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Through Seamless Webs and Forking Paths: Safeguarding Authors' Rights in Hypertext

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THROUGH SEAMLESS WEBS AND FORKING PATHS: SAFEGUARDING AUTHORS' RIGHTS IN HYPERTEXT

INTRODUCTION

The birth of the modern era in the early twentieth century inspired undreamed-of methods and markets for creative expression. Influenced by innovations in fields as diverse as printing and psychology, authors eschewed realistic "linear" narratives and sought to construct works that would more accurately track the flight of human thought.[1] Paradoxically, they dissected creativity by the very act of writing. As literature accumulated new layers of reflexive meaning, the individual reader evolved beyond the role of passive listener and took a hand in the invention of the text.[2]

As modern authors experimented with alternative literary voices, they also were making their political voices heard. The new century soon saw the passage of the 1909 Copyright Act, which heralded increases in authors' rights. The statute facilitated authors' infringement suits by making a certificate of

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[1] James Joyce's *Ulysses*, with its often undecipherable vocabulary and non-sequential plot line, remains a classic example of this "stream of consciousness" writing.

[2] The idea/expression dichotomy reverberates through the post-industrial culture's literature as well as its law. Lawrence Sterne's *Tristram Shandy*, published in 1760 and often dubbed the first modern novel, substituted pages of punctuation or blank paper for some chapters so that readers had to imagine the missing plot for themselves. Contemporary writers frequently conflate idea and expression as a means of loosening authorial control and underscoring reading's interactive nature. In *The Garden of Forking Paths* (1958), and other short stories, Jorge Luis Borges challenges his audience to synthesize the narrative from the characters' conflicting memories of events. Milroad Pavic's *The Dictionary of the Khazars* (1988), written as a series of encyclopedia entries, urges the public to choose between several contradictory accounts and is sold in editions that differ by "one crucial paragraph." The intricate textual manipulations necessary to sustain reader interest suggest that reports of "the death of the author" are greatly exaggerated. *See* Keith Aoki, *Adrift in the Intertext: Authorship and Audience "Recoding" Rights*, 68 CHI.-KENT L. REV. 805, 810 (1993). The blurring of the bright line between concept and construct continues to test our accepted ideas about, and expressions of, the elusive notion of authorship.

registration prima facie evidence of the facts it recorded.[3] The maximum term of protection was lengthened from forty-two to fifty-six years, prolonging the time an author had to capitalize on his or her work.[4] The 1909 Act extended its protection to unpublished as well as published writings so long as the unpublished writings were intended for "exhibition, performance, or oral delivery."[5] Congress recognized that these measures were necessary to maintain the balance formulated by the Constitution,[6] noting with dismay that "[i]t not infrequently happens that the author sells his copyright outright to a publisher for a comparatively small sum."[7]

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[3] Under the Copyright Act of 1790, authors could obtain statutory copyright for books, maps, and charts in return for fulfilling certain formalities. These included registering with the local federal district court before publishing, printing a copy of this official registration in at least one newspaper for four weeks, and depositing a copy of the work with the Secretary of State. The author's copyright monopoly extended for 14 years after publication. The author could renew the copyright for another fourteen years by performing the formalities again. Federal Copyright Act of 1790, 1 Stat. 124 (amended 1802).

[4] 17 U.S.C. § 24 (amended 1976). The extra 14-year renewal period let an author receive royalties after outliving the first two terms granted by the prior Copyright Act. *See* Federal Copyright Act of 1790, 1 Stat. 124. Moreover, the copyright term now dated from publication with notice rather than from the time the work was filed for deposit with the Copyright Office. 17 U.S.C. § 10 (amended 1976). Since authors often deposited before publication, this provision lengthened the time the work could be exploited.

[5] 17 U.S.C. § 5(b) (1947). Unpublished writings also had received copyright protection under the 1790 Act and its amendments. *See* Wheaton v. Peters, 33 U.S. (8 Pet.) 591 (1834) (recognizing unauthorized publication of a manuscript as infringement).

[6] U.S. CONST., art. I, § 8, cl. 8 states: "The Congress shall have Power . . . [t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . . ."

The Supreme Court's copyright jurisprudence under both the 1976 and the 1909 Acts has emphasized balancing authors' and the public's interests. *See, e.g.*, Stewart v. Abend, 495 U.S. 207, 228 (1990) ("The limited monopoly granted to the artist is intended to provide the necessary bargaining capital to garner a fair price for the value of the works passing into public use."); Twentieth Century Music Corp. v. Aiken, 422 U.S. 151, 156 (1975) ("The immediate effect of our copyright law is to secure a fair return for an author's creative labor. But the ultimate aim is, by this incentive, to stimulate artistic creativity for the general public good."). The Court has found the "incentive" rationale to be controlling in cases where "technological change has rendered its literal terms ambiguous." *Id. But see* Sony Corp. v. Universal City Studios, Inc., 464 U.S. 417, 431-32 (1984) (a five-justice majority urged public distribution of works as the 1976 Copyright Act's "ultimate aim" where new technologies are concerned).

[7] H.R. REP. NO. 2222, 60th Cong., 2d Sess. 14 (1909), *cited in* Stewart v.

However, almost three-quarters of the twentieth century passed before Congress re-evaluated authors' rights in emerging literary technologies. Meanwhile, just as scientific insights into the human mind had inspired the moderns, advances in communications technology shaped postmodern writing. In particular, the personal computing revolution not only provided thematic material but transformed the creative process. Postmodern authors themselves were divided on the question of how to protect their rights in works created on computers—and even whether the new media were appropriate vehicles for traditional works of "authorship." Electronic data storage and information retrieval methods had advanced far enough for naysayers to predict a global "info-glut" that would drown creative thought in a flood of useless facts.[8] Enthusiasts countered that "computopia" would rival the invention of the printing press as a milestone in cultural literacy.[9] Congress responded to the debate by creating the Commission on New Technological Uses of Copyrighted Works ("CONTU") in 1974 to study whether software programs should receive copyright protection.[10] CONTU determined that computer programs could receive copyright protection on the theory that they were "literary works,"[11] but failed to directly address the issues

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Abend, 495 U.S. 207, 218 (1990).

[8] Among copyright policymakers, this fear parallelled a "concern" that recognizing the copyrightability of computer programs would open the door to "protection [for] the methodology or processes adopted by the programmer, rather than merely to the 'writing' expressing his ideas." H.R. REP. NO. 94-1476 on the Copyright Act of 1976, 94th Cong., 2d Sess. (1976). Subsequent cases have addressed this apprehension while extending protection to many aspects of computer programs, often over objections that the program component in question is an unprotectable fact or process. In Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37 (D. Mass. 1990), certain commands and the way they were grouped onscreen were held copyrightable. Likewise, the Massachusetts District Court refused to see the structure of a menu as merely an uncopyrightable idea in Lotus Dev. Corp. v. Borland Int'l, Inc., 831 F. Supp. 223, 223 (D. Mass. 1993).

In a field where today's innovative programming approach rapidly becomes tomorrow's industry standard, courts are reiterating the prohibition on copyright for program elements dictated purely by efficiency concerns. *See* Computer Assocs. Int'l v. Altai, Inc., 982 F.2d 693, 706-10 (2d Cir. 1992) (establishing an "abstraction-filtration-comparison" test to isolate the program's protectable expressive elements).

[9] *See* TED NELSON, COMPUTER LIB/DREAM MACHINES (rev. ed. 1987).

[10] Pub. L. No. 93-573, 93d Cong., 2d Sess. (1974).

[11] FINAL REPORT OF THE NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS 1 (1979).

raised when a traditional literary work, such as a novel, is incorporated into the program. The Commission's proposed amendment to the 1976 Copyright Act, to protect computer programs "to the extent that they embody an author's original creation,"[12] was codified verbatim in a 1980 congressional amendment.[13] The legislators tempered the amendments' protection by including a section permitting copying in certain circumstances.[14]

Now, on the eve of the twenty-first century, computers with increased capabilities offer a dizzying range of artistic and informational potential.[15] Just as the 1909 Copyright Act ultimately failed to match invention's pace, the 1976 Copyright Act does not enunciate a clear standard for identifying creative conduct in contemporary electronic media.[16] Familiar terms such as "authorship" become blunt tools when applied to cutting-edge technology.

The need to redefine proprietary rights is exemplified by an emerging literary genre called "hypertext." This amalgam of story and computer program, used in both fiction and nonfiction works, brings writing still closer to non-linear thought by imitating the human mind's simultaneous, multiple reactions to a given word or phrase. Highlighted words in the text

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[12] *Id.*

[13] *See* Act of Dec. 12, 1980, Pub. L. No. 96-517, § 10, 94 Stat. 3015, 3028 (codified as amended at 17 U.S.C. § 101 (1976)).

[14] The 1976 Act allows copying when necessary "as an essential step in the utilization of the computer program in conjunction with a machine," or "for archival purposes." 17 U.S.C. § 117(1), (2) (1982).

[15] *See infra* notes 33-41 and accompanying text.

[16] The conflicting standards articulated by the courts rely on amorphous catch phrases. *Compare* Johnson Controls, Inc. v. Phoenix Control Sys., Inc., 886 F.2d 1173, 1175 (9th Cir. 1989) (portions of a computer program encoded in the chip rather than visible to the user, such as structure, sequence, organization, and user interface, were eligible for copyright protection as long as they were "expressions"); Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240, 1253 (3d Cir. 1983) (program controlling how the computer performed operating functions was a copyrightable "expression" when different programs could theoretically be created to achieve the same result) *with* Engineering Dynamics, Inc. v. Structural Software, Inc., 785 F. Supp. 576 (E.D. La. 1991) (computer input and output formats were "ideas", thus not copyrightable), Digital Communications Assocs., Inc. v. Softklone Distributing Corp., 659 F. Supp. 449 (N.D. Ga. 1987) (screen displays were not protected by the copyright on the underlying computer program because the displays were not "copies" of the program's "literary content") *and* Broderbund Software, Inc. v. Unison World, Inc., 648 F. Supp. 1127 (N.D. Cal. 1986) (copyright protection extended to all "artistic" aspects of a protected computer program).

are linked to reference screens, allowing the "navigator" to access related information at the touch of a button. Thus, instead of reading in the conventional manner, one "navigates" through a series of interconnected databases.[17] An expandable "web" of words replaces the conventional linear narrative. While novelists exploring hypertext's artistic possibilities are its most visible advocates,[18] the system's potential as a reference tool has great appeal for professionals ranging from classical historians to tax accountants.[19]

This Note argues that authors' rights in hypertext depend on clarification of the relationship between computer programs, new kinds of literary works made possible by these programs, and copyright law. Part I describes how hypertext operates and the implications this form has for traditional copyright law. This Part contends that hypertexts' discrete narrative, web structure, and underlying program elements each merit protection as literary expressions, provided that the traditional copyright notions of authorship and originality, idea/expression dichotomy, and fixation in a tangible medium can be reconceptualized. Part II discusses contractual and statutory measures for providing such protection. Finally, Part III concludes that defining authors' rights in hypertext is essential to the Constitution's goal of rewarding creativity while preserving public access.

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[17] Richard Grant, *Beyond Books: Never the Same Text Twice*, WASH. POST, July 11, 1993, (Book World), at X08.

[18] Robert Coover, *And Hypertext Is Only the Beginning: Watch Out!*, N.Y. TIMES, Aug. 29, 1993, § 7 (Book Review), at 8.

[19] *See* Pamela Samuelson, *Some New Kinds of Authorship Made Possible By Computers and Some Intellectual Property Questions They Raise*, 53 U. PITT. L. REV. 685 (1992) (describing the Perseus project, a massive hypertext currently being assembled by scholars of ancient Greek art, music, history, and literature); *see also* Harold C. Gellis, *Software Packages Aid Accountants in New Areas*, 49 TAX'N FOR ACCT. 54 (1992) (hypertext functions allow accountants to "branch" from one itemized deduction to another for comparison purposes). Even clergy members have found uses for hypertext. *See Software Lends New Ease to Bible Study*, USA TODAY, Aug. 16, 1990, at 4D.

I. THE END OF THE WORD AS WE KNOW IT?

"Hypertext" literally means "beyond the text."[20] A hypertext is a writing containing points where the reader may "branch" from a central text into separate bodies of information.[21] To be sure, traditional media have always allowed for limited branching.[22] The first recorded plan for mechanizing the branching process appeared in a 1945 article in *Atlantic Monthly* by renowned engineer Vannevar Bush.[23] Computer hypertexts take this "branching" principle to a new level by performing more types of connections with greater speed. Inventor Ted Nelson coined the term "hypertext" in the 1960s to describe his proposed universal network of databases containing interactive graphic and literary materials.[24] Known as Xanadu,[25] the system would be accessed from individual computers in homes or public venues.[26]

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[20] *See* AMERICAN HERITAGE DICTIONARY 888 (3d ed. 1992) ("hyper-" defined as "over; above; beyond").

[21] *See id.* at 889 (defining "hypertext" as a "computer-based text retrieval system that enables the user to provide access to or gain information related to a particular text").

[22] A common technique is an author's literal and figurative marginalization of a piece of information in a footnote, alerting the reader to a possible detour from the main text.

[23] GEORGE LANDOW, HYPERTEXT: THE CONVERGENCE OF CONTEMPORARY CRITICAL THEORY AND TECHNOLOGY 14 (1992). Bush's "memex" machine was a desk with a typewriter keyboard, motors and translucent screens attached. Book pages could be projected onto the adjacent screens and copied together onto microfilm at the touch of a button. A mechanical counter installed in the desk tallied the number of photocopies. The author could type a code word explaining the relationship between the two copied sources into the counter, performing what Bush dubbed "associative indexing" and creating what programmers today call a "link." *Id.* at 15-18.

[24] NELSON, *supra* note 9, at 141.

[25] Not coincidentally, this idealized system takes its name from Coleridge's opium-inspired poem: "In Xanadu did Kubla Khan/ A stately pleasure-dome decree:/ . . . I would build that dome in air,/ That sunny dome! those caves of ice!/ And all who heard should see them there,/ And all should cry, Beware! Beware! . . ." Samuel T. Coleridge, *Kubla Khan: Or, A Vision in a Dream. A Fragment*, 2 NORTON ANTHOLOGY OF ENGLISH LITERATURE 353, 354 (M.H. Abrams ed., 5th ed. 1986).

[26] *See* Gina Smith, *A New Xanadu: Mad Poet of Computerdom Revives His Info System*, SAN FRANCISCO EXAMINER, Jan. 23, 1994, at E14 (detailing electronic distribution of documents over the network of computer networks that constitutes the Internet); NELSON, *supra* note 9, at 144 (describing the original plan for Xanadu's franchising for public consumption); *see also infra* notes 216-19 and accompanying text.

Several developing "browser" interfaces used on existing computer networks echo the Xanadu ideal of universal accessibility. These programs seek to combine hypertext's linking capacity with the point-and-click convenience of commercial systems like Microsoft Windows.[27] Pipeline, Cello and Mosaic are among the browsers which allow users to navigate global electronic information depositories.[28] The browsers encourage true interactivity since users can upload their own creations as easily as they can peruse others' contributions. This greater multimedia capability raises increasingly complex legal issues regarding ownership of the various elements in the work.[29] The process of hypermedia authorship illustrates the growing incongruity of traditional copyright licensing.

A. *Transforming the Text*

Writing in a hypertext environment is the computer equivalent of cutting and pasting a book layout or scribbling notes in the margin of a written draft.[30] The steps for creating a document on Brown University's Intermedia web typify the procedure. As the author types the main text, a screen-within-the-screen shows a "web view" schematizing the connections between the documents by means of a diagram similar to a flow chart. To create a link between two written passages, the author highlights a chosen word or phrase by moving the cursor, then selects the "Start Link" command from the onscreen menu. The highlighted text becomes the "anchor" and a graphic symbol appears over the highlighted text to alert the reader to the presence of a link. Next, the author highlights

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[27] The popular Mosaic program generates screens designed to resemble the pages of conventional books. These "pages" can contain graphics, film and sound segments. Visitors to the Wordwide Web via Mosaic can follow a video tour of the Louvre, dissect a digitized frog, or experience the music and art posted in "Kaleidospace." Gary Wolf, *The (Second Phase of the) Revolution Has Begun*, WIRED, Oct. 1994, at 116, 121.

[28] Laurie Flynn, *The Executive Computer: For Befuddled Newcomers, Easier Access to the Internet*, N.Y. TIMES, May 8, 1994, § 3, at 10.

[29] MICHAEL SCOTT, MULTIMEDIA: LAW AND PRACTICE § 1.02, at 1-19 (1993 & Supp. 1994) (noting that a single multimedia work can demand that the project developer obtain licenses for the use of hundreds of existing works).

[30] For a first-hand description of writing with Intermedia, including the frustrations of publishing the resulting hypertext in conventional book form, see LANDOW, *supra* note 23, at 78-87.

the secondary text[31] which forms the other part of the link. Once the secondary text is prepared, the author chooses "Complete Link" from the onscreen menu and types in a name or topic describing the link. The computer stores the secondary text to a link board in its memory and returns to displaying the main text. The new link's title has been added to the web view, branching off of the box representing its anchor.[32]

A reader crossing the link from one document to another moves the cursor to the link icon corresponding to the phrase he or she wishes to investigate. Depending on the program, either clicking the mouse or pressing the button calls up a link menu offering various "destinations." These are the link titles that were stored to the computer's memory when the secondary texts were created. Selecting one of these titles places the reader inside the secondary text to which the link is attached. From there one can choose to access even more documents, return to the main text, or even create new links. The web view remains onscreen as a map, its branching lines darkened to track the reader's path.

Commercially available hyperfictions can be "read" from personal computers, including portable electronic notebooks similar to conventional books in size and shape. Readers may either scroll through one page of text at a time or reconfigure the story's links to concentrate on a particular character or plot line.[33] Hypertexts, like books, vary dramatically in cost and content. Computer-ready issues of one journal, *Writing on the Edge*, sell for eight dollars apiece,[34] while at the other end of the spectrum, a limited edition disk accompanied by a series of original etchings and encased in bullet-proof mesh, is a collectors' item selling for two thousand dollars.[35] More prag-

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[31] The term "secondary" is somewhat misleading in that it suggests a sequential hierarchy. Hypertexts were in fact designed so that the reader could browse several interconnected databases rather than follow a "primary" text from beginning to end. The secondary text may be a pre-existing document or it may be created after the "Start Link" command has been activated. It may include any combination of narrative, graphics and sound.

[32] The author may add more links to the same word or continue typing the document, repeating the process for each new link.

[33] *See* Gavin Edwards, *Uncle John's Text: Talking With a Hypertext Novelist*, VILLAGE VOICE, Feb. 1, 1994, at 46.

[34] Coover, *supra* note 18, at 8.

[35] Gerald Jonas, *The Disappearing $2,000 Book*, N.Y. TIMES, Aug. 29, 1993, § 7

matic yet no less original applications are being pioneered in the field of educational software.[36] Webs are ideal for indexing vast bodies of information, and the element of user control appeals to the generations weaned on channel-surfing and video games.[37]

Hypertext is quietly revolutionizing educational research and publishing.[38] Academic institutions developing this new technology stand to receive substantial benefits.[39] Scholarly monographs with a limited appeal can be distributed through computer networks far more quickly and inexpensively than conventional books can be bound, printed and sold. Hypertexts can also be updated on a yearly basis—a process that is currently too expensive for all but the most widely used reference books.

The private sector also has profited from academe's initiative in this field. Large law firms use hypertext to review contracts, digitalizing the venerable "battle of the forms" by linking consecutive drafts of an agreement for clause-by-clause comparison.[40] Their corporate clients ascertain product liability with unprecedented precision by comparing blueprints online instead of constructing costly and fallible models. Imaging software has been successfully marketed to architectural, medical, and aircraft construction firms.[41]

Increased market competitiveness can quickly compensate for costs and risks of the original investment. The capital saved should be passed on to the public through lower access

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(Book Review), at 12.

[36] *See* Bob LeVitus, *Join the Culture Club*, MACUSER, Apr. 1993, at 221. The term "edutainment" has been coined to describe software that disseminates academic material in an interactive, video game-like format.

[37] Among the many available software products featuring innovative uses of hypertext capability are the CD-ROM version of Marvin Minsky's classic *The Society of Mind*, produced by the Voyager Company; the *Sports Illustrated* 1994 Multimedia Sports Almanac; and MicroSoft Art Gallery, an interactive trip through London's National Gallery.

[38] For example, the most recent generations of law school graduates have received extensive training in LEXIS and WESTLAW. These systems use a rudimentary application of hypertext to link into cited documents.

[39] *See, e.g.*, Robert Kendall, *Disktop Publishing*, PC MAG., Mar. 16, 1993, at 31 (describing lower costs and larger selections resulting from "publication" on floppy disks as opposed to traditional media).

[40] Don Clark, *Radical Software Concept Nears Reality*, SAN FRANCISCO CHRONICLE, Nov. 6, 1991, at C1.

[41] *Id.*

fees and to intellectual property vendors through financial incentives. Authors play both roles in hypertext environments—acting as consumers when they link to others' texts and as suppliers when they offer their own texts to be linked. Authors' rights in hypertext and related technologies, however, depend on clarification of the often obscure relationship between computer programs, the literary works they make possible, and the rights they are afforded in copyright law.

B. *"There Is No Simple Way To Say This":*[42] *Hypertext's Challenges to Traditional Copyright*

Although both Congress and courts have favored copyright protection for computer programs,[43] issues concerning machines and processes have traditionally been governed by patent law.[44] However, copyright provides a more efficient means of protection for authors of software[45] because it is both cheaper and easier to obtain than a patent.[46] Public interest

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[42] MICHAEL JOYCE, AFTERNOON, A STORY (1987). Robert Coover, leader of hyperfiction workshops at Brown University, commented: "What is perhaps [this hypertext work's] most famous line . . . has become identified with the effort to describe hypertext to the uninitiated, or indeed to explain to oneself the odd experience of reading in this unique environment." Coover, *supra* note 18, at 10.

[43] 17 U.S.C. § 101 (1976) (amended 1980) (listing computer programs as copyrightable subject matter); H.R. REP. NO. 94-1476, 94th Cong., 2d Sess. 54 (1976); *see also* Brown Bag Software v. Symantec Corp., 960 F.2d 1465 (9th Cir.) (copyright in computer programs can be infringed by copying a program's protectable elements if these elements comprise a substantial part of the plaintiff's program), *cert. denied*, 113 S. Ct. 198 (1992); Apple Computer Inc. v. Formula Int'l, Inc., 725 F.2d 521 (9th Cir. 1984) ("The computer program when written embodies expression . . . ."); Williams Elecs., Inc. v. Arctic Int'l, Inc., 685 F.2d 870 (3d Cir. 1982) (programs, whether in source code or object code, were original works fixed in a tangible form, not utilitarian objects or machine parts). Some courts and academics have suggested patent protection for computer programs as a supplement or an alternative to copyright. *See* Computer Assocs. Int'l, Inc. v. Altai, Inc., 982 F.2d 693, 712 (2d Cir. 1992) (citing Randall M. Whitmeyer, Comment, *A Plea for Due Processes: Defining the Proper Scope of Patent Protection for Computer Software*, 85 NW. U. L. REV 1103, 1123-25 (1991).

[44] 35 U.S.C. § 101 (granting patents to "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof"). Conversely, the 1976 Copyright Act denies copyright protection to "any idea, procedure, process, [or] system . . . regardless of the form in which it is described, explained, illustrated, or embodied in [an original work of authorship]." 17 U.S.C. § 102(b) (1976).

[45] *See* DAVID F. SIMON, COMPUTER LAW HANDBOOK: SOFTWARE PROTECTION, CONTRACT, LITIGATION, FORMS (1990).

[46] A patent applicant must meet the more demanding standard of novelty,

is also served because copyright places fewer restrictions on the market, encouraging production of new works for general consumption.[47] Still, hypertexts may benefit from many kinds of protection under the existing law. For example, textual, audiovisual, and graphic elements may be copyrighted.[48] Additional patent protection may be available for the more utilitarian parts of the program, such as the user interfaces that translate machine language into words readable by humans.[49] Fictional characters or cartoons can be covered by trademarks, while design patents may protect other features of the program, such as its software icons.[50] Even assuming no conflict between the overlapping types of protection,[51] electronic media defy traditional legal applications. Disagreement over the parameters of protection, however, diminishes public access to new works and denies authors the rewards of their creativity.

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usefulness and non-obviousness. *See* 35 U.S.C. §§ 102, 103 (1988). Patent application fees, including processing, filing, patent issue, maintenance, and reexamination, often total in the thousands of dollars. *See id.* § 41. Copyright applicants must only ensure that their work was not directly copied from another, and must pay the registration fee of ten dollars per work. *See* ALAN LATMAN ET AL., COPYRIGHT FOR THE NINETIES 34 (3d ed. 1989).

[47] At this writing, 35 U.S.C. § 154, allows the inventor a 17-year term "to exclude others from making, using, or selling the invention throughout the United States." Pending international agreements may extend the term to 20 years. *See Uncertain Future for Intellectual Property in 1994*, DAILY REP. FOR EXECUTIVES, Feb. 1, 1994, at C20. Copyright's monopoly, on the other hand, permits authors and their heirs to charge a fee for uses of a work for a term of the author's life plus 50 years, but not to prevent other authors from using their ideas.

[48] *See* 17 U.S.C. § 102 (1976).

[49] William A. Tannenbaum & William K. Wells, Jr., *Multimedia Works Require Broad Protection*, NAT'L L.J., Nov. 1, 1993, at S11, S13.

[50] *Id.* Trademarking a character can prevent others from using that character. The owner may bring a civil action for statutory damages against anyone who copies the character or creates one similar enough to cause consumer confusion between the two. *See* 15 U.S.C. §§ 1051, 1114 (1988). Design patents are subject to the same standards of novelty and invention as invention patents, but protection lasts only 14 years. 35 U.S.C. §§ 171, 173 (1988).

[51] One commentator has noted that "with both patents and copyrights being expansively interpreted for computer programs, it now appears possible to infringe a patent by writing a copyrighted text whose content is the subject of a patent." Samuelson, *supra* note 19, at 687.

1. Authorship and Originality of Hypertext

One of the way in which hypertexts are created and distributed epitomizes the difficulties of determining authorship. In an environment like the Worldwide Web, a network of computers[52] transfers works from writer to reader—or, more accurately, circulates the work between users, since anyone using a network computer may act as an author by adding to the text and disseminating the new version. This process is made possible by the system's ability to distribute a program resembling a word processor for hypertext, which allows a user to retrieve, link and create documents from a shared database.[53]

Not surprisingly, users have conflicting views of copyright's role on-line. Some see the networks as a public domain where all information may be appropriated freely; others wish to enforce current copyright controls strictly.[54] Absent a clear legal mandate,[55] the majority of users adhere to a so-called "netiquette" emphasizing good manners such as copying only for non-commercial use and attributing works correctly.[56]

Network technology is already making a qualitative and quantitative impact on authorship. Rapid transmission to mul-

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[52] Network users subscribe on a monthly or yearly basis to a selected group of programs transmitted between computers through telephone lines. Each program allows access to various databases, or electronically stored bodies of information, and provides different ways for the user to manipulate the information. Product offerings range from business services like electronic mail to recreational environments featuring interactive games. *See generally* PAUL GILSTER, THE INTERNET NAVIGATOR 15-83 (2d ed. 1994).

[53] One such system is the proposed National Information Infrastructure ("NII"), a national network with hypertext capability. The NII would combine vast libraries of information contained in multiple computer databases with the speed and accessibility of a telephone network. INFORMATION INFRASTRUCTURE TASK FORCE, INTELLECTUAL PROPERTY AND THE NATIONAL INFORMATION INFRASTRUCTURE: A PRELIMINARY DRAFT OF THE REPORT OF THE WORKING GROUP ON INTELLECTUAL PROPERTY RIGHTS (July 1994) [hereinafter GREEN PAPER].

[54] In one of the first lawsuits seeking to enforce copyrights on-line, the Harry Fox music licensing agency has filed a claim against the CompuServe network for failing to prevent 690 alleged copyright infringements by CompuServe subscribers. Susan Orenstein, *Online Services Fight Liability for Users' Violations*, LEGAL TIMES, Sept. 12, 1994, at 4.

[55] While copyright doctrine governing this area is unsettled, the federal government is investigating the viability of intellectual property protection on the networks. GREEN PAPER, *supra* note 53, at 1, 5.

[56] *See* GILSTER, *supra* note 52, at 33-36.

tiple locations encourages the production and distribution of new works. Connections to thousands of databases worldwide speed research. The fact that users are often not identified by face or voice, but by a name of their own choosing, promotes spontaneous (and occasionally offensive) conversation.[57] Unfortunately, the network's efficiency and relative anonymity also attract criminal behavior.[58] Electronic theft of copyrighted works is pervasive and expensive, costing the United States millions of dollars each year in lost revenues.[59] Authors' interest in just compensation merges with the public interest in maintaining a favorable balance of intellectual property trade.

Securing copyright protection depends on the presence of an identifiable author or authors to whom the limited monopoly in the work is granted.[60] However, digital authors deliberately blur the lines between their compositions, computer programs, and the reader's participation. Commentators predict

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[57] Freedom of speech on computer networks has been hotly debated. One commercial network, IBM's Prodigy, was forced to confront free speech issues when it attempted to raise subscription rates to its electronic mail service. Irate customers promptly "e-mailed" the system's corporate advertisers *en masse* to threaten a boycott. Prodigy responded by revoking the protesters' network privileges and expunging further dissent from its electronic bulletin boards. Needless to say, these acts had serious and as yet unanswered first amendment implications for all readers and writers of publicly marketed digital texts. *See* Michael L. Taviss, Editorial Comment, *Dueling Forums: The Public Forum Doctrine's Failure to Protect the Electronic Forum*, 60 U. CIN. L. REV. 757 (1992). Other recent incidents have raised questions regarding the regulation of obscenity and other indecency occurring on-line. *See, e.g.*, Charles Lenox, *Hate Speech Enters Computer Age*, CHI. TRIB., Oct. 27, 1991, at 4 (Prodigy on-line service censored hate speech by removing racist death threats from its electronic bulletin boards); John Schwartz, *School Gives Computer Sex the Boot: Carnegie Mellon University Taking Discussion Groups Off Its Network*, WASH. POST, Nov. 6, 1994, at A26 (private university prevented students from accessing any sexually explicit Internet discussion groups).

[58] Benjamin Wittes, *Information Highway Robbery: Is Law Enforcement Ready for Cybercrime?*, LEGAL TIMES, Oct. 10, 1994, at 1 (condemning the credit card fraud, sale of child pornography, national security breaches, and many other crimes pervading some areas of on-line networks).

[59] A recent survey conducted by the Software Publishers Association ("SPA") estimated that American software manufacturers lost $7.4 billion worldwide to copyright infringers of business applications software. Ken Wasch, the SPA's Executive Director, contrasted the loss with the $7.3 billion in sales reported by McDonald's in the same year. *Software Piracy Poses Global Threat*, PR NEWSWIRE, July 5, 1994, *available in* LEXIS, News Library, PRNEWS File.

[60] For a discussion of legal constructions of the concept of the author, see Peter Jaszi, *Toward a Theory of Copyright: The Metamorphoses of "Authorship"*, 1991 DUKE L.J. 455.

that future works will not result from the independent efforts of separate personalities, but will grow almost spontaneously with input from networked "contributors."[61] Creators will draw from connected databases offering graphic, audiovisual, and literary works, acting more as "users" than as the copyright law's conception of "authors."[62] The laws of joint authorship may ultimately need to consider contributors who work in different nations and perhaps even over the course of several generations.

Hypertext challenges traditional copyright law to define exactly who an "author" is. This process raises several questions: What is the proper allocation of credit between an author who creates a narrative and one who drastically changes its meaning by linking it with another document? Does the initial author who grants others permission to link retain any rights to the work? Should a third individual who has designed the web encompassing both these stories be able to claim rights in the entire work? One Intermedia web tried to remedy some of these concerns by allowing contributors to initial their own articles but not crediting them elsewhere.[63] Brown University professor George Landow, on record as the project's "developer," remarked, "This solution . . . contains an important truth about writing within a hypertext environment. Hypertext has no authors in the conventional sense. . . . [H]ypertext as a writing medium metamorphoses the author into an editor or developer. Hypermedia, like cinema and video or opera, is a team production."[64]

This opinion speaks more to academic theories than to legal definitions. Although hypertext authors' work may not be

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[61] Thomas Dreier, Copyright Digitalized: Philosophical Impacts and Practical Implications for Information Exchange in Digital Networks 11 (Mar. 1993) (unpublished manuscript presented at WIPO World Symposium on the Impact of Digital Technology on Copyright and Neighboring Rights, Harvard University) (on file with author).

[62] *See* LANDOW, *supra* note 23, at 88.

[63] *See* Joshua Quittner, *Read Any Good Webs Lately?*, NEWSDAY, June 16, 1992, at 59. The title page of the program's user manual acknowledges only Brown University's Institute for Research on Information and Scholarship, while the copyright notice page lists the project's developer, editors and graphic designer, and thanks a library collection from which illustrations were copied. LANDOW, *supra* note 23, at 100.

[64] LANDOW, *supra* note 23, at 100.

"conventional," their individual contributions can and should be identified and rewarded.[65] Copyright law already protects "team productions" through the laws of joint ownership and collective works. Under the 1976 Copyright Act, a joint work is "prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole."[66] An example of an "inseparable" contribution would be a revision that completely transforms the original work. In contrast, an "interdependent" contribution alters the work's context, but not its substance, by adding to a "collective whole" in which the original is situated.[67] Joint authorship can occur regardless of whether changes to the first work that materializes on the web are inseparable (for example, a second author modifies the text after it appears on-line) or interdependent (if the second author makes links providing novel insights into the first text). The two authors each have an undivided interest in the entire work as long as they share an intent that the final product be regarded as a whole.[68]

Intent to produce a joint work is present when an author knows before or during writing that the work will be incorporated into a larger entity.[69] This type of "preconcerted" cooperation will be found even if the first author does not know the second author's identity, as long as the first work is designed

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[65] Authors' insistence on self-definition in their work is reflected in the response to one journal's recent invitation to create a hypertext that would automatically enter the public domain. Each contributor was to "pass" through the original story, adding changes that would not be permanent, but accessible to readers at the journal's biannual publication. As one critic observed, "It didn't happen. After five hundred years of promises of immortality in print, authorial egos do not easily surrender to such anonymity." Robert Coover, *And Now, Boot Up the Reviews*, N.Y. TIMES, Aug. 29, 1993, § 7 (Book Review), at 10-12.

[66] 17 U.S.C. § 101.

[67] *See* MELVILLE B. NIMMER & DAVID NIMMER, 1 NIMMER ON COPYRIGHT § 6.04, at 6-11 (1994).

[68] 17 U.S.C. § 101.

[69] Weissman v. Freeman, 868 F.2d 1313, 1319 (2d Cir.), *cert. denied*, 493 U.S. 883 (1989); Words & Data, Inc., v. GTE Communications Servs., 765 F. Supp. 570, 574-75 (W.D. Mo. 1991). In *Words & Data*, the defendant, a telecommunications company, was considered a joint author of telemarketing forms when it contracted with a computer service company to produce these forms. *Id.* at 579. The defendant provided text for the forms and made a small contribution to the forms' graphic layout. *Id.* at 578-79. The court held that although the defendant had not explicitly asserted joint authorship, the circumstances of the agreement demonstrated the requisite intent. *Id.* at 575.

to accommodate another element.[70] Uploading one's work to a hypertext environment might similarly be seen as consent to collaborate if such consent was a condition of access to the network. Lacking consent, the invitation to respond to an online work does not constitute a waiver of the author's rights in the work. An intent to create a joint work must be enunciated by individual authors; it cannot be inferred simply from the structure of the hypertext environment.

A more appropriate model for hypertext systems is the collective work, in which the author owns only what he or she has contributed to the whole.[71] Under this approach one collaborator cannot claim a disproportionate share. A hypertext author may exercise full rights over the narrative component, including copying, distribution over a network, editing or linking it to other works.[72] Naturally, the author may transfer any or all of these rights for good consideration.[73]

The publisher who links that contribution with others and sells the result through a network or on disk may only copy and disseminate the author's piece as part of the whole publisher-generated collective work.[74] On a computer network, the same individual can act as both author and publisher since hypertext storage and transmission can be effected with the touch of a few buttons. When the narrative's writer is also

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[70] Edward B. Marks Music Corp. v. Jerry Vogel Music Co., 140 F.2d 266, 267 (2d Cir.) (words written by a lyricist presupposed a joint effort with a composer that would yield a complete song), *modified*, 140 F.2d 268 (2d Cir. 1944).

[71] 17 U.S.C. § 201(c) (1988). The 1976 Act defines a collective work as "a work, such as a periodical issue, anthology, or encyclopedia, in which a number of contributions, constituting separate and independent works in themselves, are assembled into a collective whole." 17 U.S.C. § 101 (1976).

[72] Section 201(c) contrasts the different rights granted to the authors collaborating on a collective effort and to the owner of the copyright in the finished product:

> Copyright in each separate contribution to a collective work is *distinct from* copyright in the collective work as a whole, and vests initially in the author of the contribution. In the absence of an express transfer of the copyright or of any rights under it, the owner of copyright in the collective work is presumed to have acquired *only the privilege of reproducing and distributing the contribution as part of that particular collective work, any revision of that work, and any later collective work in the same series.*

17 U.S.C. § 201(c) (1976) (emphases added).

[73] *Id.* § 201(d).

[74] *Id.* § 201(c).

responsible for its electronic "publication," the author's rights should not be restricted to the narrower privileges accorded to owners of the whole collective work.[75] Forcing authors to copy and distribute their works only inasmuch as they are linked to other works becomes dauntingly impractical as webs swell in size.

It is significant that contributions to collective works may be automatically classified as "works for hire" if a written contract between the author and the publisher so provides.[76] Copyright ownership of a work made for hire vests in the person or organization for whom the work was prepared.[77] Hypertext authors should be aware, therefore, that they can lose rights in works on-line if they sign a publishing contract containing a work-for-hire clause. If they wish to retain these rights, self-publishing on a computer network or simply striking the clause from the written instrument would provide alternatives to selling the rights.

2. Derivative Works as Strands Within the Web

Because of its collaborative nature and ability to be transmitted rapidly, hypertext encourages the creation of derivative works by linking.[78] Such works are copyrightable to the degree that they contain original expressions distinguishable from the first work.[79] Current case law narrowly construes derivative rights in a primary work to promote the creation and distribution of secondary works.[80] In *Lewis Galoob Toys, Inc. v. Nintendo of America, Inc.*,[81] for instance, the Ninth Circuit gave limited protection to authors of computer "add-ons." Finding that programs that supplemented a primary

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[75] *See* 17 U.S.C. § 201(c).

[76] *Id.* § 101.

[77] *Id.* § 201(b).

[78] Derivative works are "based upon one or more preexisting works, such as a . . . fictionalization . . . or any other form in which a work may be recast, transformed, or adapted." *Id.* § 101.

[79] *Id.* § 103(b). Copyright in a derivative work does not give its author any rights in the first work. *Id.*

[80] Pamela Samuelson, *Fair Use For Computer Programs and Other Copyrightable Works in Digital Form: The Implications of* Sony, Galoob *and* Sega, 1 J. INTELL. PROP. L. 49 (1993).

[81] 964 F.2d 965 (9th Cir. 1992), *cert. denied*, 113 S. Ct. 1582 (1993).

program were not derivative works, the court dismissed a suit brought by a video game manufacturer (Nintendo) who claimed that Galoob's program facilitated the production of infringing works. The Galoob program allowed a game player to alter aspects of the Nintendo game, for example by adding lives to a character or changing that character's attributes.[82] Nintendo argued that the changed games were infringing derivative works.

In weighing the claim that Galoob had caused infringing copies to be made, the Ninth Circuit proposed a test based on the affirmative statutory defense of fair use.[83] Beginning with "the nature of the copyrighted work," the court recognized that computer programs pose a special challenge to the traditional demarcation between a protected fair use and an unauthorized derivative work.[84] In so doing, the opinion cited an important industry trend: manufacturers of computer programs, hoping to stimulate consumer interest in their own products, often encourage others to create and sell "add-on" software.[85] The *Galoob* court, following fair use doctrine, held that the factors to be considered in determining whether an "add-on" infringed the primary product would be how much protectable material it incorporated from the first work: whether it was fixed in tangible form, whether a substantial similarity existed between the two, and whether the second work decreased market demand for the first.[86] This test is calculated to reward the author of the primary program without penalizing authors of secondary works.

Hypertext authors create literary "add-ons" by linking into

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[82] *Galoob*, 964 F.2d at 967.

[83] *Id.* at 969-72. Fair use, an affirmative defense to allegations of copyright infringement, considers the purpose and character of the use, the nature of the copyrighted work, the amount and substantiality of the portion copied, and the effect of the use on the potential market for the copyrighted work. 17 U.S.C. § 107 (1988).

[84] *Galoob*, 964 F.2d at 970-71.

[85] Remarking that "technology often advances by improvement rather than replacement," Judge Farris offered the example of a spell-checking program designed to work with a particular word processing program. *Galoob*, 964 F.2d at 969. *See* Edward G. Black & Michael H. Page, *Add-On Infringements: When Computer Add-Ons and Peripherals Should (and Should Not) Be Considered Infringing Derivative Works Under* Lewis Galoob Toys, Inc. v. Nintendo of America, Inc., *and Other Recent Decisions*, 15 HASTINGS COMM. & ENT. L.J. 615 (1993).

[86] *Galoob*, 964 F.2d at 969-72.

preexisting works. These new links can modify an existing work, as did the Galoob program, or they can stand alone as copyrightable expressions. When modifying an existing work, secondary hypertexts should be governed by the *Galoob* standard.[87] Altering or commenting on a primary hypertext should be considered a fair use. Just as the *Galoob* court found that Game Genie could "only enhance . . . a Nintendo game's output,"[88] a hypertext link could stimulate interest in the primary text. In the interest of promoting hypertext authorship, secondary linked texts should be separately copyrightable to the extent that they do not merely reproduce the original texts.

The Ninth Circuit extended *Galoob*'s holding the following year in *Sega Enterprises, Ltd. v. Accolade, Inc.*[89] Sega complained that rival manufacturer Accolade had created new games by unlawfully duplicating the copyrighted source code that operated Sega's Genesis home entertainment system.[90] Unlike Nintendo in the *Galoob* case, Sega did not place blame on the user who was suddenly rendered capable of creating infringing derivative works, but on the competing company which could now market Genesis-compatible games to compete with Sega.[91] The court, however, found Accolade's actions to be fair use, despite their commercial purpose and possible market repercussions.[92] Judge Reinhardt focused on the nature of the work[93] and its purpose and character.[94] This analysis showed that Accolade's efforts toward unlocking the Sega system opened the door for other manufacturers to create new games.[95] Similarly, copying and dissecting the program that drives a hypertext is essentially an educational use. Allowing authors and users such access will speed the production of new works and prompt the "growth in creative expression . . . that the Copyright Act was intended to promote."[96]

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[87] *See* Samuelson, *supra* note 80, at 114-15.

[88] 964 F.2d at 969.

[89] 977 F.2d 1510 (9th Cir. 1992).

[90] *Id.* at 1522.

[91] *See id.* at 1523 (discussing plaintiff's allegation of adverse effect on the market for its games).

[92] *Id.* at 1520-28.

[93] *See* 17 U.S.C. § 107(2).

[94] *See id.* § 107(1).

[95] *See Sega*, 977 F.2d at 1523.

[96] *Id.*

Other courts have distinguished *Galoob* when a competing intellectual property vendor, rather than a user, disassembles a protected work to create a new product.[97] Allowing commercial exploitation of the derivative work was seen as violative of rights holders' legitimate interests.[98] The court found that the defendant in this case went beyond copying for the purpose of analyzing the product and actually distributed copyrighted materials as part of its own wares.[99] While the 1976 Act clearly prohibits incorporating purloined materials in one's work,[100] the process of disassembling a work in digital form should not be condemned simply because it is performed by a rival author. Fair use is an equitable rule of reason and must consider the specific facts and context of the allegedly infringing use.[101] In the case of derivative hypertexts, "the nature of the work" should be accorded special weight. This would allow the fair use doctrine to realize the full public benefits of texts that can be linked and manipulated electronically.

In addition to the question of ownership in the texts, derivative hypertexts raise the issue of rights in the webs that bind these texts together. To ensure that authors cannot claim joint authorship in others' works merely by going on-line and connecting a few documents, link creation should be considered a minimal contribution, insufficient to grant a second author an undivided interest in the whole.[102] A lone link formed between documents, or an individualized path through a single text generated by another user's efforts, does not contain enough new expression to distinguish it from the pre-existing works.[103] Even if "fixed" in the computer's memory, these

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[97] Lotus Dev. Corp. v. Borland Int'l, Inc., 831 F. Supp. 223, 242 (D. Mass. 1993) (focusing on the fair-use factor of whether the infringing use is public or private).

[98] The court in *Lotus v. Borland* noted that "Borland's copying negatively affects the market for and value of Lotus' copyright." *Id.* at 243.

[99] *Id.* at 242.

[100] 17 U.S.C. § 106.

[101] *See* Sony Corp. v. Universal City Studios, Inc. 464 U.S. 417, 448 (1984).

[102] *See* Andrien v. Southern Ocean County, 927 F.2d 132 (3d Cir. 1991); *see also* Childress v. Taylor, 945 F.2d 500, 506-07 (2d Cir. 1991) (in the absence of a contract between authors which states the contrary, authors will hold joint copyrights only when each contribution is copyrightable).

[103] Some authors have suggested that hypertext reading is a collaborative effort. *See* LANDOW, *supra* note 23, at 88. Although the medium demands more audience participation than does static print, the reader's input does not give rise to propri-

works do not meet even a *de minimis* standard of originality.[104]

While the individual links that make up works do not merit copyright protection, some webs should be protected as compilations of links.[105] Combining elements of the text and the underlying program, the web is "a work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship."[106] While the proliferation of digitized documents will generate as many hypertext webs as there are individualized readings of available texts, three categories of webs may be recognized for copyright purposes. First, the web may be a mere list of works' titles. This type of link compilation is analogous to a table of contents or index in a printed work. Since it is purely factual, it is the most likely to be the object of fair uses such as reproduction for research and educational purposes.[107] Second, a web may contain some original expression in the arrangement of its elements. Functioning almost as a critical bibliography, it may communicate a particular viewpoint by referring the reader to selected texts in a given order. Third, an author may choose fanciful link titles that are part of the story's creative expression rather than self-explanatory lists.[108] In these cases, the web should enjoy the same copy-

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etary rights in the hypertext itself. One would hardly argue that the practice of making notes in the margins of a conventional book was an act of "authorship" rather than an uncopyrightable "process." *See* 17 U.S.C. § 102(b). Of course, the expression of the notes, or the content of the link, could be copyrighted if they manifested sufficient originality to distinguish them from the first work. In any case, courts have roundly rejected theories of proprietary rights for the user based on the creative efforts involved in navigating an interactive program. Midway Mfg. Co. v. Arctic Int'l, Inc., 704 F.2d 1009, 1012 (7th Cir.) (stating that a video game player "is unlike a writer or a painter because the video game in effect writes the sentences and paints the painting for him; he merely chooses one of the sentences stored in its memory, one of the paintings stored in its collection"), *cert. denied*, 464 U.S. 823 (1983).

[104] The specification of 17 U.S.C. § 102(a) that a work must be "original" has been held to mean merely that it has not been copied from another work or works. *See* Feist Publications, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340 (1991).

[105] *See* 17 U.S.C. § 103(b) (allowing copyright for compilations, but granting no rights in the preexisting material gathered to make them).

[106] *Id.* § 101.

[107] *See* Samuelson, *supra* note 80, at 117-18 (arguing for the application of the fair use factor of noncommercial use to hypertext links).

[108] This technique has been employed in print media; for example, in his novel

right protection as the rest of the text. Unlike allowing ownership of factual lists of links, providing copyright protection for the more imaginative webs would not chill the creation of new expressions.

Structuring a network of links is an act of authorship analogous to juxtaposing texts in a printed anthology. The originality of both lies in the fact that they enable the reader to make meaningful connections between preexisting texts.[109] Copyright protection for compilations is "thin," covering only the compiler's original contributions and protecting only against verbatim copying.[110] Applying this kind of copyright would allow broad access to a web's ideas. In contrast, copyrighting each link would prohibitively restrict the selection of new hypertexts available on the market.

3. Legal Fiction Meets Virtual Reality: The Idea/Expression Dichotomy in Hypertext

Copyright's disparate treatment of ideas and expressions arises from its dual policy goal. Hoping to encourage creativity, legislators chose to protect the manner in which an author's original presentation is embodied in a work.[111] Seeking to enrich the nation's shared reserves of information, lawmakers left ideas in the public domain.[112] In practice, the "bright line" between expressions and ideas is difficult to trace. Courts usually consider whether the disputed material is so common that granting rights in it solely to one person would be a functional impossibility.[113]

If On a Winter's Night a Traveler, Italo Calvino created chapter headings that formed a poem when displayed in the book's table of contents.

[109] *Cf.* Feist Publications, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340 (1991). In unanimously denying copyright protection to an arrangement of telephone listings, the *Feist* Court held that "the originality requirement is not particularly stringent. A compiler may settle a selection or arrangements that others have used; novelty is not required." *Id.* at 358.

[110] *See id.* at 358-59. "Originality requires only that the author make the selection or arrangement independently (*i.e.*, without copying that selection or arrangement from another work) . . . ."

[111] 17 U.S.C. § 102(a).

[112] *Id.* § 102(b).

[113] *See* Nichols v. Universal Pictures Corp., 45 F.2d 119 (2d Cir. 1930), *cert. denied*, 282 U.S. 902 (1931). *Nichols* introduced Learned Hand's oft-quoted reasoning that:

In hypertext, both the underlying computer program and the story it relays to the user contain protectable expression. Hypertexts, like books, rely on uncopyrightable ideas. A common illustration is the literary device of recounting a character's memories in a "flashback" sequence. In hypertext, however, these expressions often owe their originality not to the author's ideas but to the structure of the underlying program.[114] For example, the computer may shuffle the character's memories and display them at random to evoke the spontaneous nature of a train of thought.[115] These links, like any plot twists, should not be subject to monopoly by a single author. Conversely, the component of the hypertext most typically associated with authorship, the words of the story itself, should not go unprotected. Delineating a new balance between protection and access is necessary when the medium itself becomes the message.[116]

Copyright protection for expressive elements is appropriate now that the era of broad judicial protection for all aspects of a program is drawing to a close.[117] The courts' policy of refusing

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> [u]pon any work . . . a great number of patterns of increasing generality will fit equally well, as more and more of the incident is left out. . . . [T]here is a point in this series of abstractions where they are no longer protected, since otherwise the [author] could prevent the use of his "ideas," to which, apart from their expression, his property is never extended.

Id. at 121.

[114] The program underlying these links is a copyrightable expression based on the legal fiction that it is a literary work. Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240, 1249 (3d Cir. 1983).

[115] *See* Robert Coover, *Hyperfiction: Novels for the Computer*, N.Y. TIMES, Aug. 29, 1993, § 7 (Book Review), at 1.

[116] *Contra Apple Computer*, 714 F.2d at 1251 ("the medium is not the message"); Rogers v. Koons, 751 F. Supp. 474, 477 (S.D.N.Y. 1990) (reiterating that "[i]n copyright law, the medium is not the message"), *amended on reargument*, 777 F. Supp. 1 (S.D.N.Y. 1991), *aff'd*, 960 F.2d 301 (2d Cir.), *cert. denied*, 113 S. Ct. 365 (1992).

[117] The position that a program's "look and feel" are copyrightable was stated by Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37 (D. Mass. 1990), but has been subsequently repudiated by cases such as Computer Associates Int'l, Inc. v. Altai, Inc., 982 F.2d 693 (2d Cir. 1992) (echoing Learned Hand's language in *Nichols* in holding that courts must analyze copyright claims in software by an "abstraction-filtration" test that screens out unprotectable material). The abstraction-filtration test developed in *Altai* is gaining support in other jurisdictions. *See, e.g.*, Gates Rubber Co. v. Bando Chem. Indus., 9 F.3d 823 (10th Cir. 1993); *see also* Andrew G. Isztwan, Comment, *Computer Associates International v. Altai, Inc.: Protecting the Structure of Computer Software in the Second Circuit*, 59

to extend copyright to individual screens generated by the program[118] weighs against copyrighting hypertext's literary component, since the text is presented as a series of screens that vary according to viewer response. Copyrighting each screen, however, could impermissibly extend the author's limited monopoly by forbidding others to use the same ideas. Analogously, the bytes of data comprising a hypertext should not be considered protected expressions, but ideas free for the taking.[119] Copyrighting each individual piece of information might protect the author's interest in a literary work, but also would allow copyrightability for works previously deemed insufficiently original. For example, compilations of facts, such as telephone directories, could enjoy protection by virtue of their digital code structure—contrary to the constitutional minimum of "independent creation plus a modicum of creativity."[120] Yet failing to recognize the author's contribution unless he or she also has developed the underlying program is equally unsatisfactory.[121]

Courts could equitably distinguish between unprotectable ideas and protected expressions by considering hypertexts in the same light as audiovisual displays in video games. In one such ruling, *Stern Electronics, Inc. v. Kaufman*,[122] the Second Circuit held that a video game's sequence of sounds and imag-

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BROOK. L. REV. 423 (1993).

[118] *See* Digital Communications Assocs. v. Softklone Distrib. Corp., 659 F. Supp. 449 (N.D. Ga. 1987).

[119] *See* Gary R. Ignatin, Comment, *Let the Hackers Hack: Allowing the Reverse Engineering of Copyrighted Computer Programs to Achieve Compatibility*, 140 U. PA. L. REV. 1999 (1992) (arguing that gaining access to an underlying computer program by decompiling its code structure is a fair use comparable to outlining the ideas in a story without copying its expression).

[120] Feist Publications, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 346 (1991) (rejecting compiler's "sweat of the brow" theory on the ground that a compilation of facts in a telephone directory did not show sufficient originality to benefit from copyright protection).

[121] Hypertexts tend to be collaborative efforts between an author who has written a text and a programmer who follows the author's instructions as to how to present that text on a computer. Most frequently, a writer approaches a software publishing company with a written text and a concept of how the finished hypertext should read. The software publisher's team of programmers then realizes the author's vision. The author supervises the process; the final product is subject to his or her approval. Maryam Mohit, Remarks at the Writers Rights Coalition Forum on "Technology: New Issues and Opportunities" (Nov. 9, 1993).

[122] 669 F.2d 852 (2d Cir. 1982).

es may be copyrighted separately from the underlying program. Just as video game displays satisfied the statutory definition of an original audiovisual work,[123] hyperfictions should constitute literary works in their own right. Many even make use of the very elements the court chose to protect in the video game format: "the kind of fanciful graphical and audio expressions that have always been protectable by copyright."[124] Thus, non-utilitarian content of hypertexts is especially suited to this kind of protection.

4. The Fixation and Publication Hurdles

To fall within the ambit of the 1976 Copyright Act, an original work must be "fixed in any tangible medium of expression."[125] A work is considered "fixed" if copies of it are "sufficiently permanent or stable to . . . be perceived, reproduced, or otherwise communicated for a period of more than transitory duration."[126] A hypertext's underlying program component fits this definition since it is fixed in its disk.[127] The actual story appearing onscreen also meets this standard, even if it is not reduced to a hard copy, because it is made available at the "fixed point" of the computer's memory on a continuing basis.

The related question of when an on-line work is "published" also affects authors' rights. The United States Patent and Trademark Office's Information Infrastructure Task Force is currently shaping a definition of "publication" for the digital market. Recommendations put forth in a Green Paper by the Working Group on Intellectual Property Rights seek to refine the 1976 Copyright Act and to address the challenge of network technology.[128] Under the current law, publication occurs only when a transferee is authorized to sell, lease, or otherwise distribute copies of the work.[129] An author who uploads a text

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[123] *Id.* at 856.

[124] DONALD S. CHISUM & MICHAEL A. JACOBS, UNDERSTANDING INTELLECTUAL PROPERTY LAW § 4C[2][d], at 4-54 (1992).

[125] 17 U.S.C. § 102(a).

[126] *Id.* § 101.

[127] *See* Atari Games Corp. v. Nintendo of America Inc., 975 F.2d 832 (Fed. Cir. 1992).

[128] *See* GREEN PAPER, *supra* note 53, at 10.

[129] *See* 17 U.S.C. § 101.

directly with the intention of making it available to network users is thus not "published" within the meaning of the statute. The Working Group has recommended amending the law to include transmission among the regulated means of distributing copyrighted works to the public.[130] The classification of transmission as publication is essential to the continued dissemination of hypertext works.[131] By granting the same rights to those who choose to publish electronically rather than in hard copy, the Working Group affirmed computer networks' viability as purveyors of intellectual property.

While the Working Group's revised definition suggests that all on-line publications involve transmissions, it does not explicitly resolve the converse issue—whether all transmissions should be considered publications. Linking into an existing text and posting the result in an electronic forum is technically a "distribution . . . of a work to the public . . . by transmission."[132] Yet the message's author may intend only an ephemeral communication, more analogous to a private letter, despite its wider distribution.[133] Authors uploading to hypertext environments therefore should clearly state their intentions regarding publication and commercial dissemination.[134] Many works posted on the Internet already carry a

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[130] *See* GREEN PAPER, *supra* note 53, at 121. The amended definition of "publication" in § 101 of the Copyright Act would read:

> Publication is the distribution of copies or phonorecords of a work to the public by sale or other transfer of ownership, by rental, lease, lending, [or by transmission]. The offering to distribute copies or phonorecords to a group of persons for purposes of further distribution, public performance, or public display, constitutes publication. A public performance or display of a work does not of itself constitute publication.

Id. at 124 (alteration in original).

[131] This dissemination would be further distinguished from conventional publishing by an amendment to copyright's "first sale" doctrine. Under 17 U.S.C. § 109(a), one who lawfully owns a copyrighted work may dispose of it in any way that does not violate the author's distribution right. In the digital context, however, the Working Group found that the copyrighted work's owner is actually transmitting an electronic copy of the work. *See* GREEN PAPER, *supra* note 53, at 124-25; *see also* Patricia A. Martone & Ashley J. Chadowitz, *Protecting Copyrights in Cyberspace*, NAT'L L.J., Oct. 31, 1994, at C33. Therefore, the *Green Paper* suggests creating a network exception to the first sale doctrine. GREEN PAPER, *supra* note 53, at 124-25.

[132] GREEN PAPER, *supra* note 53, at 124-25.

[133] Indeed, many on-line discussion forums delete postings after an agreed-upon length of time. William R. Klemm & James R. Shell, *Teaching via Networked P.C.'s: What's the Best Medium?*, T.H.E. JOURNAL, Oct. 1994, at 95.

[134] Unpublished status brings both benefits and detriments. An action for in-

thin copyright notice informing the reader that the work is someone else's intellectual property but that it may be distributed noncommercially.[135] The burden is on authors to carefully affix a copyright notice if such protection is desired.[136] Many commercially available multimedia programs protect themselves by designs that require a user to view a copyright notice onscreen before entering the program. While the mandatory notice image is not absolute proof against infringement, nonetheless it is more noticeable than the copyright page in a traditional book. In its effort to secure copyrights on-line," the Working Group has proposed fines of up to $2500 to penalize "[a]ny person who, with fraudulent intent, removes or alters any copyright management information digitally linked with a copy of a copyrighted work."[137] This recommendation, while advantageous to content providers, ignores the difficulty of proving that an electronic copyright notice has been removed once the bowdlerized version has been propagated throughout the network. The Working Group's approach to copyright notice is symptomatic of the difficulty of applying traditional legal formalities to new types of works.

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fringement of an unpublished work is customarily less vulnerable to the affirmative defense of fair use than an infringement suit concerning a published work. The rationale behind this policy is that an author makes a conscious choice to shield a work from public commentary by not publishing it. *See* Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539 (1985). The Second Circuit has gone so far as to state that unpublished works "normally enjoy complete protection against copying any expression." Salinger v. Random House, Inc., 811 F.2d 90, 97 (2d Cir. 1987). Amendments to the 1976 Copyright Act, however, mandated that a work's unpublished nature could not in and of itself bar a finding of fair use. 17 U.S.C. § 107 (Supp. IV 1992). Yet a plaintiff seeking to recover statutory damages and attorney's fees for copying of an unpublished work can be barred from doing so unless the work has been registered. 17 U.S.C. § 412(1) (1976). The plaintiff can still recover actual damages, and becomes eligible to recover statutory damages as well if he or she registers within three months after filing suit. *Id.* § 411(b). If the work is published, the author may bring the suit but will not recover statutory damages and attorney's fees unless the work is registered within the first three months of publication. *Id.* § 412(2).

[135] *See, e.g.*, NATIONAL WRITERS UNION, ELECTRONIC PUBLISHING ISSUES: A WORKING PAPER (1993) (electronic version permits redistribution with correct attribution).

[136] Notice consists of the copyright symbol or the word "copyright," the date, and the author's name. 17 U.S.C. § 401(b).

[137] GREEN PAPER, *supra* note 53, at 131.

5. Form and Formalities: The Registration and Deposit Requirements

While compliance methods may have adapted to accommodate new objects of copyright, the same policy is still used to justify the requirements.[138] The system has always rewarded registration and deposit on the theory that they facilitate public access to new works.[139] However, the form in which hypertexts are distributed may place their authors at a disadvantage during the registration and deposit processes. Hypertext's audio-visual capabilities are often fixed in a Compact Disk with Read Only Memory, or CD-ROM.[140] The Copyright Office's most recent formula for deposit of works fixed in a CD-ROM format[141] mandates a deposit of "the entire CD-ROM package," including all operating software and any accompanying instruction manuals. If the work is available in print, the hard copy must be provided as well. The author is additionally responsible for depositing "elements that if considered separately would not be copyrightable subject matter or could be the subject of a separate registration"[142] and for offering conventional copies along with the complete CD-ROM package.[143]

This process imposes a stricter registration standard on authors who choose to create in digital media. Hypertext's form exacerbates the burden on users since one of its most sought-after qualities is its flexibility. Authors could be discouraged

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[138] Registration requires the author to send a complete description of the work to the Register of Copyrights. 17 U.S.C. § 409 (1976). To deposit, the author must give two complete copies of the "best edition" of the work to the Library of Congress. 17 U.S.C. § 407(a)(1) (1988).

[139] H.R. REP. NO. 609, 100th Cong., 2d Sess. 44-45 (1988).

[140] Data is stored to a CD-ROM disk when a laser burns bumps and holes no larger than a pinpoint into the thin sheets of metal layered within the disk's plastic surface. Like the open-or-closed circuit structure of a standard computer chip, the indentations on the disk represent bits of information encoded in binary ones and zeroes. *See* Leon Erlanger, *The Perfect Multimedia Add-Ons: How a CD-ROM Drive Works*, PC MAG., July 1994, at 211.

[141] 37 C.F.R. § 202.20 (1991); *see also* June M. Besek, *Recent Developments in Copyright Protection for Computer Software and Databases*, *in* UNDERSTANDING BASIC COPYRIGHT LAW 617 (PLI Patents, Copyrights, Trademarks, and Literary Property Course Handbook Series No. 363 1993).

[142] 37 C.F.R. § 202.20.

[143] *Id.*

from updating software on a monthly or quarterly basis if they needed to renew their applications with the Copyright Office for each supplement. Similarly, authors writing on expanding electronic webs could be deferred from contributing if each addition had to be registered separately to obtain copyright protection. Artistic experiments, like the trend toward merging several authors' styles in a single hypertext,[144] would be curtailed if each new rendition of a story necessitated a separate deposit. Ultimately, adherence to the letter of the law could defeat the law's spirit by slowing the spread of information and muting new literary voices.

Hypertext authors, and conventional authors as well, would benefit from repeal of the registration and deposit requirements.[145] Although failure to register or deposit the material does not invalidate a copyright,[146] the requirement chills infringement suits because noncompliance prohibits a plaintiff from seeking statutory damages and attorneys' fees.[147] Destroying the economic incentive to litigate encourages wholesale appropriation. This means of making works on CD-ROM available to the Library of Congress contradicts the modern policy of de-emphasizing formalities.[148] Rather, United States intellectual property law has progressively lessened demands on authors in conformity with international protocol. Under the Berne Convention on the Protection of Literary and Artistic Works, copyright in hypertext arises with the creation of the work.[149] Authors thus need not fulfill any further statutory demands to enforce their rights in a court of law. United

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[144] *See* Coover, *supra* note 18, at 8 (reviewing a collaboration between two authors, Carolyn Guyer and Martha Petry, who had successfully fused their distinctive writing styles into a single original tale).

[145] Erica Jong, Statement on S. 373 Before the Subcomm. on Patents, Copyrights, and Trademarks (Oct. 20, 1993), *available in* LEXIS, News Library, DREXEC File.

[146] 17 U.S.C. § 407(a).

[147] *See id.* § 411.

[148] Upon the United States joining the Berne Convention in 1989, the House of Representatives cited "a strong consensus that Berne requires the elimination of mandatory notice of copyright" as one of Congress's reasons for ultimately abolishing the notice requirement. Berne Convention Implementation Act of 1988, H.R. REP. NO. 609, 100th Cong., 2d Sess. 40 (1988).

[149] The Berne Convention Implementation Act applies the treaty to all software created after March 1, 1989, eliminating the requirements of deposit and registration for such work.

States law could more accurately reflect this approach with the adoption of the proposed Copyright Reform Act of 1993.[150] This bill would abolish the need to register a copyright as a condition of bringing an infringement suit, while still encouraging deposit by rewarding authors who made their work available to the public.[151] This flexible measure is more appropriate to the global digital media market and to the adaptability of hypertext itself.

6. The Increased Danger of Infringement

Writers deserve the same protection from unfair copying whether they create in ballpoint or binary. Yet when a hypertext is read on a CD-ROM drive or downloaded from a network, the reader may retrieve not only the narrative but the code that directs the computer to reproduce it.[152] Digital transmission permits unprecedented access to the expression that embodies the story's idea. Computer networks already obscure the distinction between commercial use of protected works and copyright-free private enjoyment.[153] The characteristic ease with which binary signals may be copied demands regulation to reduce risks to the rights of authors and their transferees.

Hypertext is more vulnerable to infringement than other digitally transmitted works. The protections available for other computerized materials are often unsuitable for hypertext. For example, the data comprising pictures and films can be reduced before transmission, eliminating a few bits of informa-

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[150] S. 373, 103d Cong., 2d Sess. (1993). The bill passed the House of Representatives on November 20, 1993 and was referred to the House Committee on the Judiciary three days later. No action has been taken on the Senate version as of this writing. *Additional Legislative Concerns to Watch*, ENT. L. & FIN., Dec. 1993, at 5.

[151] For a list of alternatives to the current registration and deposit statutes, see ROBERT WEDGEWORTH & BARBARA RINGER, LIBRARY OF CONGRESS, ADVISORY COMM. ON COPYRIGHT REGISTRATION AND DEPOSIT (ACCORD) (1993) (report of the co-chairs considering incentives such as tax credits and extension of the copyright term for authors who comply with voluntary registration and deposit).

[152] *See* Jonathan Band & Laura McDonald, *The Fair Use Bill: A Funny Thing Happened on the Way to Congress*, COMPUTER LAW., Mar. 1993, at 9.

[153] One proposed solution, reimbursing rights holders through an electronic tracking and billing system connected to the user's computer, could threaten the user's right to privacy. *See* Dreier, *supra* note 61, at 26.

tion so that the image's resolution remains insufficient to produce a saleable print.[154] Even the most skilled hackers equipped with programs for restoring lost data are generally unable to reconstruct the missing details.[155] While the process might offer some protection for hypertext's visual components, letters obviously cannot be omitted from the text itself without altering its meaning. Writers who create in digital media thus risk piracy and even mutilation of their work.

Existing legal protections for literary works similarly fail when applied to hypertext. Although United States law does not explicitly recognize moral rights in literary works,[156] authors may validly sue for defamation if the altered work is damaging to their reputation and marketability.[157] Computer infringers, however, would be nearly impossible to monitor since a stolen work could easily be encrypted for redistribution.[158] Digital signatures could be encoded in works, but plagiarists could avoid detection by typing out the entire work manually.

Information technology facilitating the discovery of piracy can be developed and made widely available so that infringement does not become standard practice. In keeping with this policy, a national database of electronic works should be created to monitor works' authenticity. As hypertext is exploited

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[154] *See* Dreier, *supra* note 61, at 8.

[155] Dreier, *supra* note 61, at 19.

[156] Moral rights are the product of the European system and are codified in Article 6b of the Berne Convention. Berne Convention for the Protection of Literary and Artistic Works (Paris Text 1971). The right of attribution allows the artist to be known as the work's creator and to enjoin any presentation of an incorrectly attributed or unattributed work. The right of integrity similarly permits injunction if the author finds that a work has been distorted, mutilated, or otherwise modified in a manner that would adversely affect his or her reputation. *Id.*; *see also* 2 NIMMER & NIMMER, *supra* note 67, § 8D.03, at 8D-31. The United States has adopted federal legislation recognizing these rights for visual artists only. 17 U.S.C. § 106A (Supp. II 1990).

[157] *See* Wojnarowicz v. American Fam. Ass'n, 745 F. Supp. 130 (S.D.N.Y. 1990) (allowing artist to enjoin a pamphlet that might have decreased his gallery sales since a reasonable reader could believe that the artist's work was composed entirely of sexually explicit images); *see also* Gilliam v. American Broadcasting Co., 538 F.2d 14 (2d Cir. 1976) (allowing authors of a television program to enjoin a broadcast that edited out several key scenes and emphasizing that authors' professional reputations would be harmed if the "mutilated" version was made available to the public).

[158] Kevin Kelly, *Cypherpunks, E-Money, and the Technologies of Disconnection*, WHOLE EARTH REV., June 22, 1993, at 40.

through new products to reach widening market, authors must act to preserve their interests and maintain their bargaining power. This goal can be achieved through a two-pronged initiative of educating authors for more effective contract negotiations and enacting legislation to safeguard their constitutional rights.

II. CONTRACTUAL AND STATUTORY ALTERNATIVES FOR PROTECTING AUTHORS' RIGHTS

As the market for printed media has done already, the electronic market too will expand to accommodate a wide range of vendor viewpoints. Some members of the "cybercommunity"[159] adopt the attitude that "information wants to be free," decrying "intellectual property" as an oxymoron.[160] This position underscores the absurdity of attempting to use static laws to regulate the development of "liquid" hypertexts. In a rapidly changing electronic market, strictly defined statutory categories fall prey to built-in obsolescence.

Writers historically have struggled to achieve fair economic compensation for their work. Digital media adds another dimension to the debate over compensating authors. In a market where publishers already can deny authors' contributions for "business reasons,"[161] many writers fear that hypertext's fluidity will destroy authorship. Maintaining the integrity of the text is a particularly widespread concern. Since moral

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[159] Cyberspace has been defined as the point between two telephones where the conversation takes place. Bruce Sterling, *Between the Lines*, TIMES, Apr. 10, 1993, *available in* LEXIS, News Library, TTIMES File. Similarly, on-line dialogues occur not at one computer or another but at some point in between.

[160] John Perry Barlow, co-founder of the Electronic Frontier Foundation, opined that authors should consider themselves information "channellers" rather than proprietors. John P. Barlow, Remarks at the Writers Rights Coalition Forum on "Technology: Issues and Opportunities" (Nov. 9, 1993). In the same vein, Mr. Barlow likened changing copyright law to fit digital media to "re-arranging the deck chairs on the Titanic." *Id.*

[161] Landow cites personal experiences of such "distortion of authorial practice." LANDOW, *supra* note 23, at 112-14. Examples include when two authors have contributed to a book but the publisher prints only the more famous one's name on the cover; an editor's name is replaced by that of a more prestigious scholar who has only contributed a preface and was not involved in the editing; or less renowned authors' names are eliminated altogether from notices and advertisements promoting the book. *See id.*

rights in literary works are not protected by copyright law, an author could not recover if a second individual linked the author's text to a work the first author found offensive.[162] Failure to credit network authors can only lead to what hypertext writer Robert Coover terms a "loss of vision in a text trod upon by anonymous others."[163]

Coover also predicts a situation in which "on-line talent wars will occur" unless "the lines [are kept] clean and open."[164] Questions of access concern authors intimately. They have advocated low user fees for all types of digital networks, with special low-income rates subsidized by use taxes or licensing fees.[165] Authors' opting for open access over strict protection stems from awareness of academic and economic realities. Constricting the flow of information would impede research, while high access fees would deter users from purchasing writers' products. While courts have emphasized conflicts between a policy of access and a policy of rewarding authors,[166] writers seek a balanced solution that incorporates both elements.

A. *The Terms of Art: Contractual Options for Defending Authors' Interests*

In the absence of statutory provisions directly regulating digital transmissions, authors attempt to protect their rights by contract. Protecting authors' future rights requires an examination of such past practices.

Although the typical writer usually faces a double burden of financial weakness and lack of access to counsel, the courts have frequently treated authors as parties on an equal footing with corporate licensees, and imposed on them the burden of

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[162] In some states, the author might be able to recover for defamation. However, the applicability of state law to torts committed on nationally available databases raises difficult jurisdictional questions.

[163] Robert Coover, *Endings: Work Notes*, *in* LANDOW, *supra* note 23, at 119.

[164] *Id.*

[165] *See* NATIONAL WRITERS UNION, *supra* note 135.

[166] *See, e.g.*, Sega Enters. v. Accolade, Inc., 977 F.2d 1510, 1527 (9th Cir. 1992) ("'The immediate effect of our copyright law is to secure a fair return for an 'author's' creative labor. *But the ultimate aim* is, by this incentive, to stimulate artistic creativity for the general public good.'" (quoting Sony Corp. v. Universal City Studios, 464 U.S. 417, 432 (1984)) (emphasis added)).

explicitly reserving any publishing rights they wish to retain in technologies that may be developed in the future. This counter-intuitive principle that a grantor must enumerate rights not yet in existence originated with the invention of motion pictures. In the early part of this century, authors granting "dramatic rights" to publishers reasonably believed that the grant applied only to plays, since film had not come into existence yet. Nonetheless, courts found these contracts broad enough to include a grant of film rights.[167] The scenario was replayed later in cases dealing with soundtrack rights. Again, authors who had not anticipated the advent of "talking pictures" lost the ability to define their rights in their own work.[168]

These imbalances are by no means unique to the early motion picture industry. They represent a continuing pattern in the law's treatment of authors. For example, a model contract between a musician and a recording company insists that the musician relinquish

> the exclusive, perpetual and worldwide right to manufacture, sell, distribute, and advertise Phonograph Records embodying those Master Recordings under any trademarks, trade names, or labels, and to lease, license, convey or otherwise use or dispose of those Master Recordings *by any method now or hereafter known in any field of use* . . . all upon such terms as Company may approve, or Company may refrain from doing any or all of the foregoing.[169]

The purchaser of this contract absorbs all rights inherent in the work without the responsibility of agreeing to use due diligence to promote it. The artist signs away all future rights for immediate and often minimal pecuniary gain. Likewise, a book publisher's boilerplate contains a standard clause relieving

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[167] *See, e.g.*, Kalem Co. v. Harper Bros., 222 U.S. 55 (1911) ("exclusive right to dramatize" included motion picture rights even though motion pictures were unknown at the time the relevant copyright statute was enacted).

[168] *See, e.g.*, Murphy v. Warner Bros. Pictures, Inc., 112 F.2d 746 (9th Cir. 1940) (rejecting playwright's argument that motion-picture rights, sound rights, and dialogue rights were three distinct sets of rights to be bargained for separately and were therefore not within grant of right of grants to make motion picture); L.C. Page & Co. v. Fox Film Corp., 83 F.2d 196 (2d Cir. 1936) (contract granting "motion picture rights" included all soundtrack rights in spite of the fact that movies with sound were still in the experimental stage when the contract was made).

[169] Arthur Indursky, Model Recording Contract 9, Address at the Recording Contracts Workshop Sponsored by the Entertainment, Arts, and Sports Law Society of Brooklyn Law School (Apr. 1993) (emphasis added) (on file with author).

authors of "all rights" now in existence or not yet invented for the entire period of copyright.[170]

Since these rights arise when the work becomes fixed in tangible form,[171] they automatically belong to the author. Accordingly, the rights are only transferrable by means of a signed document specifying the exchange.[172] Yet, when interpreting violations of authors' rights, courts have assumed the opposite, finding that authors transfer any rights they do not explicitly reserve.[173] If an author gives a broad and general grant of rights to use a work, the grant applies to all technologies existing at that time.[174] When considering a more ambiguous grant, general contract law provides that any ambiguities are to be construed against the drafter. Courts also examine whether the parties could have contemplated the disputed use. Unless the contract provides a broad grant of future rights, uses that are unknown at the time the contract is signed are not considered part of the grant.[175]

In some cases courts have looked beyond the contract's wording to the intent of the parties. When a disputed use is found to be "entirely different" from that contemplated by the grant, the language cannot be expanded to cover new uses.[176] Grants of rights in a "dissimilar" device are likely to be interpreted in the authors' favor.[177] For example, in *Tele-Pac, Inc. v. Grainger*, an author who contracted away television broadcasting rights still was held to be the sole owner of rights to

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[170] A practice even exists of using a form on the back of a paycheck to enumerate additional rights that the artist signs away to the publisher by endorsing the check. *See* NATIONAL WRITERS UNION, *supra* note 135, at 6.

[171] 17 U.S.C. § 102(a).

[172] *Id.* § 204; *see also id.* § 101.

[173] *See, e.g.*, Bartsch v. Metro-Goldwyn-Mayer, Inc., 391 F.2d 150 (2d Cir.), *cert. denied*, 393 U.S. 826 (1968).

[174] *See id.* at 155 (finding that if the parties do not explicitly state otherwise, the licensee may use the work in any way that could "reasonably be said to fall within the medium as described in the license") (quoting 3 NIMMER & NIMMER, *supra* note 67, § 10.10[B], at 10-93).

[175] *See, e.g.*, Cohen v. Paramount Pictures Corp., 845 F.2d 851 (9th Cir. 1988) (when contract permitted licensee to display a motion picture "by means of television," but the licensor reserved all rights except those granted, distribution of the work on videocassettes was not a permitted use).

[176] *Id.* at 853. Significantly, a grant in this case did not contain the words "now or hereafter known."

[177] *See* Tele-Pac, Inc. v. Grainger, 168 A.D.2d 11, 570 N.Y.S.2d 521 (1st Dep't 1991).

make videocassettes. The court found the video rights too "dissimilar" to the broadcasting rights to have been contemplated by the author at the time of the grant.[178] Finally, even an explicit grant of rights in existing technology may be invalidated by applying equitable estoppel. The Third Circuit has recognized authors' frequent lack of bargaining power, holding that a contract of adhesion cannot be used to force an author who is an inexperienced businessperson to deliver television rights.[179] The court based its decision on the plaintiff's lack of business experience despite the fact that the use could have been contemplated at the time of the grant.[180]

In practice, authors' attempts to enjoin unapproved works can be dismissed if they fail to respond to the first actionable misuse of their intellectual property.[181] This requirement of an immediate response to misuse is particularly burdensome for authors of hypertext. It is even more difficult for a hypertext author to discover computer abuses than for a book author to survey print media for the infringement of his or her work. Furthermore, these holdings fail to recognize the policy behind the copyright laws. Forcing authors to sell rights which cannot yet be valuated in the emerging digital market could create an economic rift between authors and publishers, instead of easing the distribution of new works.

Hypertext authors must negotiate licenses against a backdrop of case law that does not necessarily favor authors, particularly where new technology is involved.[182] Contracts must define rights clearly to avoid unintentional, unconditional grants of all rights in future technologies. Even if the publisher's contract is silent on the issue, the original rights holder should insert a clause stating that he or she reserves all

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[178] *Id.* at 18, 570 N.Y.S.2d at 525.

[179] Ettore v. Philco Television Broadcasting Corp., 229 F.2d 481 (3d Cir.), *cert. denied*, 351 U.S. 926 (1956).

[180] *See id.* at 488.

[181] *See* Bourne Co. v. Tower Records, Inc., 976 F.2d 99 (2d Cir. 1992) (author failed to prove irreparable harm when he brought infringement action several years after the first use of his musical work in the new format of a videocassette).

[182] See SCOTT, *supra* note 29, app. at 20-1 to 26-1, for a series of model contracts for various multimedia projects, including agreements drafted by artists' societies like the Writers Guild and the Screen Actors Guild. For an adaptation of Scott's prototypes to the writer making a contribution to a hypertext, see Appendix A.

rights other than those granted. Likewise, narrow definitions of derivative works can clarify an otherwise ambiguous grant of rights. For example, a publisher may wish to secure the rights to resell a work in "any medium now or hereafter known." The author can instead insist on a clause which categorizes the product form by medium, such as CD-ROM; by compatibility with certain hardware; or by use, such as for downloading for incorporation into a user's own musical or graphic works. Ownership of any upgrades to the product may be included in the grant of rights or sold for a separate fee.

1. Royalty Collection Through Individual Licensing

As with conventional literary works, hypertext writers may provide for continuing interests in the distribution of their work.[183] Authors currently negotiate such agreements on an individual basis. If third parties are to be licensed to make and sell hypertexts based on the original work, authors can negotiate both for a share in the profits of these ventures, and, if desired, for some degree of artistic control over the new editions.

The copyright holder has the right to copy, adapt, or distribute the copyrighted work by sale or otherwise.[184] Complex licensing agreements allocating rights between authors, pub-

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[183] The author of a "work of visual art," as defined by 17 U.S.C. § 101, has certain nontransferable rights of attribution under § 106A of the Copyright Act, such as claiming authorship and preventing the use of the author's name on certain modifications of the work. *See* 17 U.S.C. §106A. Visual artists often are pressured to sign away these rights. For annotated contracts offering advice for preserving artists' rights, see TAD CRAWFORD, LEGAL RIGHTS FOR VISUAL ARTISTS (1988). Hypertext authors who use graphics should be aware of the protection afforded them by the statute.

[184] The 1976 Copyright Act, as amended in 1980, permits the owner of a copy of a computer program to copy, authorize the making of a copy, or adapt the computer program under certain conditions. The new copy must be "created as an essential step in the utilization of the computer program in conjunction with a machine and . . . used in no other manner" or "for archival purposes only," with the extra condition that "all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful." 17 U.S.C. § 117. Any copies made pursuant to this provision may only be transferred along with the first copy and as part of the transfer of all rights in the program. *Id.* If the copy owner wishes to transfer an adaptation he or she has made from a copy, the copyright owner's permission must first be obtained. 17 U.S.C. § 117 (1988 & Supp. V 1993).

lishers, and distributors usually designate the publisher as the copyright holder. The decision to license an author's product rather than sell it outright is a significant one. The licensor can reserve the rights to prevent or control resale of copies in the licensee's possession.[185]

In the computer context, a copyright holder often needs to make limited grants of rights so that a licensee (such as an electronic book distributor) can use the product as intended.[186] For example, some programs include segments from repositories of software known as "code libraries" which are meant to be absorbed into new programs.[187] The licensee needs the licensor's explicit permission to use the otherwise protected software from the code library in a new program and then distribute the new program for profit without infringing the licensor's rights in the code.[188] Hypertext authors' contracts should provide for appropriate reimbursement in analogous situations. The code of the underlying program controlling the hypertext's links, graphical displays, and user interaction is protected as a literary work separate from the expression of the story. Direct copying of either the code or the expression of the story without the author's or rights holder's permission is infringement.

a. *Blanket Licensing by Collection Societies*

In the burgeoning digital market, technology most likely will combine with contractual options to allow creators in electronic media to obtain post-sale royalties.[189] Currently, artists' collectives such as the American Society of Composers, Authors, and Publishers ("ASCAP") and Broadcast Music, Inc. ("BMI") collect performance royalties on an other type of intellectual property—namely popular music—whose value lies in

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[185] *See* Ronald E. Myrick & Penelope S. Wilson, *Licensing Rights to Software, in* TECHNOLOGY LICENSING AND LITIGATION 1993, at 467, 480 (PLI Patents, Copyrights, Trademarks and Literary Property Course Handbook Series No. 354 (1993)).

[186] *Id.* at 474.

[187] *Id.*

[188] *Id.*

[189] *See* OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, FINDING A BALANCE: COMPUTER SOFTWARE, INTELLECTUAL PROPERTY, AND THE CHALLENGE OF TECHNOLOGICAL CHANGE 36 (May 1992).

its ability to be exploited through copies. The collectives issue one license for all the works of composers who become members.[190] They then collect licensing fees from users and redistribute the revenue according to a predetermined formula based on factors such as type of work, number of performances in a specified period, and duration of the composer's membership in the society.[191]

Any comparable digital authors' collection society will need to demonstrate that it does not violate the antitrust laws by fixing prices for intellectual property. Precedent in favor of blanket licensing has already been established by the Supreme Court in *Broadcast Music, Inc. v. Columbia Broadcasting System, Inc.*[192] In *Broadcast Music*, the Court rejected a broadcaster's demand for a per-use, per-composition rate for music to be used in a television series and upheld the collection societies' right to collect fees owed to its members.[193] Justice White's opinion recognized that blanket licensing validly cut the costs of administering royalties and rectified a market imbalance that otherwise might have prevented authors from receiving their due.[194] The majority noted that this policy had already been codified in the 1976 Copyright Act,[195] which mentions both ASCAP and BMI by name.[196] The opinion warned that weakening the agencies' right to negotiate on behalf of members would restrict trade in intellectual property: "[T]he commerce anticipated by the Copyright Act and protected against restraint by the Sherman Act would not exist at all or would exist only as a pale reminder of what Congress envi-

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[190] Songwriters are eligible for membership in ASCAP after having one work "regularly published" or "commercially recorded or performed." STANLEY M. BESEN & SHEILA N. KIRBY, COMPENSATING CREATORS OF INTELLECTUAL PROPERTY: COLLECTIVES THAT COLLECT 17 (1989) (citing ASCAP Articles of Association, art. 3, § 1.A(i), (ii)). Any music publisher "actively engaged in the music publishing business" may join. *Id.* The internal voting process is weighted in favor of senior members. A board of directors composed of equal numbers of writers and publishers has the authority to determine the royalty distribution formula. *Id.* BMI, the second largest collection society, has similar membership criteria and is governed entirely by its broadcaster members. *Id.*

[191] *Id.*

[192] 441 U.S. 1 (1979).

[193] *Id.*

[194] *Id.* at 19-23.

[195] *Id.* at 15.

[196] 17 U.S.C. § 116(e)(3).

sioned."[197] The Court recognized royalty collection, like copyright itself, as a crucial incentive for the free exchange of ideas.

The United States has historically delegated the function of royalty collection to private groups.[198] BMI evaded antitrust liability by offering a new service—the blanket license itself—for which buyers were willing to pay a percentage of their fees. Similarly, artists' rights groups could license works appearing on-line. Theme databases seeking contributions of factual articles or fictional pieces could pay a percentage of their profits in return for the right to make the works available to consumers.[199] Allowing several private licensing systems would limit the government's involvement to maintaining a central office to record copyright registration. Such a registry could be created by setting up a database in the Copyright Office to which the requisite information could be downloaded. Such an approach would avoid burdening the government by delegating royalty tracking to the most informed parties—the artists' representatives—and by encouraging different collection societies to offer diverse services to attract new members.

b. *Possible Technological Solutions to the Royalty Collection Puzzle*

Once the scope of licensing rights is defined,[200] the great-

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[197] 441 U.S. at 19.

[198] In contrast, most Berne Union nations allow a governmental or quasi-governmental agency to perform this function. REGISTER OF COPYRIGHTS, DROIT DE SUITE: THE ARTIST'S RESALE ROYALTY 151-55 (1992). Professional artists' societies like France's SPADEM and ADAGP and Germany's Bildkunst work within their respective Ministries of Culture. *Id.* The groups collect and distribute revenues for visual artists whose works are resold for an amount greater than the first-sale price. Similar proposals have been advanced for an American visual artists' society that would work in tandem with the Copyright Office, but legislators have balked at the idea of any government involvement. *Id.*

[199] *See* Nicholson Baker, *Infohighwaymen*, N.Y. TIMES, Oct. 18, 1994, at A25.

[200] In addition to the right to receive negotiated royalties, these rights may include limiting others' rights to recreate or sublicense the program. Myrick & Wilson, *supra* note 185, at 486. Although courts do not favor anticompetitive measures, some have allowed copyright owners to limit the use of their property by contract. *See* Coresearch, Inc. v. Thomson & Thomson, 792 F. Supp. 305 (S.D.N.Y. 1992) (finding that copyright owner has the right to license, limit or terminate the use of its intellectual property). Indeed, allowing authors to control distribution would not only be anticompetitive, but could infringe the rights of a collaborating

est obstacle is structuring an accurate tracking system. Industry self-regulation through technology can be a potent means of controlling copyright interests.[201] For example, a program could be built into a hypertext environment to automatically regulate the use of works in the digital agora. Technological solutions to the tracking and payment problems offer the advantages of efficiency and economic incentives. The financial burden of research and development can be distributed over a broad base of users, rather than reallocated through costly and time-consuming litigation. Those implementing the technology, though, must keep works accessible to traditional beneficiaries of fair use. Anti-copy devices that do not distinguish between infringing and non-infringing uses could hamper the distribution of new works.

One such approach to the problem, used to address unauthorized videocassette recording, could be adapted for users downloading hypertexts from a computer network to the cubit card system.[202] A debit card system would allow unlimited copying of works available on-line while providing fair compensation for the individuals or corporations who owned the copyrights.[203] Users would purchase cards similar to library copy cards. To download a work to a disk or a printer, the user would insert the card into a slot. The computer would read the card and deduct an appropriate payment based on an electronic signature encoded in the work to be copied.[204] Works in the public domain would not be marked with the electronic signature, so copies of these works would be free. This process has the advantage of identifying which authors or publishers deserve compensation for which works, obviating the need for a blanket licensing system.

Electronic signatures are currently being developed that would mark a work as an original.[205] One such procedure

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programmer.

[201] *See* Nicholas E. Sciorra, Note, *Self-Help and Contributory Infringement: The Law and Legal Thought Behind a Little "Black-Box"*, 11 CARDOZO ARTS & ENT. L.J. 905 (1993).

[202] *See id.* at 921. The author suggests this system for use with videotape copy from VCRs.

[203] *See id.*

[204] *See id.*

[205] Electronic signatures are a high-tech variation on the device used by a map publisher in a well-known Seventh Circuit case. *See* Rockford Map Publishers, Inc.

could be implemented by some form of encryption.[206] Encrypting messages keeps them private, and the digital signatures also may be used to authenticate the work. A text that had been plagiarized by downloading it from the network would still bear the signature, warning potential buyers of its spurious origin. The network could be programmed to record which electronic signatures had been accessed and bill the user for the corresponding works.[207] This solution is more appropriate in the computer context than the surprise spot checks conducted by ASCAP and BMI, since computer networks respond to individualized requests and lack the predictability of television networks and top forty radio.

To be feasible, tracking and billing by means of electronic signatures must be standardized throughout the entire system. Traditional regulation of access based on location is irrelevant to hypertext environments. It is impossible to gauge which computer out of a network of hundreds or thousands is downloading a given work at a given time. The network itself may shift software from one computer to another so that it is not overloaded with requests to transmit many works to the same computer.[208] A trend toward "open" networks whose users log on and off from different locations and the growing popularity of portable laptop computers further reduces the utility of location-based restraints. A more feasible strategy would entail restricting use by consumer, with individuals entering personalized tracking and billing numbers whenever they wished to

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v. Directory Serv. Co., 768 F.2d 145 (7th Cir. 1985), *cert. denied*, 474 U.S. 1061 (1986). The publisher hid "traps" in its maps, false initials in names printed on the maps that spelled out the publisher's name when read from top to bottom. An infringing company was discovered when it copied the initials with the map. *Id.* at 147.

[206] Pioneered by the federal government for use during wartime, encryption is becoming a part of many commercial programs, especially those used to create and send electronic mail. A user of public key encryption has both a public key and a private key consisting of hundreds of digits. The computer can read the codes and use either to decode the other. This prevents a human who knows only the public key (which the user distributes to on-line correspondents as one would give out an address) to deduce the private code. *See Expert Controls on Mass Market Software: Hearings Before the Subcomm. For Economic Policy, Trade and the Environment of the House Comm. on Foreign Affairs*, 103d Cong., 1st Sess. 105-110 (1993) (prepared statement of Philip Zimmerman, encryption consultant).

[207] *See* Kelly, *supra* note 158, at 40.

[208] Myrick & Wilson, *supra* note 185, at 483.

download an on-line work.

One proposed hypertext library franchise contemplates calculating royalties by tracking how many times a document is accessed.[209] Ted Nelson's Xanadu concept is founded on the dubious proposition that authors would be willing to pay for on-line storage space for their works.[210] The authors' motivation would be the possibility of gaining revenues when others linked to their documents. Authors' royalties would amount to ten to twenty percent of the access fee, which would be calculated per byte downloaded.[211] While Xanadu's calculation of royalties per use, as opposed to by contract, is innovative, it has drawn criticism for penalizing those who link to the greatest number of documents.[212] Blanket licensing for per-hour usage of the system according the ASCAP-BMI model would recoup operating costs without discouraging researchers.

Although technology adapts more quickly to new developments in the computer field than law, mechanisms for protecting rights holders in hypertext still will need consumer and government support to become standard practice. A viable collection system will need the support of the legislature. If organized on the ASCAP-BMI model, the collection society must be exempted from antitrust charges by a government decree. A central registry, perhaps affiliated with the Library of Congress, should be created to track electronic document distribution in a manner that does not invade users' privacy. Most significantly, the law must look beyond the form of current intellectual property protection for new measures to fulfill copyright's promise.

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[209] *See* Smith, *supra* note 26; Pamela Samuelson & Robert J. Glushko, Symposium, *Electronic Communications and Legal Change: Intellectual Property Rights for Digital Library and Hypertext Publishing Systems*, 6 HARV. J.L. & TECH. 237, 248-49 (1993).

[210] Samuelson & Glushko, *supra* note 209, at 248-49.

[211] Samuelson & Glushko, *supra* note 209, at 248-49. The National Writers Union, in contrast, has suggested that writers should receive a minimum of 50% of a work's sale price on the ground that publishers will no longer have to pay for layout, printing and binding, or absorb the costs of shipping, spoilage and returned books. *See* NATIONAL WRITERS UNION, THE NATIONAL WRITERS UNION GUIDE TO PLAYING FAIR ON THE ELECTRONIC HIGHWAY (1993). The uniqueness of systems like Xanadu suggests that their start-up costs will preclude paying such high rates at least in their early stages.

[212] Samuelson & Glushko, *supra* note 209, at 259.

B. *Statutory Models: The Semiconductor Chip Act as Software Legislation Paradigm*

The Semiconductor Chip Protection Act of 1984 ("SCPA")[213] has been hailed as a solution to the tensions between rewarding software authors and ensuring public access.[214] To allow researchers access to ideas embedded in the chips without condoning outright piracy, the SCPA permits a process known as reverse engineering.[215] Reverse engineering of a chip normally is accomplished by "analyzing an existing chip to create chips with the same external specifications—'form, fit, and compatibility.'"[216] Similarly, a computer program may be reverse engineered by purchasing a program and accessing its ideas by translating its machine-readable object code into human-readable source code.[217] Several programs' source codes can be compared to extrapolate compatibility requirements.[218]

One drawback to reverse engineering is that it requires substantial commitments of time and money; the comparison phase alone may involve several months of costly experimenta-

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[213] 17 U.S.C. §§ 901-914 (1988 & Supp. V 1993).

[214] *See, e.g.*, Pamela Samuelson, *Creating a New Kind of Intellectual Property: Applying the Lessons of the Chip Law to Computer Programs*, 70 MINN. L. REV. 471, 491 (1985) (citing Congress's concern that firms engaging in the "fine art" of chip layout would be discouraged from innovating if their designs could be copied freely). Professor Samuelson, together with another legal academic and two computer science experts, has produced a detailed proposal for "SCPA-like" protection for computer programs. *See* Pamela Samuelson, *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308 (1994). Under the *Manifesto*'s "market-oriented" regime, innovative elements of new software products would be registered, much like copyrighted works, with a central private or government agency. *Id.* at 2428 n.487. Registration would allow the program's author advantages such as a fixed term of protection from copying or an automatic license whose terms would allow the author to collect royalties for a given period. *Id.* at 2417-18.

[215] *See* 17 U.S.C. § 906(a).

[216] CHISUM & JACOBS, *supra* note 124, § 6D[4][b], at 6-27.

[217] *See* Christian H. Nadan & James W. Morando, *Standardization and Interoperability Become Key Factors in Copyright Law*, COMPUTER LAW, Apr. 1993, at 12, 13.

[218] *See* Sega Enters. v. Accolade Inc., 977 F.2d 1510 (9th Cir. 1992) (holding that reverse engineering to produce compatible programs was fair use of a program, not an infringing derivative work, when the defendant showed that reverse engineering was done with the purpose of determining functional requirements for compatibility and when no other means of access is available).

tion.[219] The process is legal as long as it is used to create new software and not simply to duplicate the original program at a lower cost. In traditional terms, reverse engineering is comparable to a writer's outlining the unprotected ideas in another's book and creating a new work based on those ideas.

Under the SCPA's two levels of inquiry, the allegedly reverse-engineered chip and the original chip are compared to see whether they are "substantially similar."[220] A finding that the reverse-engineered chip is substantially similar, which would constitute infringement under traditional copyright law,[221] merely raises a presumption of infringement. The defendant can rebut this presumption by presenting testimony that establishes the defendant's "investment" and "toil."[222]

Courts have recognized that silicon chips are not the only works that may be copied for research purposes. The disassembly of object code in commercial video game programs also has been held to be a fair use.[223] The Ninth Circuit has observed that the Chip Act's incorporation into copyright law does not preclude the application of a similar standard to other computer-related works. When a copyright plaintiff argued that Congress had essentially banned disassembly by declining to cre-

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[219] *See* 17 U.S.C. §906(a)(1); *see also* Brooktree Corp. v. Advanced Micro Devices, Inc., 705 F. Supp. 491, 494 (S.D. Cal. 1988) ("[T]he Mask Work Act does not prohibit independent development of a mask work; an identical but original second mask work is not an infringement of the first.").

[220] *See Brooktree*, 705 F. Supp. at 495.

[221] The Copyright Act is silent as to the standard for substantial similarity. The accepted test as enunciated by the Second Circuit is "whether an average observer would recognize the alleged copy as having been appropriated from the copyrighted work." Ideal Toy Corp. v. Fab-Lu Ltd. Inc., 360 F.2d 1021, 1022 (2d Cir. 1966).

[222] NIMMER & NIMMER, *supra* note 67, § 8A, at 8A-36; *see also* 17 U.S.C. § 905(1); *Brooktree*, 705 F. Supp. at 495 ("The parties agree that if the defendant can produce a paper trail establishing reverse engineering, the appropriate standard is substantially identical rather than substantially similar."). Although theoretically the defense of reverse engineering can be proven through a "paper trail" showing time and effort, thus far, in practice, it has been difficult to establish. *See* Brooktree Corp. v. Advanced Micro Devices, Inc., 757 F. Supp. 1091 (S.D. Cal. 1990). In *Brooktree*, the district court found adequate evidence of reverse engineering at the preliminary-injunction stage of litigation. At trial, however, the jury found that the defendant had not established the defense. *Id.* at 1091. The district court denied the defendant judgment notwithstanding the verdict, *Id.* at 1093, and on appeal, the Federal Circuit declined to reverse the jury's finding that, despite the "great weight" accorded the defendant's paper trail, infringement had occurred. Brooktree Corp. v. Advanced Micro Devices, Inc., 977 F.2d 1555 (Fed. Cir. 1992).

[223] *See* Sega Enters. v. Accolade, Inc., 977 F.2d 1510 (9th Cir. 1992).

ate *sui generis* protection for computer programs, the California court of appeals responded by citing the Act's legislative history: "Congress expressly stated that it did not intend to 'limit, enlarge or otherwise affect the scope, duration ownership or subsistence of copyright protection . . . in computer programs, databases or any other copyrightable works embodied in semiconductor chip products.'"[224] Nor should the growing webs of words fixed within these chips be curtailed by "enlarged" protection. Textual elements should be safeguarded from direct infringement and unauthorized distribution, while non-narrative web components and underlying programs should be accessible through reverse engineering.

Legislative and judicial mandates concerning hypertext should model themselves on the SCPA by reflecting the industry practices of both its literary and computer sources. Authors should be able to see into the structure of a program just as they can analyze conventional works for techniques of plot and character. The SCPA still provides remedies for authors whose work has been copied without permission. The standard of infringement is simply more attuned to the realities of the computer medium.[225] The same should hold true for hypertexts: an identical similarity between webs or underlying programs would sustain an infringement suit, whereas imitation of a particular program or web pattern would not incur liability.[226] Like computer programs in general, hypertexts must be allowed to develop their own expressive conventions free from overly restrictive interpretations of copyright law.

III. CONCLUSION

If hypertexts are to realize their startling potential for disseminating information and creative thought, they must benefit from copyright protection. This protection, in turn, must recognize that a hypertext's story and web components

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[224] *Id.* at 1521.

[225] *See* Nadan & Morando, *supra* note 217, at 12.

[226] For example, the common device of branching into a character's conflicting memories of an anchoring event should not be copyrightable. The author's stylized rendering of the character's emotions should. For a description of a hypertext that utilizes both, see Coover, *supra* note 65, at 10 (reviewing Judy Malloy's hypertext novella, *Its Name Was Penelope*).

may be separately copyrighted as literary works. The principle of fair use should be applied liberally to the web component to allow for subsequent authors' research and comment. A hypertext's underlying program should be protected under the same standards as those outlined for chip products under the Semiconductor Chip Protection Act of 1984. Allowing authors broad access to technology in this manner will spur production of intellectual property as surely as overprotection will thwart it.

So that authors' rights in their work will keep pace with developing technology, explicit provisions should be adopted restricting grants of future rights to technologies existing at the time of the contract. To monitor commercial uses of creative works available on computer networks, public depositories of record should be maintained. These would have the dual function of tracking digital piracy through electronic signatures and of distributing royalties based on user demand for the work. On a showing of fault, data carriers should be held jointly liable for the illegal sale of intellectual property and recidivists barred from transacting business on the networks.[227] Lastly, legislation recognizing digitized works' unique nature, like the new definitions proposed by the Patent and Trademark Office's Working Group on Intellectual Property, should be adopted so that authors have the ability to enforce copyrights in works on-line.

Authors will participate fully in the information age only when they are educated about their options for negotiating fair compensation. With technology at their fingertips that may let them bypass the usual rounds of manuscript submissions and editing, authors' dealings with software publishers and managers of electronic bulletin boards will supplement and perhaps supplant the traditional publishing process. Past case law suggests that the best way to retain rights in the face of rapidly changing technologies is to define them narrowly and retain all rights not explicitly granted. As authors benefit from their

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[227] Courts have already shown a willingness to impose liability in these circumstances. *See* Sega Enters. v. MAPHIA, 857 F. Supp. 679 (N.D. Cal. 1994) (game manufacturer won preliminary injunction and seizure of pirated video game copies solicited and distributed by defendant's electronic bulletin board); Playboy Enters. v. Frena, 839 F. Supp. 1552 (M.D. Fla. 1993) (partial summary judgment awarded to copyright owner whose works were displayed on-line without permission).

work, they are able to continue contributing to the public stockpile of artistic wealth.

These suggestions are not intended to sketch the bounds of a typical legal hypothetical's "closed universe." Indeed, hypertext's main appeal lies in its challenge to the print-bound materiality of traditional discourse. Ultimately, an interface will develop between electronic media and traditional copyright law. Safeguarding authors' interests now will ensure that their voices will continue to be heard in a dialogue that is just beginning.

Jenevra Georgini[228]

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[228] Copyright © 1995, Jenevra Georgini and the *Brooklyn Law Review*. The author would like to thank Professor Samuel Murumba for his helpful comments on earlier drafts of this Note.

APPENDIX

Model Hypertext License Agreement†

This AGREEMENT is entered into on _____, 199__, by and between _____ ("Author"), residing at _____ and _____ ("Company"), located at _____.

WHEREAS, Author is the sole creator of, and owns the copyright and all other related rights in a certain literary work, the title and description of which is set forth below; and

WHEREAS, Company is engaged in producing and distributing interactive multimedia titles and wishes to purchase certain rights to the Work so that the Work may be incorporated into a hypertext (the "Hypertext");

NOW, THEREFORE, in consideration of the promises, conditions and warranties contained in this Agreement, the parties agree as follows:

1. *Definitions.*

a. "Work" refers to the following literary work created by the Author:
Title:_____
Description:_____

b. "Hypertext" refers to the following work to be produced by Company incorporating textual [and graphic and audiovisual elements][1] and fixed in the form of a Compact Disk with Read Only Memory ["CD-ROM"][2]:

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† This Model Agreement is based roughly on those found in MICHAEL D. SCOTT, MULTIMEDIA: LAW AND PRACTICE app. at 20-1 to 26-1 (1993 & Supp. 1994).

[1] Material in brackets may be modified according to the drafter's needs.

[2] This Model Agreement addresses textual elements that are fixed in a tangible form. CD-ROM is currently the most popular medium for distributing hypertexts that are not transmitted over networks. For purposes of this model agreement, "CD-ROM" refers to the Hypertext's tangible expression, and the term

Title:_____
Description:_____

c. "Company" refers to Company, its subsidiaries, and all assigns and successors in interest to this Agreement. Third parties with whom separate licensing, merchandising, distribution, electronic transmission or other agreements are subsequently negotiated are not included in this definition.

2. *Grant of Rights*. Author hereby grants to Company and to its successors and assigns, subject to the payments set forth in Paragraph 6 of this Agreement, the non-exclusive right, license and privilege throughout the [list geographical territories, such as British territories, Canada and the United States] to:

a. incorporate the Work into the Hypertext and to reproduce, distribute, import and sell said Hypertext on any optical media now in existence, including but not limited to [floppy disk, CD-ROM and/or CD-I], throughout the Territory;

b. publicly display and authorize others to publicly display by any medium an excerpt or portion of the Work for information purposes and for advertising, promotion and publicity in connection with the Product, provided that such display is subject to Author's prior consultation and written approval and that such excerpt or portion shall be limited to [name a restriction on word amount, *e.g.*, 750 words or viewing time of a program excerpt, *e.g.*, 5 minutes];

c. use the Author's name, pen name, biography, photograph or likeness at no additional cost for information purposes and for advertising, promotion and publicity in connection with the Hypertext, provided that such use is subject to Author's prior consultation and written approval.

[Here, Author may choose to grant other, separate rights to Company for good consideration.][3]

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should be replaced by any other medium that the parties choose for Hypertext.

[3] These rights may include the right to:

1) reproduce, distribute, import and sell the Hypertext on any media now in

3. *Author's Warranty.* Author warrants and represents that s/he is free to enter into and perform this License Agreement and that any material written and provided by Author in connection with the Hypertext does not infringe any common-law or statutory copyright of, or violate the right of privacy of, or libel, or violate any proprietary or other right of, any other persons. Each party to this Agreement agrees to indemnify the other for any loss, liability and expense, including reasonable attorney's fees, arising out of, or in connection with, any actual and proven breach of the foregoing warranties.

4. *Rights Reserved.* Author reserves all rights except those specifically granted to Company in this Agreement.

5. *Copyrights.* Company shall copyright the Work in Author's name in compliance with the laws of the United States. Nothing in this Agreement shall be understood to grant Author rights in any literary, graphic, audiovisual element of the Hypertext, other than the Work as described herein and any additions made by Author to the Work.

6. *Payments.* For the rights granted by Author herein, Company shall pay to Author a royalty calculated as follows:

a. _____ per unit on the first _____ units of the

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existence or hereafter invented, throughout the Territory;

2) port the Hypertext onto any CD-ROM platform now existing or later developed during the term of this Agreement and exercise in connection with the ported Hypertext all rights granted by this Agreement;

3) print, publish and sell the Hypertext's literary elements in book form;

4) license copying and incorporation of the Hypertext in other multimedia works embodied in CD-ROM;

5) license periodical publication in either digital or print form after distribution of the Hypertext;

6) Adapt and license adaptations of the Hypertext for educational and library market;

7) distribute the Hypertext by means of electronic transmission or uploading to the computer networks and/or Internet sites named in this paragraph. Authors who allow this kind of use may find it difficult to safeguard their copyrights. They may want to negotiate a provision making the commericial on-line service responsible for protecting the work to a reasonable degree by means of encryption, collecting payment from users or monitoring transactions); or

8) to license any or all of the above rights in all foreign languages and in all countries.

Hypertext sold by Company or any of Company's successors, assigns or subsidiaries;

b. _____ per unit on the next _____ units of the Hypertext sold by Company or any of Company's successors, assigns or subsidiaries; and

c. _____ per unit on all sales of the Hypertext over _____ units.

These royalties are based on a suggested retail price for the Hypertext of US$_____ and will be adjusted up or down on a *pro rata* basis in accordance with any changes in the suggested retail price of the Hypertext. However, in no circumstances will royalties to Author be less than _____ per unit.

7. *Advance Upon Signing.* Company shall pay to Author $_____ upon the signing of this Agreement as an advance against the royalties set forth above.

8. *Royalty Statements.* Company shall render to Author on a quarterly basis, within forty-five days after the end of each calendar quarter during which the Hypertext is sold, a written statement of the royalties due to Author with respect to the Hypertext. Such statement must be accompanied by a remittance of the amount shown to be due. Author has the right, upon reasonable request, to review those records of Company or its successors, assigns or subsidiaries inasmuch as such review is necessary to verify the royalties paid. Any audit made pursuant to this Agreement will be conducted at Author's expense. If a deficiency is shown by such audit, Company or its successor, assign or subsidiary shall immediately pay that deficiency. If a deficiency of 5% or more is shown by the audit, Company shall pay for the audit.

9. *Future Agreements to Distribute the Hypertext.* In the event that Company enters into negotiations with a third party for the distribution of the Hypertext or a modified version thereof, Author and Company will negotiate a fair royalty rate to be paid to Author in connection with such distribution.

10. *Term of Non-Exclusive License.* The term of this Agreement is _____ years from the date of execution by both parties, unless terminated earlier pursuant to Paragraph 11 of this Agreement.

11. *Termination.* This Agreement shall be subject to termination by either party for any reason, and shall terminate sixty (60) days after constructive receipt of written notice pursuant to Paragraph 14 of this Agreement. Upon termination, Company shall cease reproducing, distributing and advertising the version of the Hypertext containing the Work. Notwithstanding the foregoing, Author is entitled to all royalties earned before the date of termination. Such royalties are payable pursuant to Paragraph 6 of this Agreement, and Author has the right to examine Company's records on reasonable notice regarding these royalties in accordance with the terms of Paragraph 8.

12. *Successors and Assigns.* This Agreement is binding upon and inures to the benefit of the respective successors and assigns of the parties.

13. *Modification.* This Agreement sets forth the entire agreement between the parties with respect to the subject matter hereof, and may not be modified or amended except by written agreement executed by the parties.

14. *Notice.* The address of each party as set forth below shall be the appropriate address for the mailing of notices, checks and statements related to this Agreement. Either party may change their mailing address by written notice to the other.

15. *Governing Law and Forum.*[4] This Agreement is governed by the laws of the State of _____ applicable to agreements made and to be wholly performed therein. Any controversy arising under this Agreement, if litigated, will be adjudicated in a court of competent jurisdiction within the County of _____, State of _____.

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[4] California law and forum currently contain the most legal precedent for multimedia works. New York law and forum are considered the most appropriate for publishing law.

IN WITNESS WHEREOF, the parties have executed this License Agreement on the day and year set forth above.

Author:

_____

Company:

_____

By: _____

Title: _____