video players, recorders, and televisions.⁴

2. *CDs Top LPs In Retail Revenues*, Ad Day, June 24, 1987, at 3 (The cost of CDs, however, is approximately twice the cost of analog phonograph albums).

3. Baig, *What's Next in Hi-Fi: Digital Tape Recorders*, FORTUNE, June 9, 1986, at 89, col. 1.

4. See Crutchfield, *Next Home Stereo Advance: Digital Tape Cassettes in 1987*, N.Y. Times, Oct. 24, 1986, at A1, col. 1; Fantel, *Barriers to DAT Recorders are Breaking Down*, N.Y. Times, Apr. 24, 1988, at H31, col. 1; Nadan, *A Glimpse into Future Television*, 135 BYTE (Jan. 1985); Meigs, *Get Set for Digital*, POPULAR MECHANICS 52 (June 1986); Fantel, *Digital VCR's Figure in the Future*, N.Y. Times, Sept. 7, 1986, at H40, col. 1.

The digital format is quickly becoming the standard for transmitting data over television,⁵ radio,⁶ and fiber optic cable;⁷ integrated services digital networks ("ISDNs") now allow digital information to be sent over these same circuits.⁸ Widespread use of digital systems will improve the quality, cost, and speed of data transmission and recording.

A. QUALITATIVE IMPROVEMENTS

Digital systems record and transmit data more accurately than analog systems. For example, analog systems reproduce sounds on a tape or phonograph with a physical or electrical mark analogous in size and shape to the original; thus analog recordings are replicas of the original.⁹ Digital systems, by contrast, convert recorded sounds into a different format. A digital recorder analyzes sounds and converts them into a binary sequence of the digits 1 and 0, which it then records.¹⁰ In this way, any work, however complicated, is reduced to a simple code.

An important advantage of digital over analog recording lies in the ability to correct errors in digital recordings after they are made. This difference may be illustrated by the example of an English clerk who records the spoken words of a Chinese poet. Using the analog method, the clerk would record the sounds of Chinese speech using English syllables. When he could not describe a Chinese word using English sounds (the Chinese sounds being out of his "range"), he would make the best analogy he could. A method comparable to that used in digital recording would be for the clerk to translate the Chinese words into English before recording them. While the analog record of the Chinese poet would become garbled as later copiers misread smudged words or letters, the digital record would remain comparatively accurate as each copier could interpolate unclear letters and words from the rest of the document. Similarly, digital recording is an improvement over analog recording, since originals are converted into a new language that the recorder can understand and transmission errors can be easily corrected.

Since digital systems can correct transmission errors, they reproduce recorded information more accurately than analog systems. While analog recorders are limited in range by the physical characteristics of their media, digital recorders have no such limits, as they record

5. Marbach and Cook, *The Revolution in Digitech*, NEWSWEEK 48 (Mar. 18, 1985).

6. Fantel, *WGBH in Boston Tests Digital FM Broadcasting*, N.Y. Times, December 7, 1986, § 2, at 27, col. 4.

7. Wynter, *Fiber Optics Promises High-Tech Revolution*, Wall St. J., Sept. 9, 1986, at 6, col. 1.

8. Marbach and Cook, *supra* note 5, at 49.

9. Fantel, *Magic Made Simple: How CD's Work*, N.Y. Times, Apr. 21, 1985, § 2, at 23, col. 1.

10. *Id.* at 25, col. 1.

all information in a mathematical code.¹¹ Like the English translator who uses the digital method, electronic digital systems can correct most errors as they record bits of digital information (the 1's and 0's) in a meaningful way.¹² Through the use of error correction codes, digital recorders can reduce error rates over a thousandfold.¹³

B. COST AND SPEED IMPROVEMENTS

Digital systems are both less expensive and faster than comparable analog systems. This is because digital systems can store more data in less space, and can retrieve and transmit it faster than analog systems.

Digital recording of information is cheaper than analog recording because of error correction codes. In most recording media, the density at which information is recorded can be increased only at the cost of creating more errors.¹⁴ With digital recording, however, it is possible to double storage density by increasing the space used for error correction by ten percent.¹⁵ Thus, digitally recorded information can be packed more tightly into recording media like CDs or floppy disks. Since each disk can hold more information, storage costs are reduced.¹⁶

Digital information can also be transmitted more cheaply than analog data. Fiber optic cables carry digital information more cheaply than do microwave transmissions¹⁷. Data bases recorded on CDs built for information storage ("CD-ROMs") may be shipped by courier at a lower cost than sending the information by microwave, satellite, or telephone lines.¹⁸ In the future, information transmission costs may also be reduced by ISDNs¹⁹ and regional or intra-building data transmission networks.²⁰

11. Golomb, *Optical Disk Error Correction*, BYTE, 203 (May 1986).

12. *Id.* at 204.

13. *Id.* at 203-08. Digital systems use any of several recording codes. One is the Hamming code. In that code, after four bits of information are recorded, three more bits (called parity bits) are recorded based on the values of the information bits. Each parity bit is the solution to an equation involving three of the four information bits. If one of the equations fails, the digital processor recognizes that one of the information bits has been misrecorded. More complicated error correction codes, such as the Reed-Solomon code, work on several bits of information at a time, and are effective even when errors occur in long bursts. Using such codes, an error rate of one per thousand can be reduced to one per million or less.

14. *Id.* at 203.

15. *Id.*

16. *Id.*

17. See *supra* note 5, at 49. See also Zieman, *Ready or Not*, Wall St. J., Feb. 24, 1986, at 20D, 20D-21D.

18. Laub, *The Evolution of Mass Storage*, BYTE, May 1986, at 161, 172.

19. See *supra* note 5, at 49 ("integrated services digital networks" permit digital voice, data, and video to be carried on the same circuit).

20. Zieman, *Ready or Not*, Wall St. J., Feb. 24, 1986, at 20D.

The speed of digital recording and transmission tends to increase at the same time as costs are reduced. For example, fiber optic cables carry digital codes as pulses of light.²¹ This technology both reduces the cost and increases the speed of data transmission.²² Similarly, since digital data can be stored in less space, it can be found and transported more quickly than analog data.²³ Digital access is so efficient than many libraries' catalogs have been put on CD-ROMs.²⁴ Thus, digital systems promise to be both faster and cheaper than the analog systems which they replace.

III. FAILURES OF EXISTING COPYRIGHT LAW

A. ENFORCEMENT

Digital technology will make the enforcement of existing copyright law more difficult in the future. This is due to three factors. First, copyright infringements may occur more frequently with the advent of home digital systems. Second, these infringements will be difficult to detect and prove given the privacy interests involved. Third, existing public attitudes toward copyright law will continue to hamper enforcement.

1. *More Infringements*

Copyright infringement of audio and video materials, already common with analog equipment, may reach epidemic proportions with the introduction of high quality digital systems into American homes. While analog video taping has been estimated to create enormous losses for the recording industry,²⁵ digital technology may cause these losses to double.²⁶

Because digital recorders have extremely accurate reproduction capabilities, copyright infringements may become more common.²⁷ Digital systems allow home users of copyrighted material to directly

21. Wynter, *supra* note 7, at 6.

22. *Id.*

23. Laub, *supra* note 23, at 166.

24. Desmaris, *Laser Libraries*, BYTE, 241-244 (May 1986).

25. Cohen, *Home Electronics: Barring a Ban, DAT Players Will Arrive Soon*, AD-WEEK, Sept. 14, 1987 (Special Report), at 1 (estimate of Trish Heimers, spokeswoman for the Recording Industry Association of America, that the \$4 billion a year recording industry loses \$1.5 billion to home taping).

26. *Copyright Infringements (Home and Video Recorders) Hearings on S. 1758 Before the Senate Comm. on the Judiciary, 97th Cong., 1st, 2nd Sess. 920 (1981-1982)* (statement of Alan Greenspan) [hereinafter cited as Senate Hearings].

27. *Industry Trend: DAT Makes Debut Amid Protest From Record Producers*, Jiji Press Ticker Service, Apr. 2, 1987, at 1 (which indicates that as DATs have a wider frequency response than CDs, they can reproduce sound more accurately).

compete with authorized commercial producers because home digital systems can produce copies of material without causing a noticeable reduction in quality.²⁸ Even if each owner of a DAT version of a song allows only one other person to make an unauthorized copy, as many as ten generations of tapes may be created without noticeable reduction in audio quality.²⁹ As a result, copyright holders may find the market for their works among DAT users is only one-tenth of what it might be.³⁰ Thus, the trouble foreseen by Marshall McLuhan twenty years ago, that "in the age of Xerox the reader becomes a publisher,"³¹ will become acute in the digital age. For where the abuse of Xerox machines was limited to one or two generations of copies made on these bulky machines, many generations of digital recordings can be made in the home.³²

These enforcement problems are compounded by present methods of distribution. For example, if an artist sells material to a television or radio station which uses digital transmission, that might be his only sale, since home users can make an infinite number of unauthorized tapes from one broadcast.³³ Similarly, when material is sold to a video rental store, under the first sale doctrine the artist will get no share of the rentals, but will almost certainly lose future sales to unauthorized home tapers.³⁴

Authorized and unauthorized uses of copyrighted materials should increase as a result of the reduced costs of digital systems. When recorder prices come down, recorder sales should go up.³⁵ Moreover, widespread use of digital recorders will increase the number of potential copyright infringements.

Enforcement of copyright law becomes more difficult with increased data transmission and recording speeds. Just as village gossip traveled faster after the introduction of the telephone, copies of new music or information will travel faster with ISDNs and DATs, at great

28. Adelstein & Peretz, *The Competition of Technologies in Markets for Ideas: Copyright and Fair Use in Evolutionary Perspective*, 5 INT'L REV. L. & ECON. 209, 218 (1985).

29. Golomb, *supra* note 11, at 208 (ten generations is an estimate based on figures presented in this article).

30. Crutchfield, *supra* note 4, at C4, col. 3.

31. Address by M. McLuhan, quoted in part in Marke, COPYRIGHT AND INTELLECTUAL PROPERTY (1967), at 72.

32. *Id.*

33. Fantel, *supra* note 6, at 27, 28.

34. Senate Hearings, *supra* note 30, at 419 (statement of David Ladd, Register of Copyrights and Assistant Librarian of Congress for Copyright Services).

35. OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, INTELLECTUAL PROPERTY RIGHTS IN AN AGE OF ELECTRONICS AND INFORMATION, 100-01 (April 1986) [hereinafter cited as O.T.A. Report] (which reports that this was the case for analog VHS recorder sales).

cost to copyright holders.³⁶ If home tapers can disseminate copyrighted material as quickly as authorized distribution networks, widespread use of digital technology might cause copyright royalties to drop by half.³⁷

2. *Privacy Interests*

Digital recording will frequently occur in the home.³⁸ This will make copyright infringements difficult to prove or detect. Melville B. Nimmer has suggested that home audio tapers could use their privacy interest as a shield against infringement actions.³⁹ Police generally must obtain a search warrant based on a showing of probable cause before investigating illegal conduct in the home.⁴⁰ Moreover, unauthorized digital copies are so similar to originals that even a copyright holder would be hard pressed to distinguish unauthorized from authorized copies.⁴¹ This similarity greatly decreases the chances of detection and proof of infringement.⁴²

Digital transmission will also become increasingly private with the use of fiber optic cables.⁴³ Homes and other private places where information is sent are protected by the Constitution from invasions of privacy,⁴⁴ making it difficult for law enforcement officials to know which transmissions to monitor.⁴⁵ Therefore, unauthorized copyright infringement will become more difficult to detect and prove.

3. *Public Attitudes Toward Copyright Law*

Public attitudes toward the copyright law form perhaps the greatest obstacle to its enforcement. Attitudes developed during the analog era are not likely to change upon the introduction of digital technology but the potential harm these attitudes may cause copyright holders is great.

36. *Id.* at 97.

37. This is the author's estimate.

38. Senate Hearings, *supra* note 31, at 35 (Statement of Jack Wayman of the Consumer Electronics Group that there were over 3 million VCR's in American homes as of 1978). As digital VCR's are offered for sale, it is likely that they will similarly achieve widespread home use.

39. *Id.* at 905 (prepared report of Melville B. Nimmer).

40. U.S. CONST. amend. IV.

41. O.T.A. Report, *supra* note 40, at 102.

42. *Id.*

43. *Id.* at 109.

44. See *Katz v. United States*, 389 U.S. 347, 361 (1967) (the Fourth Amendment protects individuals from unreasonable search and seizure wherever they have a reasonable "expectation of privacy").

45. See The Electronic Communications Privacy Act of 1986, 18 U.S.C. §§ 2510-2520 (1986) (which permits wiretapping only upon issuance of a warrant based on a finding of probable cause).

Americans have become accustomed to taping copyrighted material, and polls indicate that the public believes that some unauthorized copying is acceptable behavior.⁴⁶ The introduction of digital systems is not likely to change this attitude. Rather, the public will probably use new digital systems to defeat copyright law. Studies have shown that the public favors a law allowing copying but does not want to pay for their actions.⁴⁷ Without additional efforts to bolster the intellectual property system, the problem of unauthorized copying seems destined to worsen.

B. PRIVATE USE

With new digital systems come new opportunities for the private use of copyrighted information. While many of these uses seem to violate the letter of the copyright law, recent judicial decisions leave the scope of that law unclear.⁴⁸ Similar to the enforcement issue,⁴⁹ if the issue of private use is not solved soon, public attitudes may cause the problems it creates to become even more difficult to resolve.⁵⁰

Private use, as defined in a recent study by the Congressional Office of Technology Assessment, encompasses all consumer uses of copyrighted materials that are noncommercial, noncompetitive, unpaid, and unauthorized.⁵¹ The legality of private use is unclear, for while improper under section 106 of the 1976 Copyright Act, it is frequently permitted under the fair use doctrine codified by section 107 of that Act.⁵² In the age of digital technology, the conflict between these two statutes may create enormous difficulties.

Applied literally, section 106 of the Copyright Act would make most private uses of copyrighted works illegal.⁵³ Under that statute, any unauthorized reproduction, derivation, dissemination, performance, or display of copyrighted works is illegal.⁵⁴ Both minor infractions, such as posting a copy of an article or taping prerecorded music, and major infractions, such as making large tape libraries to be shared among groups of people, are prohibited.⁵⁵

In the digital age, four private uses prohibited under section 106 are

46. O.T.A. Report, *supra* note 40, at 122.

47. *See id.* at 289.

48. *See, e.g., Folsom v. Marsh* 9 F. Cas. 342, 345 (C.C.D. Mass. 1841) (No. 4,901); *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984).

49. *See supra* text at 30-52.

50. O.T.A. Report, *supra* note 40, at 290.

51. *Id.* at 194.

52. Copyright Act of 1976, *supra* note 1, at §§ 106, 107 (1976).

53. *Id.* § 106.

54. *Id.*

55. *Id.*

at issue. These are format shifting, time shifting, librarying,⁵⁶ and sharing.⁵⁷ Users will want to shift formats of copyrighted goods they already own when they buy new equipment,⁵⁸ and "time shift" when they foresee a need to delay their use of broadcast copyrighted materials.⁵⁹ They may also want to keep libraries of these materials for future reference.⁶⁰ Finally, ISDN users may try to "share" their digital records with others in their networks.⁶¹

Digital technology will make a literal reading of section 106 extremely difficult to enforce.⁶² Preventing private use will become increasingly difficult as recording and transmission systems continue to show improvements in quality, speed, and cost. Congress and the courts recognize this problem and the value of allowing access to copyrighted works. Consequently, they do not interpret section 106 literally. Rather, they authorize some private uses under the doctrine of fair use.⁶³

Initially created by the courts in the case of *Folsom v. Marsh*,⁶⁴ the defense of fair use is imprecise. It requires courts to balance the cost to copyright holders of each private use of copyrighted material against its benefit to the public.⁶⁵ Accordingly, the statutory definition of fair use is often termed as "equitable rule of reason."⁶⁶ Section 107 lists four factors to be considered in determining whether a particular use is fair:

- (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- (2) the nature of the copyrighted work;
- (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole;
- (4) the effect of the use upon the potential market for or value of the copyrighted work.⁶⁷

Fair use was extended to allow one type of private use in the leading case of *Sony Corp. v. Universal City Studios, Inc.* (The *Betamax*

56. *But see* 17 U.S.C. § 117 (1980) (which allows users of computer programs to make copies for "archival purposes").

57. Of these terms, only "time-shifting" and "librarying" are presently in common usage.

58. Crutchfield, *supra* note 4, at C4, col. 3.

59. Senate Hearings, *supra* note 31, at 792 (consumer survey of home taping behavior).

60. O.T.A. Report, *supra* note 40, at 194.

61. O.T.A. Report, *supra* note 40, at 195.

62. *See supra* text at 6-9.

63. Copyright Act of 1976, *supra* note 1, at § 107.

64. 9 F. Cas. 342, 345 (C.C.D. Mass. 1841) (No. 4,901).

65. O.T.A. Report, *supra* note 40, at 195.

66. *Id.*

67. Copyright Act of 1976, *supra* note 1, at § 107.

case).⁶⁸ In *Betamax*, section 107 was interpreted to allow video tape recorder users to "time-shift" copyrighted movies shown on television.⁶⁹ The Court issued a narrow decision which defined time shifting as the practice of recording a show for one-time viewing and then erasing it.⁷⁰ Perhaps because it was unwilling to expand fair use to the other types of private use, the Court suggested that "Congress . . . take a fresh look at this new technology, . . . [since] it is not our job to apply laws that have not been written."⁷¹ The Supreme Court thus does not seem likely to expand the scope of the fair use doctrine absent further congressional action.

If Congress authorizes private uses other than time shifting, section 107 will remain difficult to apply, because the courts are ill-equipped to determine lost profits. It is impossible to know exactly how many blank tapes are used to duplicate copyrighted materials.⁷² Moreover, the proportion of tapers who would have paid for copyrighted materials had they been unable to duplicate them is even harder to estimate.⁷³ The fair use doctrine of balancing costs and benefits is thus largely guesswork which serves the interests of neither proprietors nor consumers.⁷⁴

There are at least four separate proposals to change the fair use doctrine. However, none provide a better standard for courts to apply than the present section 107. One proposal is to allow fair use, unless it is both "iterative" (where the copy contains a substantial part of the original) and commercial.⁷⁵ This solution suffers fails to help courts define what constitutes commercial use.⁷⁶ A second proposal suggests that the courts should allow fair use when "market failure" occurs,⁷⁷ but fails to clearly define fair use.⁷⁸ A third proposal recommends that courts focus on section 107(4), yet suggests no way to determine lost profits.⁷⁹ Finally, a fourth proposal suggests that courts make fact-intensive inquiries to determine lost profits, but neglects to offer a proce-

68. *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984).

69. *Id.* at 455.

70. *Id.* at 421.

71. *Id.* at 456.

72. Crutchfield, *supra* note 4, at C4, col. 5.

73. *Id.*

74. Raskind, *A Functional Interpretation of Fair Use*, 31 J. COPYRIGHT SOC'Y U.S.A., 601, 609 (1984).

75. Note, *Toward a Unified Theory of Copyright Infringement for an Advanced Technological Era*, 96 HARV. L. REV. 450, 462-3 (1982).

76. Raskind, *supra* note 79, at 621.

77. Gordon, *Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and Its Predecessors*, 30 J. COPYRIGHT SOC'Y U.S.A. 253 (1983).

78. Raskind, *supra* note 79, at 622-3.

79. 3 M. NIMMER, COPYRIGHT 13-80-81 (1987).

ture under which this might be done.⁸⁰ That the proponents of fair use are unable to remedy its failures indicates that this doctrine is beyond repair.

One pair of authors argue that the fair use doctrine should be repealed. Adelstein and Peretz state that the tension between efforts to ensure wide dissemination of intellectual goods and to preserve incentives for their creation is not unique to intellectual goods, but exists in all private markets.⁸¹ The fair use doctrine thus creates unusual problems for the courts because "property law generally makes no such allowance for degree: infringement is infringement, irrespective of its scope, and the law should recognize it as such."⁸² Moreover, even if a court applying the fair use balance test found the cost of an unauthorized use to be negligible, the allowance of fair use would skew the balance, as it would increase the amount and cost of unauthorized use.⁸³ Adelstein and Peretz conclude that statutory fair use should be pared to its constitutional core, limiting its application only to situations where "a copyright owner brings an infringement action for the purpose of suppressing or censoring criticism of the protected work. In such cases, a competing and essential first amendment value is at stake, and the copyright law ought not to be used to subvert the free exchange of ideas and opinions."⁸⁴

In light of the problems the fair use doctrine creates for copyright law, Congress should consider adopting the Adelstein and Peretz solution. This would result in the elimination of the fair use doctrine, making most private unauthorized use of copyrighted materials infringement per se. The overall result would be that copyright infringements could be better defined and enforced.

C. DEFINING THE PROTECTED WORK

Existing copyright law does not adequately define what constitutes protected work. Music producers can now legally copy individual notes from copyrighted recordings, without the authorization of their creators, for use in creating new works. Present law also does not help courts identify the creators of original digital works. The 1976 Copyright Act requires revision in light of these problems.

1. *Is the Individual Note Protected?*

Present law permits unauthorized use of small parts of copyrighted

80. Raskind, *supra* note 79, at 626-39.

81. Adelstein and Peretz, *supra* note 33, at 234.

82. *Id.* at 230.

83. *Id.* at 227.

84. *Id.* at 234; *see also* U.S. CONST. art. I.

works. The copyright law defines sound recordings as "works that result from the fixation of a series of musical, spoken, or other sounds . . ." and literary works as "works . . . expressed in words, numbers, or other verbal or numerical symbols or indicia . . ." ⁸⁵ The copyright law thus treats music and literature alike in that it protects neither the individual note nor the individual word. In the digital era, the flaw in this analogy is apparent, for while words are generally well-defined and unoriginal units, individual recorded notes are unique artistic expressions which deserve copyright protection.

Digital technology enables music producers to take advantage of the limited copyright protection now given to musical words. Producers often make a digital copy of a single note from one recording, and "then regenerate the sound on any note of the scale . . ." onto another recording. ⁸⁶ This practice is called "sampling." ⁸⁷ Many music studios use libraries of unauthorized samples both to increase their own artistic flexibility and to eliminate the need for back-up musicians. ⁸⁸ As one British producer recently stated, "[s]ampling definitely is the order of the day . . . [a]nd it's never going to go away." ⁸⁹

The legality of music sampling has not yet been resolved by the courts. One critic takes the view that since an individual note is not a protected work, samples may be taken without permission. ⁹⁰ Others interpret existing law more expansively. Mr. M. William Krasilovsky believes that the sounds produced by some artists, such as Isaac Stern and Jascha Heifetz, are unique artistic expressions. ⁹¹ He proposes that the law protect individual notes by treating works created from samples as derivative works. ⁹² Krasilovsky suggests that courts applying the fair use doctrine should consider both the *quantity* and *quality* of intellectual property taken. ⁹³ Phil Collins, whose snare drums have been widely sampled and reproduced, recently stated that "there is a bit of infringement involved . . . I would like to see the outcome of it in a court of law." ⁹⁴ In the absence of legal precedent, however, unauthorized sampling continues.

85. Copyright Act of 1976, *supra* note 1, at § 101.

86. Pareles, *Dissonant Issues of Sound Sampling*, N.Y. Times, Oct. 16, 1986, at C23, col. 4.

87. *Id.* An example of an album currently on the market which utilized digital sampling is Stevie Wonder's "Part Time Lover."

88. *Id.*

89. *Id.*

90. *Id.*

91. *Id.*

92. *Id.*

93. Shemel & M. William Krasilovsky, *THE BUSINESS OF MUSIC* (New Copyright Act ed. 1977), at 126-7.

94. Pareles, *supra* note 91, at C23.

If the courts were to hold unauthorized digital sampling illegal, that ruling would be hard to enforce. First, sampling infringements are difficult to detect. As one commentator recently noted, with the price of digital samplers now below \$100, "sampling has become affordable to the masses."⁹⁵ Second, infringements are difficult to prove. Notes reproduced by samplers can be altered in pitch or scale so that it is hard to prove that any recorded sound was created from a sample rather than by imitation.⁹⁶ Third, since the sampling problem is large in aggregate, yet small with regard to each infringement, it is unlikely that a copyright holder will sue an individual sampler.⁹⁷ Fourth, any class action brought by copyright holders against samplers would probably be difficult to certify.⁹⁸ Thus, even if existing copyright law is construed to prohibit unauthorized sampling, it remains difficult to enforce.

2. *Defining Authorship*

As the problem of sampling illustrates, digital technology makes it hard to establish or determine the authorship of original works. Digital technology gives authors and artists the ability to create new work based on that created by others. Although the Copyright Act of 1976 protects compiled works, it does not establish procedures for determining authorship.⁹⁹

Digital systems can be used to create new works based upon preexisting ones. Electronic image enhancers can remove elements from one digitized photograph and insert them into another.¹⁰⁰ This equipment can also "snip" and alter movie frames and compile them into a new order.¹⁰¹ Computers using recently developed software can similarly edit music like written documents.¹⁰² Finally, digital interactive disks can combine the work of authors, artists, and musicians into a single unified format.¹⁰³ Courts will find it increasingly difficult to determine author-

95. *Id.*

96. *Id.*

97. *See id.* (which mentions a case where Local 802, the New York City musicians union, declined to help one member collect payment for unauthorized uses to his congo drumming in the soundtrack to "Miami Vice").

98. *See* FED. R. CIV. P. 23.

99. Shemel & Krasilovsky, *supra* note 100, at 31.

100. Ansberry, *Improved Photos Are Possible for Consumers, at a Premium*, Wall St. J. Sept. 26, 1986, at 33, col. 1.

101. *See*, Sontag, *Film Editing Goes Electronic*, N.Y. Times, Oct. 19, 1986, at F4; *A New Program In Computer Arts*, N.Y. Times, Oct. 23, 1986, at C23.

102. Shannon, *Computer Bazaars*, N.Y. Times, Nov. 17, 1987, at C6 (which reports that in the future such software will be built according to a newly developed standard, called Musical Instrument Digital Interface).

103. Phillips, *Sony Develops New Disk Technology*, Wall St. J., Feb. 25, 1986, at 35, col. 6.

ship as these new digital technologies come into widespread use.

While the copyright law protects authors of works used in compilations, it does not establish how the courts should determine authorship or divide royalties for such works. Section 103 of the Copyright Act states that: "copyright in a compilation . . . extends only to the material contributed by the author of such work, as distinguished from the pre-existing material employed in the work The copyright [in the compilation] . . . does not affect or enlarge the scope, duration, ownership, or subsistence of, any copyright protection in the preexisting material."¹⁰⁴ It remains to be seen how the courts would determine authorship of compiled works or divide royalties among contributing authors.¹⁰⁵

IV. ALTERNATIVE SOLUTIONS

Given the inability of the judiciary to adequately protect creative works under existing copyright law, alternative means must be found to protect intellectual property. Two options are available. The first is to let the market decide how to protect intellectual property. The second, which this paper advocates, is for Congress to enact new federal copyright law to both broaden the protections granted by existing law and create a federal copyright agency with the power to prevent technological breaches of the copyright system.

A. THE MARKET SOLUTION

The market can protect some intellectual property with anti-theft technology and contracts. Market control of intellectual property is undesirable, however, since market controls have historically proven either unenforceable or overly constraining on users. Furthermore, economists suggest that as technology advances, private markets for intellectual property can only operate where laws protect property rights. The market alone is thus unable to effectively regulate the intellectual property system.

1. *Technological Controls*

Many types of technological property controls have been or will soon be established by manufacturers of data recording and transmission equipment. Most have proven ineffective, however, and many of those that are effective have been abandoned in response to consumer complaints. Given this history of failure, future technological controls

104. Copyright Act of 1976, *supra* note 1, at 103(b).

105. O.T.A. Report, *supra* note 40, at 290-2.

set up by the market are unlikely to solve the problems facing copyright law.

One type of copyright protection system, software protection devices, is generally effective yet difficult to sell. These devices, which were built into most software sold in the United States, prevent users from copying software onto blank disks.¹⁰⁶ While successful in achieving their goal, software protection devices also prevented users from making copies for what they considered to be legitimate uses, such as format shifting¹⁰⁷ and librarying.¹⁰⁸ Copy-protection also proved expensive,¹⁰⁹ and caused some software to malfunction.¹¹⁰ Software users protested the devices so strongly that most software producers abandoned them, and analysts predict that software copy-protection devices may eventually be dropped from all software.¹¹¹

Proposed anti-taping devices for video and audio recorders are likely to fail for much the same reasons as software protection. One proposed device would make pre-recorded video tapes in such a way that unauthorized copies would be distorted.¹¹² A second proposed device is a computer chip¹¹³ that would be built into digital audio recorders to prevent users from taping any signals that did not contain the full range of frequency normally recorded.¹¹⁴ It has been suggested that this chip should be integrated into audio recorders so that consumers could only remove it by disabling the recorder.¹¹⁵ If such a chip were built into all digital recorders, copyrighted works could not be copied if they lacked a "notch" of high frequency sound.¹¹⁶ Although workable, these schemes would be difficult to establish or maintain in the face of consumer resistance¹¹⁷ and congressional caution.¹¹⁸ Moreover, these schemes would need the backing of legal sanctions, because they could otherwise be circumvented by a single manufacturer who chooses to make recorders without anti-copying devices.¹¹⁹

106. Carroll, *On Your Honor: Software Firms Remove Copy-Protection Devices*, Wall St. J., Sept. 25, 1986, at 33, col. 4.

107. Pollack, *Softening Up Software Publishers*, N.Y. Times, Sept. 28, 1986, § 3, at 12, col. 3.

108. *See supra* note 113, at 33.

109. *Id.*

110. *See supra* note 114.

111. *Id.*

112. *See* N.Y. Times, Nov. 2, 1986, S 3, at 1, col. 1.

113. *See Digital Audio Tape: SamizDAT*, THE ECONOMIST, October 17, 1987, at 112.

114. Crutchfield, *supra* note 4, at C4, col. 5.

115. *Id.*

116. Crutchfield, *supra* note 4, at C4, col. 5. *But see supra* note 120 (which suggests that the absence of this notch will be discernible in recordings of classical music).

117. *See supra* text at p. 309.

118. *See infra* text at p. 320.

119. Crutchfield, *supra* note 4, at C4, col. 5.

There seems to be little chance that digital equipment manufacturers would reach an agreement to effectively limit the capacities of recorders in light of several recent negotiations which have failed to produce agreements. One meeting focused on a proposal to manufacture all DAT recorders to operate at a different speed than CD recorders so that prerecorded CDs could not be copied onto DATs.¹²⁰ No agreement has yet been reached on this proposal, nor is one likely, because its effectiveness could be destroyed by any one manufacturer, and because sampling rate converters, which effectively match the different speeds, are already on the market.¹²¹ Similarly, VCR manufacturers failed to negotiate an agreement to withhold dual-deck recorders from the American market.¹²² Although the Japanese have already produced such machines, they have agreed not to distribute them in the United States for fear of lawsuits similar to the Betamax case.¹²³ This pact is likely to break down in the near future, as South Korean and Taiwanese VCR manufacturers now sell dual-deck machines and compete with Japanese manufacturers for a share of the United States market.¹²⁴ Finally, the present agreement among digital equipment manufacturers to delay the sale of DATs in the United States market appears close to an end.¹²⁵ DATs were ready for market in 1986, but their introduction was delayed by manufacturers, who wanted to maintain high CD sales.¹²⁶ Reports exist that this agreement may soon break down.¹²⁷ Marketing and technological agreements between digital equipment manufacturers thus have a history of instability, making them an unreliable means of protecting intellectual property.

Although centralized forms of market protection would be more effective than the decentralized methods discussed above, they would also impose burdensome costs. One proposed centralized system would distribute music through a computer that would both collect and distribute royalties.¹²⁸ Another proposal is to trace data sent over digital phone lines from origin to destination so that all senders and users would be identified.¹²⁹ These systems would be operable, but only at an unacceptable cost to society, for they would permit (and perhaps encourage) authoritarian control over private information, and thus might limit

120. *Id.*

121. *Id.*

122. Wall St. J., June 6, 1986, at 27, col. 1.

123. Landro, *Latest Advance in VCR's Angers Movie Industry*, Wall St. J., Jan. 30, 1985, at 29, col. 3.

124. *Id.*

125. Crutchfield, *supra* note 4, at A1, col. 1; Fantel, *supra* note 4, at H31, col. 1.

126. *Id.*

127. *Id.*

128. Fantel, *Will Disks Still Spin in 2020?*, N.Y. Times, Jan. 1, 1984, § 2, at 15, col. 1.

129. Marbach and Cook, *supra* note 5, at 49.

public dissemination of copyrighted materials.¹³⁰ Centralized market controls, therefore, are an effective but unattractive solution to the problems facing the intellectual property system.

2. *Contractual Agreements*

Where technological solutions to copyright problems fail, sellers and consumers of intellectual property often solve them by contract. However, while contractual agreements may be more flexible than technological ones, it is not clear that courts will approve them.

Two contractual copy-protection schemes have recently taken the place of technologically oriented schemes in the field of computer software. Site licenses have replaced software copy-protection in many recent corporate software purchase agreements.¹³¹ These licenses generally permit users to make only a specified number of copies of each program for their own use.¹³² Although some sellers report these agreements are effective,¹³³ the cost of enforcing them by monitoring users is high.¹³⁴ Shrink-wrap licenses have also been used in place of software copy-protection devices.¹³⁵ These typically are strict agreements written on the packaging of software which state that the user agrees by opening the package, he will limit the product's use to one person and to one machine.¹³⁶ The legality of shrink-wrap licenses in most states is untested; only Louisiana has declared them legal by statute.¹³⁷

It is not clear that the courts would uphold contractual limitations on the use of audio or visual material. Moreover, should such agreements be held valid, enforcement would prove difficult.¹³⁸ The number and dispersion of potential unauthorized users of copyrighted digital audio or visual material would make them costly to monitor. Finally, since protection is based on contract rather than on patent or copyright law, sellers would have no recourse against third party infringers not privy to the contract.¹³⁹ Contractual agreements are, therefore, of uncertain value as a means of enforcing intellectual property rights.

130. O.T.A. Report, *supra* note 40, at 90.

131. *Id.* at 183.

132. Pollack, *supra* note 114, at 12.

133. Carroll, *supra* note 113, at 33.

134. O.T.A. Report, *supra* note 40, at 183.

135. Pollack, *supra* note 114, at 12.

136. *Id.*

137. O.T.A. Report, *supra* note 40, at 183.

138. *See supra* text at 6-9.

139. O.T.A. Report, *supra* note 40, at 90.

3. *Theoretical Weaknesses of the Market*

Adelstein and Peretz suggests that while markets generally produce efficient solutions to conflicting interests in property, advances in technology will eventually cause markets for intellectual goods to fail unless supported by law.¹⁴⁰ To prevent such a failure, the authors argue, the government should intervene in markets for intellectual property.¹⁴¹

According to Adelstein and Peretz, intellectual goods are a suitable market commodity only so long as they remain in an "impure" form.¹⁴² Intellectual goods are "impure" when users have trouble separating them from the physical entities in which they are carried (their "hosts").¹⁴³ For example, written documents were "impure" before the invention of xerographic copying machines, since users had trouble taking the ideas they contained without buying the hosts on which they were printed.¹⁴⁴ When goods are "impure", it is relatively easy for sellers to detect and prevent theft or unauthorized competition.¹⁴⁵ Thus sellers of "impure" goods are able to recover nearly the full value of their intellectual property from potential buyers.¹⁴⁶

Intellectual goods are more likely to be stolen as they become more pure.¹⁴⁷ When an idea is perfectly pure, a user can examine it without the permission of its owner, and can subsequently remember and reproduce it at will.¹⁴⁸ Consumers of pure goods can thus become secondary producers, placing them in direct competition with the owners of those goods.¹⁴⁹

As technology makes intellectual goods more pure, it is necessary for government to intervene to ensure the continued existence of private markets.¹⁵⁰ Government intervention can take the form of laws, technologically imposed impurities, or both. If no government action is taken, however, the private market will fail because producers of intellectual goods will have no incentive to sell (as goods offered for examination become subject to theft).¹⁵¹ Intellectual goods would then

140. Adelstein & Peretz, *supra* note 33, at 217.

141. Adelstein & Perez, *supra* note 33, at 217.

142. *Id.*

143. *Id.* at 217, 218.

144. *Id.* at 218.

145. *Id.*

146. *See id.* at 221 (since intellectual goods are never totally impure, creators will always fail to recover some of this value).

147. Adelstein and Peretz, *supra* note 32, at 218.

148. *Id.*

149. *Id.*

150. *Id.* at 217.

151. *Id.*; *see supra* text at 23.

become public goods, since in the absence of market production the government would become their sole producer.¹⁵² If this were to occur, all information could eventually come under government control.

B. LEGISLATIVE SOLUTIONS

In light of recent failures of both the judiciary and the market to protect the rights of intellectual property owners, there is a need for new congressional copyright legislation. European and American models for such law are too narrow to solve the problems posed by digital technology. This article therefore proposes enactment of a new law broad enough to solve existing problems and to deal with ones unforeseen.

1. *European and American Legislation*

European solutions to the problem of home taping are too simplistic and inflexible to solve the problems facing American copyright law. In West Germany, importers of recording equipment are required by law to pay a tax to ZPU, a collecting society of authors, performing artists, and record producers.¹⁵³ The applicable statute specifies that these payments can be no more than five percent of the import price of recording equipment;¹⁵⁴ ZPU divides these funds among composers, writers and performers by a negotiated formula.¹⁵⁵ Austria passed a similar law which levies a tax on blank tapes rather than on recording hardware.¹⁵⁶ In Great Britain, purchasers of recording equipment must pay for a one-year license to use copyrighted material, which they are presumed to record.¹⁵⁷ The British collecting society encourages users to renew this license for a small annual fee.¹⁵⁸ While these European laws provide artists with relief, they do not counteract most of the problems caused by increases in the purity of intellectual property and thus fail to support private markets in those goods.¹⁵⁹

Copyright legislation recently proposed in the United States is similarly inadequate. One Senate bill, proposed in 1982, would have imposed a royalty tax on most video tapes, with proceeds to be distributed by the Copyright Royalty Tribunal ("CRT") among artists and producers.¹⁶⁰ The bill also would have ended the first sale doctrine; instead it

152. Adelstein & Peretz, *supra* note 33, at 235.

153. Schemel & Krasilovsky, *supra* note 100, at 65.

154. Senate Hearings, *supra* note 31, at 411.

155. *Id.* at 411, n.94.

156. *Id.* at 412.

157. Schemel & Krasilovsky, *supra* note 100, at 65.

158. *Id.*

159. Adelstein & Peretz, *supra* note 33, at 217.

160. S. 1758, 97th Cong., 1st Sess. (1981) [hereinafter cited as Senate Resolution].

would have required that proceeds from tape rentals be shared between owners and creators of recorded materials.¹⁶¹ More recently, the House Energy and Commerce Subcommittee voted for a one-year ban on the sale of DATs pending evaluation of the proposed computer chips that prevent users from copying other material by the National Bureau of Standards.¹⁶² These laws, like those of Europe, fail to resolve many of the long-term problems facing intellectual property markets.

2. *A Proposal*

Copyright law should be changed to solve existing problems and anticipate those that may arise in the future. Congress should enact a law that encompasses the whole spectrum of technology, that is able to quickly respond to technological change, and that provides some mechanism of protection and compensation for authors of copyrighted materials.¹⁶³ This would encourage authors to create original works and give all the freedom to use the full capacity of new recording and transmission technology. A proposal for such a change follows.

The solution to the problem of unauthorized private use would appear to require the general repeal of the fair use doctrine. The present doctrine appears irreparable.¹⁶⁴ Therefore this paper proposes that it be eliminated, except insofar as the First Amendment requires it to protect criticism.¹⁶⁵ By repealing the fair use doctrine, existing copyright law can be utilized to prohibit most unauthorized private use.

The definition of copyrightable work should be expanded by Congress. First, the definition should include not only "works of authorship,"¹⁶⁶ but also distinguishable elements contained within these works. To protect these elements, copyright law should require that all copyright digital data contain, at regular intervals, a sequence of bits identifying its creator (a "digital identifier"),¹⁶⁷ so that even the smallest unauthorized use could be detected.¹⁶⁸ Removal of digital identifiers

161. *Id.*

162. H.R. 1384, 100th Cong., 1st Sess. (1987); Cohen, *supra* note 30, at 1; *Guidelines Set: DAT Copycode Tests Expected to Take 4 Months*, 7 COMMUNICATIONS DAILY, Oct. 8, 1987, no. 195, at 7; Fantel, *supra* note (as the National Bureau of Standards study indicated that use of these chips does noticeably reduce audio quality, it is expected that pending bills requiring their use will soon be withdrawn).

163. *Copyright and Technological Change: Hearings Before the Subcomm. on Courts, Civil Liberty, and the Administration of Justice*, 98th Cong., 1st Sess., § 99 (1983) (testimony of Fred Weingarten, Program Manager, Commun. and Inform. Tech. Program of the O.T.A.) [hereinafter cited as House Copyright Hearings].

164. *See supra* text at 12-13.

165. Adelstein & Peretz, *supra* note 33, at 234.

166. Copyright Act of 1976, *supra* note 1, at § 102(a).

167. O.T.A. Report, *supra* note 40, at 120.

168. *Id.*

should be made illegal.¹⁶⁹ Second, as Nimmer proposes, the law should explicitly protect all software whose function is to produce copyrightable works.¹⁷⁰ This would protect artists who use computers to make intellectual property. Finally, "moral rights" should be legislated to prevent buyers from altering copyrighted works without permission of their creators and to prevent the misattribution of such works.¹⁷¹ These changes would help protect authors as intellectual goods become increasingly pure.

Copyright law should be enforced by means flexible enough to combat advances in technology. This article proposes the creation of a central regulatory body, tentatively termed the Federal Copyright Agency ("FCA"),¹⁷² which would be given the authority to establish new means of enforcing copyright law as data recording and transmission technology changes.¹⁷³ After consulting with manufacturers, the FCA would establish regulations to monitor the authorship and use of intellectual property.¹⁷⁴ Like the present CRT, the FCA would collect¹⁷⁵ and distribute royalties, preferably by a tax on all blank recording media, the proceeds of which would be distributed according to relative sales of prerecorded works.¹⁷⁶ Finally, the FCA would be authorized to propose

169. One could easily remove digital identifiers by transferring data from digital to analog format. To prevent this, the law should require that analog equipment be manufactured to insert digital identifiers at the beginning and end of all recordings.

170. NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT (1979) (CONTU) (concurring opinion of Melville B. Nimmer) reprinted in Melville B. Nimmer, CASES AND MATERIALS ON COPYRIGHT AND OTHER ASPECTS OF ENTERTAINMENT LITIGATION (3rd ed., 1985), at 124-126. Nimmer points out, "It sometimes has been argued that while printed instructions tell *how* to do work, computer programs actually *do* the work. But this is also true of sound recordings, which in a sense constitute a machine (the phonorecord) communicating with another machine (the record player). A sound recording contained in a phonorecord does not tell a record player *how* to make sounds which constitute a Cole Porter melody. Rather, it activates the record player in such manner as actually to create such a melody." [emphasis in original]. See also, *Apple Computer, Inc. v. Franklin Computer Corporation*, 714 F.2d 1240 (1983).

171. Melville B. Nimmer, CASES AND MATERIALS ON COPYRIGHT AND OTHER ASPECTS OF ENTERTAINMENT LITIGATION (3rd ed., 1985), at 479. Nimmer defines moral rights to include the following author's rights: "to be known as the author of his work; to prevent others from being named as the author of his work; to prevent others from falsely attributing to him the authorship of work which he has not in fact written; to prevent others from making deforming changes in his work; to withdraw a published work from distribution if it no longer represents the views of the author; and to prevent others from using the work or the author's name in such a way as to reflect on his professional standing."

172. House Copyright Hearings, *supra* note 170, at 353 (reprint of Toohey, THE ONLY COPYRIGHT LAW WE NEED (1984), which proposes the creation of a Federal Copyright Agency); O.T.A. Report, *supra* note 40, at 282.

173. House Copyright Hearings, *supra* note 170, at 353.

174. *Id.*

175. See Senate Resolution, note 167.

176. *Id.*

drafts of new laws as they are needed to expand its delegated authority.¹⁷⁷ With the help of the FCA, Congress could thus devise new ways to identify and protect copyrighted work as scientific advances dictate.

V. CONCLUSION

American copyright law faces a crisis. Recent advances in digital recording and transmission have proven existing law to be unenforceable and overly narrow. These deficiencies cannot be remedied by either the judiciary or the market. This article therefore proposes that Congress amend federal copyright law to protect creators of original work and ensure the continued operation of the intellectual property system.

177. The author is drafting a bill which would accomplish these purposes.