Collaborative Literary Creation and Control

A Socio-Historic, Technological and Legal Analysis

Benjamin Mako Hill
Hampshire College

Division III Commitee:

Chair. James Miller
Professor of Communications / Hampshire College

James Wald
Associate Professor of History / Hampshire College

Stephen J. Harris
Assistant Professor of English / University of Massachusettes

David Bollier
Co-Founder / Public Knowledge

Collaborative Literary Creation and Control: A Socio-Historic, Technological and Legal Analysis

Division III Commitee: Chair. James Miller, James Wald, Stephen J. Harris, and David Bollier

by Benjamin Mako Hill

Published unpublished

Revision History

Revision v1.0	May 7, 2003
Revision v1.0pre1	April 22, 2003
Revision v0.2	April 22, 2003
Revision v0.1	April 14, 2003

Table of Contents

1. Introduction 1

Webster's Revised Unabridged Dictionary (1913) 1

What is Collaborative Writing? 2

Why is Collaboration Important? 4

The Idea of Control / The Control of Ideas 7

Control as Conceptions of Authorship 8

Control as the Technology of Writing 9

Control as Copyright 10

Collaborative Literary Creation and Control 10

2. A Meta-History of Collaborative Literature and Control 13

Introduction 13

Brief History of Authorship 14

Brief History of Printing Technology 15

Brief History of Copyright 16

Early Models of Collaboration Before the Eighteenth Century 17

Imperial Chinese Literature 18

The Talmud 20

The King James Version of the English Bible 22

Conclusions about Pre-Copyright Authorship and Collaboration 24

Collaboration During the Birth and Early Life of Copyright 24

John Keats 25

Samuel Taylor Coleridge and William Wordsworth 28

During the Shift Conclusion 31

Contemporary Collaboration and Control 31

Collaboration between T.S. Eliot and Ezra Pound on Eliot's The Wasteland 32

The short stories of Raymond Carver and his editor Gordon Lish 34

Contemporary Industry Collaboration 36

Conclusion 38

3. Evaluating Collaborative Literary Technologies 40
Introduction 40
Defining Collaboration 41
Methodology 42
The Product 42
Access Control: Hierarchical vs Peer 44
Decision Making Roles 46
Synchronous and Asynchronous Collaboration 49
Tracking Changes and Version Control 50
Intra-Project Communication 51
Face-to-Face Meetings 53
Flexibility 54
Application and Case Studies 55
Xanadu 55
The WikiWikiWeb 60
Modern Word Processors: Microsoft Word and OpenOffice.org 65
Conclusions 70
4. Copyright and Collaborative Literary Production 71
Introduction 71
Contextualizing Copyright 72
Twenty-first Century Copyright 73
Problems with Copyright in the Context of Collaboration 76
Copyright is Unreflective of Collaborative Writing's Effectiveness 78
Copyright is Unreflective of Collaborative Writing's Persistence 81
Copyright Limits Writers' Freedom to Express Themselves Collaboratively 82
Alternatives and Answers 84
Joint Authorship 85
The Works Made for Hire Doctrine 87
Limit the Terms and Reach of Copyright 89
Free Licensing 93
The Future of Ideas 95

Bibliography **97**

A. Software (,) Politics and Indymedia **106**

Introduction and History 106

Learning to Look at IMC Software 108

Active's Template and Points of Convergence 108

Active's Spin-Offs and Points of Divergence 110

Case Studies 110

SF-Active 111

Mir 112

FreeForm 113

Other Indymedia Software 114

Conclusions 115

List of Figures

3-1. Xanadu: link source 56
3-2. Xanadu: link target 57
3-3. Xanadu: “Select Link Type” menu 57
3-4. Xanadu: comparison of documents 59
3-5. Wiki: example page (PHPWiki) 60
3-6. Wiki: links (PHPWiki) 61
3-7. Wiki: “edit” page (PHPWiki) 62
3-8. Wiki: PHPWiki’s summary of text formatting rules 62
3-9. Wiki: “Recent Edits” page (PHPWiki) 63
3-10. Wiki: “Show Difference” page (PHPWiki) 64
3-11. Word Processors: basic view (OpenOffice.org) 66
3-12. Word Processors: show changes mode (OpenOffice.org) 68
3-13. Word Processors: accept/reject changes - Picture 1 (OpenOffice.org) 69
3-14. Word Processors: accept/reject changes - Picture 2 (OpenOffice.org) 69

Chapter 1. Introduction

Webster's Revised Unabridged Dictionary (1913)

By the mid-1980's Webster's 1913 edition of their *Revised Unabridged Dictionary* was nearly forgotten. Its publishers, now Merriam-Webster, Inc., publish small revisions of the dictionary each year (changes are made to only about 50 words) and larger revisions every decade. 1913 had served its time and been pushed aside. The people I spoke to at Merriam-Webster knew nothing about 1913 and assured me that little, if anything, from 1913 remained in their current Collegiate dictionary. They described how the relationship between 1913 and the modern Merriam-Webster's Collegiate dictionaries, while still somewhat unclear, was tenuous at best.

In the first seventy-five years of its life, Webster's 1913 edition was revised several times and then abandoned according to company policy. Copies that escaped the pulping machines survived to gather dust in libraries and on bookshelves. Merriam-Webster retained full control over the text and, if they followed their normal patten of revision, did absolutely nothing with it after a decade. Barred from action by Merriam-Webster's exclusive rights to the text under copyright, neither did anybody else.

As Webster's 1913's quietly celebrated its seventy-fifth birthday in 1988, few noticed that it had finally caught up with the numerous extensions, revisions and rewrites of the United States Copyright Act that the text had seen in its lifetime. As Merriam-Webster's copyright expired, the 1913 version of their Unabridged Dictionary passed into the public domain and became common property. To dictionary manufacturers with their own up-to-date dictionaries, the availability of Webster's 1913's thousands of now antiquated definitions to the public domain meant little.

By 1996, the Internet had become a fixture of the lives of millions around the world. In this year, Project Gutenberg, a project digitizing and distributing public domain texts, released an electronic version of Webster's 1913. As the only large digital dictionary in the public domain, Webster's 1913 was quickly adopted by those unwilling or unable to purchase commercial dictionaries. The dictionary, ignored over generations, was the center of attention once again.

Since then, the dictionary has taken up numerous electronic formats to facilitate different methods of searching and browsing. It has been integrated into text editors, web sites, and word processors. Consequently, 1913 is cited increasingly often—last year in a petition to the United States Supreme Court (Morrill2002). The digital versions have been used as a seed for, or an addition to, various online knowledge bases including WordNet, Wikitionary, Wikipedia, Everything2 and others.

More strikingly, Webster's 1913 has grown. With knowledge of the dictionary's dated quality, several collaborative projects have sprung up to augment, fix, or build on the text of dictionary. Foremost among these is the GNU Collaborative International Dictionary of English (GCIDE) which, through an entirely volunteer-based collaborative effort, has revised, updated and added to the dictionary to create one of the most quickly growing dictionary projects in existence.

Webster's 1913's new life as GCIDE is a story about the power and effectiveness of collaboration. With its amazing resurrection, it is also a story about the effect of control on the life of a text. The new life breathed into Webster's 1913 can be tied to the elimination of the centralized way that the dictionary had been controlled. It can be tied to the elimination of Merriam-Webster's legal ability to control the use of the text. It can be tied to a series of technological shifts including the explosion of the Internet and collaborative authoring tools that made distribution and collaborative manipulation of the dictionary possible in new and different ways. In shifting away from highly centralized and individualized systems of control, meaningful collaborative work on the dictionary became possible. Through its history of abandonment and revitalization, 1913 acts as a powerful example of the way that highly individualized control limits the growth of a text—and of the great things that can happen when control is relinquished.

What is Collaborative Writing?

Almost every book and article on collaborative writing begins by asking, "what is collaboration?" In most cases, the authors proceed to tear apart the reader's preconceived notions and to leave the question more confused than when they began. While often impractical and

unproductive, this approach is understandable and usually justified; collaborative writing is a slippery concept. It is clear that collaborative writing refers to writing in groups but there are as many ways to write in groups as there are possible combinations of individuals. Where does "a little help" and editorial assistance end and collaboration begin? There are no definitive answers.

Additionally, left to operate in an individual work/collaborative work dichotomy, defining collaboration involves defining what is *not* collaboration. Can individual writing involve borrowing, citing, appropriation and synthesis? How much? Where does one draw the line. There are no definitive answers. Ongoing academic discussions on the theory, definitions, and virtues of authorship and collaboration begun decades ago show no sign of resolution and continue to grow in size and scope. They demonstrate that there are no definitive answers.

While from one academic perspective, these questions are pleasantly unresolvable, an analysis of collaboration without a definition to frame it remains problematic. For a limited but piratical working definition of collaboration, one can turn to technologists who define collaboration in more mechanical terms. In an article on the technology and processes of collaborative writing, David Farkas offers four possible definitions useful in approaching collaboration through an analysis of processes. For his purposes, collaboration is:

1. two or more people jointly composing the complete text of a document;
2. two or more people contributing components to a document;
3. one or more person modifying, by editing and/or reviewing, the document of one or more persons; and
4. one person working interactively with one or more person and drafting a document based on the ideas of the person or persons. (Farkas1991 p. 14)

By breaking the common-sensical concept of group-based writing into a four distinct types of work, Farkas' definition paints a picture of what is, and is not collaboration; it provides a useful place to begin.

However, in introducing the concept of "collaborative literature," one must also define "literature." Partially in an attempt to avoid this definition—defining literature can be as perilous

as defining art—many who study collaborative textual production simply choose the term "collaborative writing." However, collaborative writing tends only to imply synchronous and fully consensual group work. Literature, on the other hand, is more than just the act of putting pen to paper. It is defined by the Oxford English Dictionary as, a "body of writing" or a "culture" of letters. In the following analysis, I use the term "literature" in a inclusive sense. For my purposes, it is almost synonymous with writing but implies connections between, and unity among, different written works over time and between authors in a way that "writing" does not. These connections may range from traditions and conventions to subtle allusions to quoting and, in their most extreme form, to plagiarism. While not always defensible, these connective acts are always literary. Literature is always collaborative.

Referring to this networked approach literature, Peter Jaszi extends Farkas' definitions in describing a fifth type of collaboration he calls "serial collaboration," a process he defines as borrowing, synthesis and appropriation. Serial collaboration flows from the manipulation of existing knowledge and can be widely asynchronous. For example, through revision and a close relationship to his texts, I might be able to "collaborate" with Charles Dickens in a serial manner by fixing what I felt was an error, elaborating on a set of descriptions, changing an ending, or rewriting an entire story. In the following chapters, I try to afford each of these models of collaboration a place.

In discussing collaborative writing in today's literary world where the dominant paradigm is a single author theory, many models describe collaborations as groups of individual authors working in an micro-economy model. Other models present collaborations as a group of writers occupying the role and space of a single corporate or collective individuality. Yet other models present collaborations as complex organizational entities and aggregations of individuals. By providing a more nuanced and complex model of collaboration and reducing the impact of systemic control, these models occupy an increasingly privileged and "meaningful" place in the following analysis.

Why is Collaboration Important?

Underestimated and ignored for over a century, as I will describe in more detail in Chapter

2, a great deal of attention began being focused on collaborative writing in the early 1970's when English and composition professor Kenneth Bruffee began arguing that by having students write essays and fiction in groups, students produced better work than when they worked alone. He argued that they learned more through group work than when they interacted only with their teacher (Bruffee1973a). Bruffee's has continued writing on the subject for several decades, has become involved vibrant academic dialogs, and has defended the classroom use of collaborative writing against criticism from the previous generation of writing professors.[1] Bruffee argued that collaborative writing and extensive peer work was reflective both of the business world and the academic fields in which students studied (Bruffee1984 643). Responses to his model collaborative learning have been, for the most part, extremely positive. Collaborative writings' effectiveness in the classroom has been repeatedly confirmed in what has become a large collaborative writing and collaborative learning discourse (Gebhardt1980 Bruffee1981 Gebhardt1981).

Bruffee's ideas stand upon a strong foundation of theoretical research into group work and collaboration. In their important book on group psychology, Barry E. Collins and Harold Guetzkow introduce a concept they call the "assemblage" effect, which describes the way that a group's final product is usually superior to that of even the best member's individual efforts. Karen Burke LeFevre, writing in 1987 argued convincingly that each aspect of the writing process—including invention, writing, and editing—are inherently social acts that benefit from and thrive in a collaborative environment (Lefevre1987). Collins, Guetzkow, LeFevre and other social psychologists use scientific research to give credibility to the power of collaborative writing that continues to be downplayed in the dominant literary environment. These researchers have demonstrated that collaborative writing could, at least in ways that can be tested empirically, produce *better* work and teach people quantitatively *more* than in situations where the same individuals write alone.

Read alone, the experiences of theorists like Bruffee and the research of Collins, Guetzkow and LeFevre form a strong argument in support of collaborative writing as a more effective

1. In most cases, early opponents were skeptical of Bruffee's claims of the effectiveness of collaborative writing. Many simply felt teaching a group could not endow skills in individual students and that it would allow more motivated students to compensate for those that were less ambitious. One critic was upset by what he felt was an allusion to collaborators in World War II describing Bruffee's vision of collaborative learning as on the path to, "totalitarian societies in which the individual is completely subjected to and subjugated by the will of the group" (Stewart1988).

mode of literary production: individuals produce better quality work, as evaluated along most sets of empirically evaluable criteria, by working with others. These theories have been affirmed in a number of empirical studies of collaborative learning and composition. John Clifford produced a study of college freshman that, using rigorous control groups, demonstrated that students who wrote collaboratively learned more from each other and, at the end of the study, had produced better work than students who had worked individually (Clifford1981). Another study by Collette Daiute confirmed the same phenomenon in fourth and fifth graders demonstrating that "students who collaborate made several types of significant improvements over students who wrote individually" and noted that work by groups of students was better than the best work of any single group member (Daiute1986 389).

In *Copyrights and Copywrongs*, Siva Vaidhyanathan relates the histories of literary, film, and musical copyright to emphasize how copyright is often ill-suited for the type of creativity at the root of American literary and screenplay writing and composing. He highlights the way that individualized authorship runs counter to the tradition of open sharing, borrowing and cross-pollination in American blues and the transgressive borrowing and sampling of modern rap music. He describes the way that even Mark Twain, who devoted much of his life to advocating stronger copyright law, borrowed and stole from African-American storytellers and the African-American storytelling tradition (Vaidhyanathan2001). Vaidhyanathan's historical analysis demonstrates that largely irrespective of authors' attitudes toward copyright, American literary history is a history of collaboration articulated as everything from editing to rampant and unabashed plagiarism. Vaidhyanathan's history of copyright shows a legal mechanism pushed in one direction by copyright holders trying to solidify control of their work in a way that legally undercuts the collaborative processes that made their work possible.

As a result, it is unsurprising that in the context of a long history and tradition of persistent and prevalent group work and its increasingly apparent effectiveness, collaborative writing remains prevalent. In a survey of six major professions, Lisa Ede and Andrea Lunsford found that eighty-seven percent of respondents wrote collaboratively in their work at least "sometimes" (Ede1985). In just the portion of the book dealing with non-academic settings, the editors of *Collaborative Writing: An Annotated Bibliography* list hundreds of articles establishing the prevalence of collaborative writing in corporate, industrial and academic reviewing, storyboarding, translation, usability testing and the production conference papers, documen-

tation, policies and procedures, proposals, and technical reports as well as more traditional forms of literature like novels, plays and poems (Speck1999). This bibliography reflects an explosion of academic literature around collaborative writing over the past three decades; it covers nearly 1,000 sources written during the seventies, eighties, and nineties. In turn, this discourse reflects the growing popularization of explicitly collaborative writing. It reflects a shift in attention toward collaboration rather than a change in the prevalence of collaborative writing itself. Since academic communities have developed a discourse around collaborative writing and have shifted their gaze away from individualized writing processes, collaborative writing's effects, importance, and ubiquitous nature are being recognized at an unprecedented degree.

The Idea of Control / The Control of Ideas

While increasingly apparent, collaboration and a free interchange of ideas remain extremely difficult. Constitutional law professor Lawrence Lessig has spent the last decade writing about the way that ideas are controlled. In his book *Code and Other Laws of Cyberspace*, Lessig builds on the technical and legal definitions of code in an attempt to collapse the distinction between the design and implementation of computer programs that facilitate communication—and as a result *define* it—and the regulatory role that law has traditionally played. He argues that computer code needs to be subject to the same kind of scrutiny, accessibility, and malleability that we demand of our laws. In his second book, *The Future of Ideas*, Lessig's discussion centers more around the idea "control" defined similarly.

By adding to Lessig's conception of "code" the regulatory role of social and socio-historic forces, this project advances a revised concept of "control" in an attempt to tie Lessig's discussion of code into a larger analysis of the way that we manipulate and control ideas and their expression in text. It attempts to use this analysis to gain insight into the nature of the effect of control on collaborative writing in a broad and interdisciplinary fashion. The analysis alludes to the interconnectedness and underlying similarities between significantly different and apparently disparate articulations of systemic control.

I use control to refer to the systematic limitation of the collaborative manipulation, use,

growth, development and distribution of text. Lessig presents the regulatory power of code and then warns his readers that in choosing code, we would best served by flexible and "open" systems. Like code, control is a tool but, unlike code, control can not be easily dismissed as *just* a tool. The term alludes to the fact that through our ideas, we too can be controlled; humans and societies are controlled, not coded. Control demonstrates how openness and flexibility are a step in the right direction but that they are only one step. As such, the limitations of systemic individualized control create a hostile environment for collaborative writing. For the purposes of my essay, I describe control as it is articulated in three interconnected ways: as conceptions of authorship, as technology, and as systems of law.

Control as Conceptions of Authorship

Social conceptions act as one piece in the production and articulation of control. The modern discourse around authorship began in 1969 when Michel Foucault asked, *What is an Author?* Foucault drew attention to a shift in the definition of an "author's" role that represented a "privileged moment of *individualization* in the history of ideas, knowledge, literature, philosophy, and the sciences" (Foucault2002). Scholars and theorists of various academic disciplines have spent the last thirty years responding to Foucault in what has grown into a vibrant intellectual discourse on authorship. While a clear picture is no closer than it was in 1969, much has been said about the fact that the importance, role, and definition of *authorship* has undergone major changes since the beginning of the eighteenth century.

One of the foremost participants in this discussion is Martha Woodmansee, who explains, in one of numerous essays she has written on the subject, that the notion that the author is the only participant in the production of a book worthy of attention and special rights—as opposed to just another craftsman—is rooted in the Romantic notion that significant writers, "break altogether with tradition to create something utterly new, unique—in a word, 'original'" (16). This highly individualized conception of authorship has, to one degree or another, dominated Western society's popular consciousness for the past three centuries and paved the way for copyright and a highly centralized publishing industry.

This popular belief in an author's primary, even exclusive, role in the creation of a text creates a social system that defines the way that texts are written, read, and understood. Through

its highly individualized slant, Romantic authorship limits collaborative writing in important ways. Groups of authors do not sit down to write novels in part because most authors believe that this is simply not the way that novels are written. By eliminating the desire, social acceptability, or social space for deviant methods of textual production, conceptions of authorship play a meaningful role in controlling the production of text.

Control as the Technology of Writing

In a different but highly interconnected manner, texts are controlled by their technological and material context. A popular example illustrating this point is the Hebrew Torah and the Christan Old Testament. While both books share the same words, they are read and understood in very different ways. This is in no small part due to the technology through which the words on the page are accessed. To this day, the Torah exists in temples and synagogues in scroll form. As a result, the congregation's relationship to the text is one that progresses linearly, or perhaps cyclically, over time. Christianity coincided in its early growth with the rise of the more familiar codex form—a form that the religion helped popularize. As a result, Christianity is rooted in a less linear and more "random-access" method of interaction with its own Holy Book. The result is two religions with radically different interactions and interpretations of the same text. While the material itself is only one factor in the parallel development of the religions, the effect of material forms should not be underrated.

Nowhere is textual materiality more evident than in the invention of the printing press in the fifteenth century. Gutenberg's invention of movable type represented a radical departure from existing systems of literary production and distribution. This played out both in the use and interpretation of existing work and in the creation of new texts. It is clear that people produced radically different documents in print than they did in scriptoriums. The triple-decker novel is impossible without printing just as pulp fiction is impossible without the cheap paper, cheap printing, and cheap and extensive distribution.

As computer technology appears poised to redefine literary production again, the technology itself is no longer "hardware" like printing presses and movable type but computer source code. As such, our ability to manipulate the terms on which we can communicate and collaborate, as long as we have access to source code, is instantaneously and almost infinitely flexible.

We can add a line here, subtract a line here, change a line here and we create a different system and a different environment to shape and control the creation, distribution, or manipulation of literature.

Control as Copyright

Mentioned previously, Lessig's concept of "code" compares computer software's malleability and its regulatory effects with law. By regulating in a similar fashion, technology and law control the production of text. Copyright, the primary legal mechanism regulating the production and distribution of written expression, can stand in for law in the following discussion discussions.[2]

The idea of authors, the technology of reading and writing, and the legal mechanism of copyright are heavily intertwined. The myth of Romantic creation provides the backbone and justification for current regimes of strong copyright. Intellectual property, articulated as parallel to other forms of property, must be owned by an individual.[3] The rise and evolution of copyright as we know it today can be read in relationship to the decline and devolution of collaborative models of authorship and technology facilitating a more interconnected, person-to-person mode of production and distribution.

Copyright's inception can be traced to the invention of the printing press, although its first articulation followed Gutenberg's invention by more than a century and a half. As technology is redefining literary distribution and eliminating the need for strong centralized distribution systems, society is faced with a discrepancy between the social systems of control that govern the way we feel about the creation and transmissions of text, the technological systems that defines the way that we create, give, get and borrow, and the legal system that define the ownership of these works.

2. Obscenity law, libel law, and to a lesser degree trademark, trade secret, and a handful of other special cases and exceptions each regulate what can and can not be written or published for particular reasons.
3. For the purposes of property, intellectual or otherwise, the individual need not be a person. Under most countries' laws, corporations act as individuals and hold similar rights. Like other forms of property, intellectual property can be transfered, or bought, from an individual by a corporation—although for the purposes of my argument, this distinction does not matter. Corporate authorship will be discussed in more detail later in Chapter 4.

Collaborative Literary Creation and Control

The following analysis is divided into three distinct pieces. The next section, Chapter 2, attempts to serve two important purposes. First, it offers what I call a *meta-history* of collaboration and control. The chapter begins with an introduction to the history of control as defined through social conceptions of authorship, changes in technology, and the closely related legal systems of intellectual property and copyright. Continuing in this context, the essay presents a broad history of collaborative writing. Through these parallel histories, the essay attempts to offer a glimpse into the troubled history and hostile relationship between the two. The chapter's "meta-history" lies in this intersection.

Second, the chapter attemps to provide a historical foundation and context for the two following chapters. Through this historical approach, it aims to provide historical context on the way control is articulated through popular conceptions of authorship, technology, and law. Through its survey of a diverse range of examples over a long period of time, the essay demonstrates the persistence and power of collaborative work before, during, and after the rise of powerful systems of control that include Romantic authorship, centralized publishing and copyright. This *meta-history* is one of conflict. The essay aims to help define control as a force that creates environments hostile to meaningful and flourishing collaborative writing.

Chapter 3 attempts to employ the concept of control in the development of a methodology for evaluating different computer-supported collaborative writing (CSCW) technologies. By focusing on the way that technical design choices are reflected in the creation of environments facilitating particular types of control, the essay presents a description of important points of consideration in the evaluation of collaborative writing software, a description of the way that control is articulated at each of these points, and suggestions for an environment promoting more "meaningful" collaboration. The paper demonstrates the usefulness of this methodology through application in a handful of case studies. In the context of the larger project, Chapter 3 uses an analysis of computer code to both gain insight into the concept of control and to apply it to the evaluation of computer software. The methodology for this evaluation outlined in the chapter has already been put into active use by one company researching, writing, and supportive collaborative and participatory computer technologies.

Relying heavily on the foundational work in the previous chapters, Chapter 4 levels a cri-

tique at contemporary copyright. The chapter introduces a snapshot of contemporary copyright and describes the way that copyright, as a system of highly individualized control, is poorly suited to the promotion of collaborative work.

Chapter 3 and Chapter 4 are designed to be largely self contained and serve similar purposes within the larger piece. Building upon the introduction of concepts in this chapter, and the contextualization of these concepts in Chapter 2, the final chapters aim to take the idea of control presented in the introductory pieces and apply it toward in fully articulated critiques of existing and important examples of systemic control.

Chapter 2. A Meta-History of Collaborative Literature and Control

Introduction

A well-known English professor once asked me if I honestly believed that a committee could write a great book. My answer to his question is a resounding "yes." Many, perhaps *most*, of the greatest works of literature, across time, across culture, and across language, are explicitly attributed to groups. As collaborative writing has gained scholarly attention in the last thirty years, many texts long-considered to be the product of single authorship have been revealed to be the product of collaborations.

In fact, my research into collaborative writing has demonstrated that collaboration is so persistent, so important, and so dynamic that this professor's question prompts several questions in response. How can prominent academics overlook collaborative literature in such a blatant manner? As the academic world founds itself on a tradition of synthesis, knowledge sharing, peer review, and editing, what set of political, social, and philosophical structures makes overlooking the importance of group work so easy? What is so important to and so intertwined with our fundamental understanding of creativity that it convinces even the most astute literary scholars to deprecate, discredit, and ignore one of the most historically effective methods of literary creation?

My answer to these questions, discussed in some detail in Chapter 1, is the intertwined group of sociological, technical, and legal concepts I call control. Control systems including social conceptions of authorship, technological methods of distribution, and codes of law, are fluid and dynamic entities. As control grows, as I will argue it has, it creates an environment hostile to collaborative writing. As this environment takes hold, collaborative writing is practiced less, ignored more, and driven underground until it effectively disappears.

In the case of this scholar's question, this process is made abundantly clear. In posing his question, he easily ignored the fact that, to one degree or another, almost every major novel, play, or large-scale poem written before the end of the Renaissance is the product of multiple

hands. The little scholars know about literature from the millennia before the Renaissance tells us that early texts were the projects of communities, not individuals. We know that these ideas and texts were the property (if the term is even applicable) of God or mankind; they formed a sort of intellectual commons in which all new knowledge was based and into which all knowledge flowed (Bollier2002).[1]

These striking examples are possible to ignore because, during the eighteenth and nineteenth centuries, this community-based concept of authorship and the mechanisms for literary ownership, production, and control were overhauled. At that transitional point, massive shifts in the way literature was produced and distributed took hold. At that transitional point, legal changes saw literature become the property of individuals. It is at that moment, and others like it, that the following history is centered. Through major transitions in the nature of the mechanisms of control, collaborative writing has evolved and persisted.

This essay will present a historical overview of the way that control is defined. Its emphasis will be on the way that conceptions of authorship are articulated. "Authorship" is a complex and dynamic concept. As a result, this essay will consider copyright as partially reflective of attitudes toward authorship. Additionally, this relationship acts as an example of the interconnected nature of control systems as I have defined them.

With this contextual backdrop, the essay will examine a handful of particularly well documented historical examples of collaborative writing as representative of trends in the constantly evolving nature of collaborative writing. For most literary works—especially older texts—drafts, manuscripts and journals documenting the nature of collaboration are unavailable. With a lack of documentation to refute the claim, modern scholars assume singular authorship. Hopefully, my argument, supported by others who have influenced and inspired it, will help shed doubt on the wisdom of this assumption.

1. I'm using the term *texts* in this context very loosely. I am implicitly including oral forms of "literature" like Homer's epic poetry—itself the product of multiple authorship. Walter Ong is the author of several books and articles on the subject of oral transmission, the resulting textual changes, and nature of collaboration on oral "texts." Ong's *Orality and Literacy* is a good introduction to the seemingly contradictory concept of "oral literature."

Brief History of Authorship

Before the rise and eventual dominance of the Romantic notion of authorship, new writing gained value from its creative affiliation with existing works, or what Martha Woodmansee describes as "its derivation rather than its deviation from prior texts" (Woodmansee1994 17). Before this important shift, the authorial role was often compared to that of a commentator, compiler, or transcriber. Contextualized in such a way, it is unsurprising that authors' actions in this period were intensely collaborative.

Prompted by shifts in the nature of book production and distribution ushered in by the printing revolution, authors began to take a more central role in the production of texts. Especially prompted by the rise of copyright in Britain in 1709, the eighteenth century introduced a new concept of individualized authorship based on the idea of a creative genius working alone. This idea—one at odds with collaborative, collective, or corporate creation—has remained widely influential despite powerful arguments made by theorists like Foucault and Woodmansee and a growing body of evidence that collaborative and collective creation is more effective than individual work. Peter Jaszi and a growing numbers of legal and literary theorists argue that it is copyright, a system designed to allow economic and political control of literary knowledge and expression, that has enshrined Romantic creativity in ways that have been difficult to challenge.

Brief History of Printing Technology

As a major factor behind authorship and copyright, social systems for literary production went from dynamic and ad-hoc collaborations among elite and highly interconnected literary circles to highly centralized systems similar to the contemporary publishing industry. Before Gutenberg's invention of movable type, books were written, by hand, by individuals or in scriptorium. Books, which were extremely valuable, were made of high quality materials like velum, and were passed between owners over generations. Often, each owner or reader of a book would make marginal annotations. One medieval form, the gloss, consisted largely of blank space to facilitate the addition of marginalia by readers. As books were copied by hand, changes and corrections were made; histories were extended to include more recent

events. Books were designed, written, caligraphed, rubricated, illustrated, illuminated, bound, and decorated by large groups of individuals. Every book was a collaboration and no two books were alike.

The invention of printing revolutionized this system. While Gutenberg conceived as his invention as an "automated scriptorium," its use as something much more became quickly apparent. Not only were more copies produced, but different types of books as well. As one book was produced for many, the personalized nature of literature shrank. As publishing became industrialized, new technologies prompted new economic models which in turn had effects on the types of texts printed.

Brief History of Copyright

Technological changes played an imporant role in shifts in the social context of literary production and were reflected in legal shifts toward systems of centralized control through publishing laws that culminated in the creation of the Stationers company and ultimately in the articulation of copyright in the Statute of Anne. Radical technological and social shifts were intimately connected with the creation of radically different methods for the control of literature.

These systems of copyright replaced a tradition of "privilege" where monarchs would grant exclusive monopoly rights for the production of a particular text to a particular printer—usually without consultation of the text's author or authors. In England, this widespread practice eventually led to the creation of the Stationers' Company, a coalition of English printers that was granted—through an interesting combination of royal privilege and censorship policy—a monopoly on all printed material in England in return for an agreement to not print seditious or heretical material. While antecedent to copyright, the system was fundamentally different; while individual printers were granted exclusive rights, authors were neither mentioned nor consulted.

An important legal shift came in 1710 when this system was replaced with the "Act for the Encouragement of Learning and the Securing the Property of Copies of Books to the Rightful Owners Thereof," commonly referred to as the "1710 Copyright Act" or the "Statute of Queen

Anne." The statute provided *authors* with exclusive rights to their works for fourteen years, extensible by another fourteen years if the author was still alive and cared to renew. In reality, and by design, authors' rights were immediately transfered to publishers—the legislation was lobbied for and supported by publishers alone. In the famous *Donaldson v. Beckett* (1774) court case, the law recognized authors' *natural* copyright as common law but decided that the 1710 Copyright Act supplanted this right with a statutory one.[2]

This legal shift paved the way for changing conceptions of authorship. As time went on, authors, perhaps most notably William Wordsworth (whom I will examine in more detail later in this essay) argued for this "natural" right to their artistic productions by connecting the model of Romantic creativity (dependent on the "introduction of a new element into the intellectual universe") to their desire to have more control over the use of their ideas (Zall1966 182, Woodmansee1984 427, Jaszi1994 35). Wordsworth went so far as to argue before Parliament for the institution of these rights. While the legislation in question was never passed, he successfully popularized his conception of authorship, the eventual dominance of which led to a major shift in popular conceptions.

In a causal reversal, this Romantic concept of authorship with its roots in the publishing industry's concept of copyright began to shape copyright itself. In this way, the Romantic conception of authorship enshrined the concept of individual creation in ways that, in the best situations, decreases the importance of collaborative work, and, in the worst, sits squarely at odds with its widespread application.

Early Models of Collaboration Before the Eighteenth Century

Before the shift that Foucault refers to as the "individualization" of authorship, explicit and deep collaboration was the dominant method of literary production. Martha Woodmansee describes the role of the author before the dominance of Romantic authorship as not dissimilar

2. An author's "natural" rights to their works are those that cannot be sold or transfered. The doctrine of natural rights claims that these rights connect an author to their work and *cannot* be taken away. While natural copyright plays a role in many European copyright traditions, most notably France, the rights are non-existent in United States copyright policy.

to other types of literary creators like scribes, compilers, or commentators. Woodmansee references a definition by the thirteenth century St. Bonaventure who describes an author as one who "wrote both with his own work and others' but with his own work in the principle place adding others' for purposes of confirmation" (Woodmansee1994 17). This thirteenth-century definition of authorship places literary creation squarely within the context of collaboration.

In another article, Woodmansee explores Europe's pre-copyright methods of compensation for artistic work. Prefacing the discussion, she notes that the concept of the professional writer is a relatively recent innovation. Before this period, writing was completed largely as a part-time occupation (Woodmansee1984 431). Most early professional writers were supported by honorarium, or a payment to an author to produce works that was given either by printers or by a king or noble. In this way, the honorarium acted as the backbone for systems of patronage. An honorarium was a mark of esteem and a method for a printer or sovereign who appreciated or benefited from the works to ensure the continued work of the author. It was not payment in exchange for exclusive transfer of work. In fact, an honorarium bore no fixed relation to exchange value or an acknowledgment of the writer's achievements. It was usually a fixed sum that did not fluctuate with the publication of new works (Woodmansee1984 434-5).

Through creation by non-professional writers and through the support of authors through honoraria, the constant production of new work was insured without the need for system of intellectual property or ownership. This arrangement was essential as the dominant models of literary creation were fundamentally intertwined with borrowing and collaboration in ways that a system of control, ownership and propriety complicates and hinders.

Imperial Chinese Literature

One example of this model is described in *To Steal a Book is an Elegant Offense*. The author, William P. Alford, attempts to explain why China had no laws resembling Western intellectual property or copyright until the twentieth century. Alford argues that the Chinese refused to adopt intellectual property policies because they were fundamentally incompatible with Chinese literature's basis in a creative process that elevated and necessitated borrowing, synthesis, and quotation—in a word: collaboration.

It is clear that the production of knowledge and literature in Imperial China was shaped

by an intimate engagement with the work of others—especially one's predecessors. Drawing from the work of the noted Chinese literary scholar Stephen Owen, Alford makes generalizations about Imperial Chinese literature, describing how in order to "avail themselves of understanding in order to guide their own behavior, subsequent [Chinese] generations had to interact with the past in a sufficiently thorough manner so as to be able to transmit it" (Alford1995 25). Owen compares the importance of this connection to the past in Chinese literature to the attention to meaning or truth in the Western literary tradition—perhaps Western literature's most important goal (Alford1995 26).

In arguing this point, Alford quotes passages from influential Chinese thinkers spanning several centuries. A passage in the *Analects of Confucius* states: "The Master [Confucius] said: I transmit rather than create; I believe in and love the Ancients" (bk 7, ch.1). More than a millennium later, As Wu Li (1631-1718) claimed that, "to paint without taking the Sung and Yuan masters as one's basis is like playing chess on an empty chessboard, without pieces" (Alford1995 28). Separated by epochs, both thinkers decry the idea of solitary artistic creation. To each, the organization and creation of new knowledge, literary or otherwise, must reach outward rather than inward.

Alford's examples are intriguing because they are employed not in the context of a discussion of Chinese literature but a discussion of intellectual property and control. Alford argues that Imperial Chinese literature was rooted in a conception of authorship that identified the author as a craftsman and a historian. Authors assembled and connected existing pieces of literature in the creation of new works; no good author, even one secluded in the woods, works alone. Consequently, originality was defined not in the context of a lack of influence but from a context of a rich meaningful interaction with existing knowledge. In the absence of a meaningful collaborative literary process—with authors both living and dead—Chinese authors were doomed to inefficacy and unoriginality. This attitude toward literature is summed up with Isaac Newton's famous phrase, "If I see further, it is because I stand on the shoulders of giants."

Alford's conclusion is that without free and unhindered ability to access and change the works of others, especially one's predecessors, this collaborative model of literary creation is impossible. As a result, the popular Imperial Chinese conception of authorship was incompatible with Western systems of control based on copyright and Romantic authorship. The

relatively recent institution of copyright in China gives us a unique opportunity to explore collaborative artistic creation in the recent past and gain insight into the European history of creative models before the widespread adoption of modern systems of control. In simple terms, the Chinese experience demonstrates a model not dissimilar to one that Europeans enjoyed before the widespread adoption of copyright.

The Talmud

To western readers, a more familiar example of a collaboratively created text from antiquity is the Jewish Talmud. In its simplest form, the Talmud is a compilation of ancient Jewish law and lore created by large groups of Palestinian and Babylonian rabbis between the late first and seventh centuries A.D. As such, the text's relevance in the context of a discussion of collaborative creation and control needs no further justification. Still, the Talmud is particularly interesting because, as an important religious text, it's history is extremely well researched. However, unlike most other Holy texts, the collaborative nature of its creation is not downplayed in this research but is highlighted as essential to its form and function.

Pages of the Talmud, called folios, are separated into blocks and pieces. Many folios include the *Mishna*, or bits of traditional law, transmitted and altered orally for centuries until they was transcribed (into numerous differing copies) at some point before the middle of the sixth century (Strack1972 20). Flanking the Mishna on each folio are other texts, the majority of which constitute commentary and criticism. While much of the commentary is on the Mishna, a large portion of the Talmud is commentary on the commentaries.

Detailing the nature of the collaborative process that produced the Talmud is a tedious and confusing process attempted over centuries by historians and Talmudic scholars. Recently, these have included Hermann L. Strack, who published an English-language *Introduction to the Talmud and Midrash*. His books explain that it is clear that the creation of the Talmud spanned centuries, perhaps millennia, and in its current form represents the intellectual work of hundreds, perhaps thousands, of rabbis, thinkers, and jurists.

As such, the Talmud, cultivated and created over centuries, is not the product of a single collaborative model. Until relatively recently, the Talmud was not even a single text. Strack

argues that there was never a uniform text and that differences persisted and multiplied as the Talmud was rarely read or copied but more commonly recited from memory (Strack1972 77). Much of Strack's early history is concerned with tracing the oral transmission and growth of the law that eventually became the basis for the Talmud—a process that was inherently collaborative (Strack1972 8-25). The Talmudic model is one where, as is still the case today, criticism and commentary of the existing text is encouraged. However, unlike contemporary literary models, the best criticism was incorporated into the text itself. Although its form has now been frozen, the Talmud was designed to be a dynamic document—a written conversation over centuries.

The basis of the Talmud is law that belonged to all Jewish people. This law was based on concepts that were borrowed from other groups and cultures. While scholars have attempted to pin authorship for pieces of the Mishna on individual rabbis, they do not deny that it is the articulation of centuries of communal Jewish knowledge. It was able to grow and change with time (either intentionally or unintentionally through errors in memory) *because it belonged to all Jews*. As rabbis and thinkers wrote commentaries on the text and on commentaries of their predecessors' commentaries, they freely pulled from and added to the existing text. While, as in any discussion, clear attribution played an important role, control and ownership did not. The existence of divergent texts demonstrates that, over time, the book's audience felt free to modify the text to make it more effective and relevant.

In this way, the Talmud represents the early literary model of a text as a conversation. [3] In the case of the Talmud, this concept has persisted, to some degree, up until today. In his *Invitation to the Talmud*, Jacob Neusner repeatedly describes the Talmud as a discussion and invites his readers to join in the collaborative process by reading, unraveling, reshaping, revising, improving, recontextualizing, and then applying the concepts in the Talmud in their own lives (Neusner1973 26). He connects this invitation to conversation with the fact that "every Talmudic tractate ... begins on page 2; there are no page 1's because there is no beginning" (Neusner1973 29). With its conversational quality and with no beginning and (one must assume) no end, the Talmud exists as a text that is designed to be the product and material for a continuing collaborative process that ensures its continued organic growth.

3. Other examples of this model include the *Glossa Ordinaria* and the popular medieval genre of "annotations."

While tradition, and perhaps changing conceptions of authorship, have frozen the text of the Talmud in its current state, its organic existence continues. Neusner's own book reproduces pages of the Talmud and engages in commentary and explication—it produces a new work with the existing texts and commentaries as its core. Unfortunately, bound by copyright and a strong system of control, Neusner's own work does not facilitate the same type of intra-textual criticism and commentary that it is based on.

The King James Version of the English Bible

While both Imperial Chinese literature and the Talmudic tradition ground themselves on collaborative processes modeled after a conversation between new and existing texts, these are hardly the only models of pre-copyright collaborative literature. Other models include texts that were explicitly designed to be "created by committee." Foremost among these examples is the King James Version of the English Bible (KJV). As such, if I had to highlight a single text in my response to the English professor mentioned in the introduction, it would be KJV.

The King James Version is a vernacular translation of the Bible, a book which is, humanly speaking, is a text of multiple and composite authorship on an unprecedented scale. The books of the Old and New Testaments are explicitly attributed to over forty men from a diverse range of backgrounds—from kings to laborers—writing from between 1500 B.C.E. through 97 C.E.[4] After only a glimpse of the collaborative processes behind the work, it comes as little surprise that many Christians refer to the product and process as a miraculous example of God's hand at work.

Given this rich collaborative foundation, it should come as little surprise that collaborative efforts have been employed in the most revered translations as well. This is evident in the paradigmatic case of the King James Version of the English Bible: the most popular Bible translation and, by many estimates, the single most influential text in the English literary canon. The

4. Ongoing scholarship suggests that many of these men, including Moses perhaps, may themselves be composites; it implies the hands of uncountable unattributed authors and unattributable traditional sources, lore, and legend. Of course, this is in addition to the role played by scholars acting as "editors" including the Septuagint (itself made up of 70 collaborators), Origen, Jerome, Eusebius and Augustine. Each helped give the text form by comparing and consolidating divergent copies in attempts to assemble a "true" version (Gaebelien1924 18). They represent a series of collaborative processes that lead up to the final text.

collaborative process responsible for the KJV was already centuries underway when the translation was commanded by King James at the Hampton Court Conference in 1604.[5] At the end of a century that gave birth to six separate English Bible translations, King James, prompted by Dr. John Rainolds (also spelled Reynolds), President of Corpus Christi College, Oxford, set the wheels in motion for the creation of yet another translation (Daiches 65). Several months later, King James informed English bishops that he had appointed "four and fifty men," (of whom we know the names of only forty-seven), and had called for suggestions, clarifications, or specific insight on Biblical passages from "learned men" anywhere in England.

The committee assembled was "catholic and intelligent on the whole, including most of the ablest men available, whether High Church or Puritan" (Daiches 67). This ideologically diverse group was divided into six sub-groups which met at Westminster, Oxford, and Cambridge. Each location housed a group translating the Old and New Testaments. The scholar translated the text individually and in small groups. Groups came to consensus on a rendering that was then forwarded to a final committee of revisers. This final committee referred to works in Greek, Latin, Hebrew, French, Spanish, Italian and other languages making use "of ancient and modern translations . . . and consulting the old manuscripts that were available" to arrive the most informed decision possible (Gaebelien1924 67-69).

The results of this process of creation by committee, while not an overnight success, were nothing short of astounding. Frank Gaebelein describes KJV as "the crown of our literature," and argues that the translation offers "one of those rare cases where superlatives are not only justified but demanded" (Gaebelien1924 22, 72). He goes on to describe it as "immortal poetry, enduring in beauty because it reflects so truly the inspired original" (Gaebelien1924 75). KJV is and continues to be the highest selling Bible translation worldwide.

KJV succeeded where Wycliffe's, Tyndale's, Bishops', and Matthew's Bibles failed because it employed more translators, more scholars, and more input from the greater educated community; its success was insured by its unprecedented collaborative creative process. Its position has only been challenged by translations that both incorporate the work of previous

5. KJV is derived from the Geneva Bible (1560) and the Bishops Bible (1568) which in turn had The Great Bible (1539) and Matthews Bible (1537) as antecedents. Work antecedent to these includes translations by John Wycliffe and William Tyndale. The translations by both Wycliffe and Tyndale were themselves collaborative processes: Wycliffe's work was finished by collaborators after he was martyred and Tyndale's work assisted and eventually completed by John Rogus, Miles Coverdale and others. Pieces of KJV can be positively traced to the very first manuscript translations of the Bible into English.

translators (including the KJV committee) and the work of large numbers of contemporary scholars.

The scholars producing KJV were funded through the system of honorarium mentioned previously. They borrowed at will from existing Bible translations and from their peers. The product of their work was the property of the entire community—neither they nor anyone else owned the translation. [6] KJV succeeded where singularly (or simply less collaboratively) authored translations failed because it was the product and process of intense collaboration. The freedom to collaborate not only ensured the persistant popularity of KJV over almost four centuries, but provided the foundation for several derivative translations including the popular Revised Version and the American Standard Version (ASV).

Conclusions about Pre-Copyright Authorship and Collaboration

KJV, the Talmud, and Imperial Chinese literature serve as impressive examples of the power of early collaborative processes. It is clear that the production of all three would be impossible by any individual. However, they are also symbols of the power of the unhindered access to information, knowledge, and existing works that facilitated their collaborative creation. Collaboration on the scale necessary to assemble the Talmud or KJV *must* be executed in an environment where the type of widespread borrowing and textual synthesis employed in the creation these texts is possible and even encouraged. Copyright and systemic control are fundamentally at odds with the type of freedoms necessary to produce such works.

Collaboration During the Birth and Early Life of Copyright

As I mentioned in my introduction, the Statute of Anne in 1710 did not mark an instan-

6. While the King could control the printing of work by granting royal *privileges* to individual printers, even he was not the *owner* of any text.

taneous shift in attitudes toward authorship and artistic creation. At its birth, copyright was lobbied for and designed to benefit publishers alone. For at least the first century of its institution, authors continued to write in the ways they had before. They borrowed as they had before; they collaborated as they had before; they plagiarized as they had before. Collaboration in the forms popularized before the institution of copyright remained popular.

However, by selling the rights to their ideas, authors were presented with a new system of compensation for their work: a way to "live by their pen." They realized that by solidifying their access to these rights, they might insure their ability to make a living. This coincided, and was intimately connected, with the explosive growth of the publishing industry in Europe. Authors felt they needed to insure compensation for their intellectual productions and saw their copyright, described in the Statute of Anne and similar acts in other countries, as an available method for achieving this goal.

To emphasize the importance of copyright—which was initially created in the service of publishers—authors, led by Romantic poets in the eighteenth and nineteenth centuries, introduced a new conception of authorship. These authors must have been aware that the collaborative nature of their literary production sat in direct opposition to calls for the institutionalization of control systems justified by conceptions of Romantic authorship. Perhaps authorship was defined in terms relative to the previous system of unhindered borrowing and collaboration. In any case, these authors seemed comfortable with the hypocrisy of their position.

John Keats

Keats was one such poet who espoused a Romantic conception of authorship while employing collaborative practices in the creation of his poems. Keats explicitly placed his poetry within a larger social context of its creation, revision, reception and influence. During the eighteenth and nineteenth centuries, the mechanisms for collaborative writing took explicit form in the creation of coterie groups of authors that acted as forums for idea interchange, discussion, manuscript circulation, critique and small-scale publishing.[7]

7. Deciding what level and type of interaction defines a "group" and the level and type of affiliation that inclusion implies is an important job but not one that I will attempt in this essay. In his introduction to the *Poetry and Politics in the Cockney School*, Jeffrey N. Cox discusses and defines groups and then argues that the Cockney School does indeed qualify as such an organization of writers.

Steeped in this culture of collaboration, Keats himself was influential in the creation, promotion, and continuation of several such groups. The most famous, and consequently most well documented, is the now famous "Cockney School" that included, at different times in its life, the company of Shelly, Byron, Keats, Hunt, Reynolds, Smith and Hazlitt. Through their letters and correspondence, it is clear that each of these poets turned to associations and interactions within the group as a means of cultural production (Cox1998 4). While the nature of the association was unstated, unclear, and inconsistent—some shared, borrowed, or took advantage of the association more than others—we know that this group of artists, writers, and intellectuals conceived of itself as a coherent circle, "something between a manuscript coterie circle . . . and [a] kind of self-consciously avant-grade movement" (Cox1998 20-21).

We also know that Leigh Hunt provided the nexus around which the group was organized. Hunt published several journals, most notable of which was *The Examiner*, organized coterie meetings, played host to poets, artists and intellectuals and ran his much maligned sonnet contests to encourage the creation and critique of new works. In each of these ways, Hunt provided a public space for the discussion and exchange of idea necessary for his ideal literary process, one that took part in a social sphere (Cox1998 7). The group's collective work included the production of commonplace books, collaborative projects, and "contest" poems as well as major individually attributed efforts which were executed in the context, and with the assistance, of the members of the group through a system of manuscript circulation and revision.[8]

The influence of members of this group on each other is described in detail by Jeffrey N. Cox in *Poetry and Politics in the Cockney School* in a thorough analysis of themes, images, characters and plots shared between members of the group and through explicit affiliation in dedications and inter-textual references. For example, Cox describes connections from every poem in Keats' 1817 *Poems* to at least one other member of the group. He draws parallels along ideas that occurred in different members poems, especially political ones, and employs evidence of political, economic, and literary support between group members (Cox1998 84).

While Cox's book acts as an analysis of the collaborative relationships that gave birth to the

8. Commonplace books were books in which records were made of things to be remembered and which formed an extremely popular, if personal, genre during the Renaissance and the following centuries. When a reader discovered a passage or poem that they found particularly appealing, they would transcribe it into their commonplace book. These books represented an important mechanism and document of the type of influence, information exchange, and collaboration in the period.

ideas and themes behind Keats' poetry, Jack Stillinger, in *Multiple Authorship and the Myth of Solitary Genius*, explores the nature of the collaborative system of revision and production at play in the stylistic creation and evolution of Keats' *Sonnet to Sleep* and *Isabella*. In both cases, Keats' friends and publishers were instrumental in the creation of the finished product (Stillinger1991 17-21, 29-45). *Isabella*, with a nearly exhaustive set of revisions available to historians, provides a particularly useful example of the collaborative processes at work in Keats' poetry.

Isabella was written and then revised once by Keats with the input from friends and colleagues including J. H. Reynolds. It was then passed to Richard Woodhouse who originally copied the poem into shorthand before re-expanding it and introducing several changes in wording and punctuation in the process. Woodhouse subsequently revised it twice. Woodhouse's second version served as the printer's copy when the poem was first published (Stillinger1991 26-29). Handwriting from the poem's printer, John Taylor, is also visible in the final manuscript version (Stillinger1991 29). Keats' collaborators made additions, deletions, rewordings and wholesale rewritings while prompting Keats to make other revisions on his own (Stillinger1991 34). These revisions were often made independently—and perhaps divergently—of Keats' surmisable intentions (Stillinger1991 39). Other alterations appear to have been made by Keats, Woodhouse, and Taylor working together (Stillinger1991 44). The contributions were so substantial and the contributors so passionate and involved that Stillinger claims the collaborators demonstrated a proprietary interest in the work.

Stillinger notes that while none of Keats' collaborators' changes deal with theme, character, or plot, it is the stylist nature of the poetry they focused on that makes up the acknowledged, "Keatsian" qualities of the work (Stillinger1991 30). Cox argue that Keats' association with the Cockney School reveal that the theme, character, plot and messages of Keats poem are also rooted in collaborative associations. If readers are to believe both Cox and Stillinger, as I believe is warranted, we must approach Keats as having communicated collaboratively conceived messages and themes through collaborative mechanisms.

This is a far cry from the ideal of Romantic authorship usually attributed to Keats and his contemporaries. Many Romantic scholars have attempted to downplay both the importance of the coterie process and the role of the collaborative revisions. In some cases, they've gone

so far as to blame Keats' early or weaker poetry on collective processes while elevating his later work as the product of his unrestrained Romantic individualism (Cox1998 13). In reality, Keats' collaborative relationships played such an essential role throughout his creative life, that he returned to live with Hunt, his primary collaborator, during his final illness (Cox1998 84).

As Keats penned his poems, copyright had already begun to enshrine the concept of Romantic authorship. As a result, Keats, while he worked in massively collaborative processes, took sole responsibility for the texts. At the time, his close literary associations and his collaborative relationships with friends and publishers were unstated because they were assumed; there was an acknowledged discrepancy between the way authors created and the way they drafted their bylines. Authors saw nothing wrong with gaining compensation through false or exaggerated claims of individual authorship; that was simply how things were done. However, this unwritten information has been lost with time or simply ignored by critics and scholars. It is only through recent historical work by researchers like Cox and Stillinger that the collaborative nature of Keats work has been revealed.

As a result of this type of research, Keats' widespread collaboration becomes evident. It is also clear that the collaborative processes were facilitated through Keats' lack of control over the poems. While Keats had a limited copyright to this work, he showed little interest in and demonstrated little control over texts themselves. He "almost certainly" did *not* read the final printers proofs—with full knowledge that his printer made editorial and stylist changes. This attitude, unsurprising in a literary culture steeped in collaboration, allowed Keats' collaborators unhindered access to the poetry and cultivated the culture of collaboration and critique that made the type of cooperation possible that helped Keats create to his best ability—one greater than Keats working alone.

Samuel Taylor Coleridge and William Wordsworth

This culture of cooperation is mirrored in the literary lives of Samuel Taylor Coleridge and William Wordsworth a generation before. Like Keats, the pair produced many of their literary works through intensely collaborative methods. Also like Keats, criticism steeped in the ideology of Romantic authorship has attempted to dismiss the importance of collaboration in their work. Unlike Keats, Wordsworth and Coleridge played a huge role in the Romanticiza-

tion of their poetry and processes. Wordsworth promoted the ideal of Romantic authorship emphatically and is largely responsible for the Romantic lens through which critics now view his work.

That said, *Lyrical Ballads*, with poems by Wordsworth and Coleridge, is probably the most famous coauthored book in the English language. The idea of collaboration by Wordsworth, generally viewed to be one of the most original English authors and often credited with the success and dominance of Romanticism, is difficult for some critics to understand (Stillinger1991 96). In fact, they are not alone: Wordsworth himself seemed to have difficulty reconciling his own coauthorship as the book was first published anonymously in 1798 with more than ten references to a *single* author in the books advertisement. In the three subsequent editions, the byline remained singular and, when it finally mentioned "the assistance of a friend," it did so without mentioning Coleridge's name. Coleridge's name was not connected to *Lyrical Ballads*'s first poem, his own *The Rime of the Ancient Mariner*, until almost two decades later when it was published in a separate collection (Stillinger1991 70).

While Coleridge wrote *The Rime of the Ancient Mariner*, the story was developed by Wordsworth and Coleridge collaboratively with Wordsworth providing a rough version of a themes and some major plot elements. In a similar way, Coleridge claimed credit for half the preface to *Lyrical Ballads* (Stillinger1991 71). Additional collaborators on the book included Thomas De Quincy and Humphrey Davy, a friend of Coleridge, who each made significant contributions to the work in the role of editors while Wordsworth's willing amanuenses probably played no insignificant role in the shaping of the text (Stillinger1991 71). This of course, does not begin to discuss the literary influences on Coleridge and Wordsworth, particularly Milton, or the role these influences played in shaping, inspiring, or directing the text. One additional, and additionally interesting, source of inspiration for Wordsworth was Dorothy Wordsworth's journals. Her Alfoxden Journal of 1709 and the Grasmere Journals of 1800 and 1802 contain passages that many critics believe Wordsworth employed as the basis for all or parts of *Beggars*, *Resolution and Independence*, *I wandered lonely as a cloud*, and a number of other poems and passages (Stillinger1991 72). All of these pieces were appropriated and published without acknowledgment.

Coleridge, for his part, was famous, perhaps infamous, for his borrowings from other au-

thors. Convincing arguments have been made that Coleridge's *Frost and Midnight* attempts to mimic, either for reproductive, synthetic, or critical purposes, a poem from William Cowper's *The Task* (Stillinger1991 101-103). More interestingly, and problematically for Coleridge's scholars and defenders, are Coleridge's unacknowledged borrowings, often in the form word-for-word translations or direct paraphrases, of large sections of writings by German philosophers, most notably Schelling, in Coleridge's *Biographia Literaria*. Surveys of the *Biographia* and antecedent literature have shown that up to twenty-five percent of the text is lifted, to one degree or another, without attribution from German sources; the figure reaches as high as thirty to forty percent in several chapters (Stillinger1991 104).

While Coleridge was attacked for his plagiarisms by his friends and during his lifetime, his supporters, like G. N. G. Orsinis, have defended Coleridge with the justification that "a genius can be creative even when he is borrowing" (Stillinger1991 105, 107). While this exposition of collaboration is in complete agreement, their argument is, after all, one that much of *this* essay echos and affirms, the defense is uncharacteristic, perhaps even *incompatible*, with the Romantic notions of authorship that both Coleridge and his defenders embrace and espouse.

However awkward, Coleridge's plagiarism seems somehow congruous with his famous, and famously hidden, collaboration with Wordsworth on *Lyrical Ballads*. Historical research has established that the decision to attribute *Lyrical Ballads* to a single anonymous author, and then to withhold acknowledgment of Coleridge's contributions for three subsequent editions, was a decision to which both of the books authors agreed (Stillinger1991 70). Both authors realized that the need to claim copyright and gain compensation was simplified and strengthened by exaggerated or falsified claims of singular authorship. As much as Wordsworth espoused his ideal of a Romantic genius, perched alone in the wilderness, drawing all creative inspiration from within, it was not a description of a method of creative production that even he employed consistently.

Reconciling the conflict between the Romantics' professed ideologies and their actions can be difficult. By speaking in Parliament for the creation of authors' natural rights, Wordsworth was attempting to manipulate the connection between Romantic authorship and legal mechanisms of textual control and ownership; Romantic authorship was, from its birth, intertwined with the politics of copyright. But there remains a deep irony in that the processes that allowed

Wordsworth and Coleridge to demonstrate their greatest achievements as creative or artistic geniuses, easily the strongest evidence for their claims, were collaborative. By dropping Coleridge from the byline of *Lyrical Ballads*, by failing to acknowledge Dorothy Wordsworth's contributions, and by omitting reference to Scheller's role in *Biographia Libraria*, Coleridge and Wordsworth make the shortcomings of a system based on their concept of authorship and strong individual control abundantly clear. Modern readers must assume that, raised in a literary culture of assimilation, borrowing and critique, the Romantics considered this attitude a necessary and acceptable hypocrisy for those aiming to "live by their pen."

During the Shift Conclusion

These problems of attribution are representative of the first century of copyright and the first awkward legal steps into the discourse of Romantic authorship. They provide a window to the types of contradictions and clashes between persistent collaboration, Romantic authorship, and systems of ownership. Over time, the popularization of Wordsworth's ideal authorship has strengthened and reinforced copyright to the detriment of collaboration. Contemporary authors must conceive of themselves in Wordsworth's terms but cannot collaborate in the same unapologetic fashion in the context of more rigid technological, social, and legal systems of control. As the publishing industry has been reshaped by these powerful and lucrative systems of control reinforced by the discourse of Romantic authorship, the contradictions that Wordsworth and his contemporaries happily ignored have shaped the dominant systems of literary production.

Contemporary Collaboration and Control

Wordsworth could not have conceived of the effect that his conception of Romantic authorship would exert. Over the nineteenth and twentieth centuries, copyright jurisprudence became intertwined with the Romantic conception of authorship. In his essay on *The Author Effect: Contemporary Copyright and Collective Creativity*, Peter Jaszi details some of the ways that this has played out at turning points in American copyright jurisprudence, including *Burrow-*

Giles Lithographic Co v. Sarony, *Feist Publications, Inc. v. Rural Telephone Service*, *Rogers v. Koons* and *Basic Books v. Kinkos's Graphics Corp.* He argues that in each case, the court's opinion was, often inaccurately or inappropriately, influenced by a firm adherence to the concept of Romantic authorship.

With the dominance of Romantic authorship and the continued expansion of the scope and term of copyright over the past century, the environment for literary production is controlled in a manner that is increasingly unaccommodating to collaborative models of literary creation. Spurred by the growing dominance of capitalist economics, copyright, originally a privilege, became interpreted as a form of "intellectual property." These systems of strong individualized control helped create an environment that has fostered genres and a publishing industry based on Romantic authorship and strong control to the detriment of preexisting and new collaborative models. While explicit collaboration still occurs, even widely, it is usually in awkward, hidden, or relatively ineffective or dis-empowering forms.

Collaboration between T.S. Eliot and Ezra Pound on Eliot's The Wasteland

One such example can be seen in Eliot and Pound's collaboration on *The Wasteland*. Their relationship is particularly useful in a study of twentieth century collaboration because the nature of the collaboration between the two great poets is clearly documented in the Eliot's extant manuscripts with Pound's scrawled markings and marginalia. It is also interesting as an example of an extensive collaboration that has tested the limits of the idea of Romantic authorship for many critics.

The details of the editorial changes made to *The Wasteland* are documented in a facsimile edition of the manuscripts published by Valarie Eliot. They are also summarized concisely by Jack Stillinger in his chapter on *Pound's Waste Land*. In short, Pound reduced the poem from over 1000 lines to its current 434. In the process, he focused and limited the poem's message and eliminated a sarcastic tone. The critical view, with only the exception of a handful of scholars, is that Pound's edited version is an undeniable improvement. Jack Stillinger concisely sums up the popular critical response:

> The majority view is that the 434 lines of *The Waste Land* were lying hidden from the beginning in the 1000 lines of draft, rather in the manner of one of Michelangelo's slumbering figures were waiting to be rescued from the block of marble. But Michelangelo, in this analogy was both artist and reviser simultaneously. In the case of *The Waste Land*, it took one poetic genius to create those 434 lines in the first place, and another to get rid of the several hundred inferior lines surrounding and obscuring them (Stillinger1991 127-128).

Eliot, who was mentally infirm and hospitalized during the period of writing and revision of the poem, acquiesced to almost all of Pound's revisions and suggestions (Stillinger1991 137). Stillinger brings attention not only the extent of Pound's changes but connects the collaboration to an argument that the resulting text constitutes a co-authored work.

There is additional evidence to support this claim. In the first release of the poem, Eliot dedicated the poem to Pound as "il miglior fabbro," an Italian phrase meaning "the greater craftsman." Through his life, Eliot was also upfront about the importance of Pound's additions to the work, describing, quite accurately, the way that Pound had "turned *The Waste Land* from a jumble of good and bad passages into a poem" (Stillinger1991 132). However, the manuscripts were not released by Eliot during his lifetime; they were released by Valarie Eliot, T. S. Eliot's widow, in 1971.

After their release, descriptions of the multiple authorship of *The Waste Land*, while supported in the textual evidence, faced fierce opposition from many critics and supporters of Eliot. Some critics, a number of whom had published major books on Eliot in the previous years, clung to their image of Eliot as a Romantic genius by making statements that attempted to minimize or trivialize Pound's contributions (Stillinger1991 132-134). Their arguments were simply unsupported by the textual evidence. It is impossible to deny that without Pound, *The Wasteland* would be an extremely different, and substantially *less impressive* poem.

While Eliot and Pound played different, unquantifiably important, and equally essential roles in the creation of the poem, Pound's role is, typically denigrated, at best, to the role of "an editor." Rather the describing the *The Wasteland* as a vibrant creative collaboration between two brilliant poets, critics substitute the image of Pound suggesting simple editorial changes to *Eliot's* poem. This unfortunate configuration is forged in the conceptions of authorship defined and sustained by an discourse of ownership: *The Wasteland is Eliot's poem*. While I am not confident that I understand exactly what Stillinger desires in his calls for "multiple authorship,"

I'm not sure that I agree that another name on the byline of *The Wasteland* is a particularly useful goal. That said, his critique is sound: there is a deficiency in a system of authorship and ownership that cannot acknowledge Pound for the important role he played in the creation of *The Wasteland*.

The short stories of Raymond Carver and his editor Gordon Lish

In the way suggested by Eliot's relationship with Pound, the role of the editor is important to any understanding of twentieth century collaboration. Max Perkins, the editor for Fitzgerald, Hemingway, and Thomas Wolfe, is one such example. Often, as is the case with Eliot and Pound, the term "editor" is applied with the goal of downplaying the role of the less-authoritative collaborator. However, the roles of "author" and "editor" also serve to act as terms that, when applied in the context of a new literary relationship, place firm limitations on the nature of the collaboration allowed to transpire. Crossing these limits can be disastrous for an author's reputation by depriving her of the sole authorship of her work. Through an unusual attempt to claim responsibility for a text, the increasingly common conflict between author and editor was recently highlighted in the relationship between popular 1980's short story author Raymond Carver and his friend and editor Gordon Lish.

Carver, considered by many to be America's most important short story writer when he died of lung cancer fourteen years ago, pioneered and popularized a dark minimalistic literary style that exploded in popularity during the 1980s. In an 1998 article in the *New Yorker*, D.T. Max examined many of Carver and Lish's original manuscripts and met with Lish himself in an attempt to investigate Lish's increasingly loud claims claims that "he had changed some of the stories so much that they were more his than Carver's" (Max1998 35). Max goes into some detail on the changes marked in the manuscripts which include Carver's 1981 collection, *What We Talk About When We Talk About Love,* in which Lish "cut about half the original words and rewrote 10 of the 13 endings." Editorial work of this extent was typical in many of Carver's stories, some of which Lish cut by over seventy percent before they were published (Max1998 37).

Lish's claims of responsibility for elements of Carver's stories prompted similar claims from others in Carver's life. Carver's wife, the poet Tess Gallagher, has made claims on elements of Carver's work arguing that several of his plots were originally hers and comparing Carver's actions to "stealing." After Carver's early death, access to his manuscripts and to his living literary partners has made the collaborative processes behind the creation of his stories unusually transparent to the general public. The scene appears to have been one of rich collaboration between his friends, family, and editors—all of which was hidden during this life.

Many of Lish's editorial interventions added touches that were later called "trademark techniques" of Carver's. Max claimed that Lish's "additions gave the story new dimensions, bringing out moments that I was sure Carver might have loved to see" (Max1998 38). These edits were so extensive that in a letter to Lish, Carver expressed, "fear [of] being caught" (Max1998 40). In 1982, Carver pleaded with Lish, "please help me with this book as a good editor, the best . . . not as my ghost" (Max1998 40). Carver was worried because he felt his own contributions to the work, which were, after all, almost the entire texts of the stories, threatened by Lish's subtractions. Moreover, he felt his own originality and creativity threatened by the fact that his work was heavily edited; the fact that he had collaborated made me him feel like a fraud. Because the edits were extensive, Carver felt that Lish's role was more than what an editor's "should" be but was unwilling or incapable of interacting with him as an explicit collaborator or coauthor; there was simply no classification in the dominant system of literary production for their type of collaborative work. The stories are, in most critic's opinions, better as a result of Lish's edits; the minimalist style that Carver became famous for can be almost completely attributed to Lish if the available manuscripts are to be trusted as representative.

Few will argue that Lish's changes were insignificant. However, in attempting to claim *ownership* of the work, Lish is forced to demonstrate more than mere collaboration; he needs to demonstrate "joint authorship."[9] The type of collaboration necessary for legal "joint authorship," must exceed that of the "normal" editor-author relationship. Lish's predicament highlights the fine line that the contemporary authorial-editorial relationship straddles. Editing is an acknowledged and widely used method for literary collaboration *because* the product of editing is defined as uncopyrightable and therefore transfers no rights of ownership or author-

9. "Ownership" of course, is in reference to *legal* ownership of the copyright. "Joint authorship" is a legal concept that is discussed later in the Section called *Joint Authorship* in Chapter 4.

ship from the author to the editor. Both Eliot and Carver demonstrate that authors want, even *need*, to collaborate. They realize that by working with others their work becomes better. But in order to gain ownership, attribution, and remuneration for their work, they must not collaborate "excessively." To succeed in the contemporary literary world, an author must collaborate as much as possible without losing authorship, and by extension their ability to claim sole attribution and ownership of their text. In the end, writers collaborate less, and the world is left with an inferior texts.

Contemporary Industry Collaboration

Carver and Eliot's secret collaborations, hidden at least during the authors' lifetimes, imply that explicit creative collaboration is rare in our current literary landscape. However, the power of collaborative work is too powerful a model to avoid altogether. Over time, the writing and publishing industry has manipulated both the model of collaboration and the system of copyright to facilitate collaboration in several notable ways. Dominant in this landscape are corporately "authored" texts created under a process known commonly as "works made for hire" (described in more depth in the Section called *The Works Made for Hire Doctrine* in Chapter 4) and jointly authored works, as represented by the terms, "with," "as-told-to," and "and" in by-lines (Barbato1986).

Described here briefly and in more depth in the Section called *The Works Made for Hire Doctrine* in Chapter 4, the works made for hire doctrine, a common part of copyright jurisprudence, states that authorship (and as a result ownership) for works created within the scope of employment rest with the employer. The implications for the promotion of collaboration are not difficult to trace; if an employer, like Disney, hires five brainstormers, ten script writers, five composers, ten musicians, twenty voice actors, fifty animators, and twenty editors to produce a movie, the product of this work, because it was created within the context of contractual employment with Disney, belongs not to the one hundred and twenty artists who created the film but to the corporation. With Hollywood corporations as a prime examples, this model has been instrumental in facilitating wide-scale corporate collaboration. However, it is aggressively hostile to the type of "serial collaboration" and borrowing from existing texts that was essential

to earlier models of collaborative writing.[10] The works made for hire doctrine is not a method for aggregation of ownership or authorship or a method for *collective* creation or control. In fact, it ensures that the creator receives payment but no rights at all.

This is not to imply that collective authorship with implications of collective control is impossible. In actuality, joint authorship is steadily increasing in popularity and influence. However, joint authorship operates in an environment hostile to collaborative work, and, as a result, is difficult at best. Empirical studies have shown that instances of joint authorship—a measurement taken by tallying books and articles with more than one person on the byline—are becoming increasingly popular and prominent (Barbato1986 1986). While these collaborations are important in highlighting the persistent power of collaborative writing, they are hindered by the hostile climate of control and authorship created by copyright.

In an article written for science-fiction authors on *How to Collaborate without Getting Your Head Shaved*, Keith Laumer, an author and collaborator, ends his short piece with the advice, "if you possibly can, write it yourself. Collaborations, like marriages, should only be undertaken if any alternative is unthinkable" (Laumer1977 217). Mark L. Levine wrote an article for *Writers' Digest* titled *Double Trouble* where he urges potential collaborators to first sign a complex contract that clearly delineates both the roles that the collaborators will play in the creation of the book and the division of payment (Levine1985 34-35). In an article for *Writer*, Leonard Felder points out that not only should potential collaborators first agree to a division of royalties and payments, but that they must have "a written agreement on . . . the way your names will be listed on the book's cover" (Levine1985 22). Unfortunately, this advice is all perfectly sensible in today literary climate. While many of these articles also mention the potential benefits of joint-authorship, they explicitly, and accurately, approach the collaboration as a business relationship; their emphasis is on avoiding the pitfalls of such joint work.

In reality, no literary collaboration can be divided cleanly into portions or dissected on a contract sheet. As evidenced by Eliot and Carver, neither can roles such as "editor," "author"

10. This type of borrowing was important to the early framers of copyright as well. Copyright, with its expiring terms, originally set to only fourteen or twenty-eight years, was designed as a balance between the desire for authors' rights to their work and the need for a rich collaboration based on unhindered borrowings—in a word, a rich information commons or, in contemporary legal terms, a public domain. In the last century of American copyright, terms have been repeatedly extended, both retroactively and pro-actively. The result is that the public domain has been frozen. This is in large part due to a strong corporate lobby that does not want to lose control of lucrative copyrights that include Mickey Mouse and the *Wizard of Oz*.

and "coauthor" describe the spectrum of meaningful literary collaboration. However, under current systems of literary production defined by copyright and Romantic conceptions of authorship, writers have few other options. By emphasizing ownership and control as the primary, and in most cases the *only*, method of compensation for literary work, meaningful collaboration becomes difficult in all cases and impossible in most. Rather than borrow and work together, authors will work alone. Rather than borrow an idea, passage or theme from another novel and risk a copyright suit, authors are more likely to not include the theme or passage at all. The fact that joint-authorship and collaboration can function, and even experience massive growths in popularity, in this hostile environment, is testament to the power and of collaboration. Without a strong system of control shaping the landscape of literary creation, there is no guessing what other works we might enjoy.

Conclusion

There is no denying that collaboration is persistent, but a handful of citations might have demonstrated this point as effectively as this essay. There is no denying that collaboration is effective, but this also would have been well served will less effort and spilled ink. The real conclusion, one that has been echoed throughout this piece by the accumulating evidence I've offered and alluded to in this essay, sits at the interstice of collaborative writing and control: *when we give control of literature to individuals, collaboration is less common, less meaningful, and less effective.*

Given the evidence in this essay, restating this conclusion seems almost unnecessary. Yet, it remains absolutely essential; in the dominant modes of literary criticism and production, it is almost wholly ignored. History has shown that the importance and power of collaborative creation is one of the most powerful mechanisms for the creation, organization and dissemination of knowledge. The dominance of the Romantic notion of authorship has forced us to ignore both the importance and power of collaborative creation and the effect that this type of ownership has on collaborative models. We need not ignore the power that ownership and individualized control bring to the table, but we should not dismiss collaborative work because it's incompatible with the ideology that lets us control, and amass fortunes, from our ideas and

from those of others.

It is established that authorship reflects ownership. In today's literary world, one where collaboration is *growing* in its use and influence, ownership—at least as defined by copyright—does not rest with the creator or creators of the work but with the name or names in the byline. There is only room for one—maybe two—individuals in this space. In response, we push collaborators into our bibliographies, acknowledgment pages, or out of the book altogether; still, perhaps this is unavoidable; perhaps it is even excusable. It becomes *inexcusable* when we limit the extent of our collaborative enterprises *because* we are unable to represent the nature of our collaborations in a way that will ensure attribution or compensation for the work. As the last thirty years of Foucault and his supporters have shown, attacking and deconstructing authorship is not enough, we need to deconstruct the systems of control that have enshrined and are perpetuating these conceptions.

Chapter 3. Evaluating Collaborative Literary Technologies

Introduction

Twenty years ago, technologists might have optimistically attempted an exhaustive analysis of computer supported collaborative writing (CSCW) software. Since then, the role of collaborative writing in the corporate and industrial sectors has been demonstrated to be more widespread and more important than even its staunchest supporters had imagined (Ede1986a). The world has witnessed the rise of free and open source software, the Internet, and a vibrant academic discourse around collaborative writing. As a result, the world of collaborative literary technology is a very different place. Today, merely assembling a list of CSCW software might prove impossible.

However, questions and processes at the core of such an analysis remain unchanged and unanswered. Which processes qualify as facilitation of collaborative writing? Which do not? Is synchronous collaboration less meaningful than asynchronous collaboration? What about access control, decision-making roles, change tracking, intra-project communication and integration with real world meetings? How does of each of these areas of analysis help define collaboration? In what ways? How do these areas relate to each other? How do they help us make sense of a given technology?

This document will not attempt to provide definitive answers to these questions. Twenty years of research and discourse around collaborative writing has demonstrated that no definitive answers exist. There are innumerable technologies facilitating collaborative writing not because the best way to do so is unclear but because the "the best way" is nonexistent. As every collaborator works differently, every collaboration is different. Approached from a perspective that prioritizes flexibility, this can be a strength of collaborative processes.

This essay attempts to give technologists analytical tools to evaluate both the nature of how a given technology facilitates literary collaboration and, as an extension, how well it is poised to succeed in facilitating collaboration in the ways and to the extent that different analysts find

most important. The essay prompts readers to personalize this central analytical question and to ask: "How do *I* want to collaborate, and how can computer technology help me to do it?"

To answer this question, this essay describes a method for the evaluation of CSCW technology centered around the way that control is articulated in the design and implementation of the software. It is control—articulated technically as design decisions—that defines and limits the nature of collaboration. The methodology introduced in this essay includes an introduction of several areas of analysis through which computer technology attempts to control collaboration. Once introduced, it will be employed in the analysis of several existing or historically important CSCW technologies as case studies.

Defining Collaboration

Collaboration *is* largely undefined in a broad technological sense. In a technical context it has been reduced to a *buzzword*: everybody loves it and every user wants it and every technology seems to support it—but nobody seems to know what it is. When "collaborative" means something different to each individual and in the context of each "collaborative" technology, the label becomes effectively meaningless.

Farkas' four-pronged definition, referenced in Chapter 1, provides a useful place to begin. While Farkas offers four definitions, it is his last definition, "one person working interactively with one or more persons and drafting a document based on the ideas of the person or persons," that is of primary interest to this argument. A technology that can facilitate two authors working on the complete text of the document can, with slight modifications—perhaps even managerial or other non-technical changes—also facilitate two authors contributing parts or the process of editorial review. While more difficult to implement, technology that extensibly and flexibly supports the type of collaboration in the first, more "problematic" in Farkas' words, definition, will always be more nuanced, flexible, and advanced than technologies that only support one or more of the last three.

Building from Farkas' definitions, my own concept of "meaningful collaboration" describes processes that are flexible enough to encapsulate all four of the types of collaboration listed above in broader, more flexible ways. By de-emphasizing the importance of compart-

mentalization, fixed roles, and territoriality implicit in the three final definitions, a collaborative project has more control of the structures and code that control the way you collaborate. For these reasons, it this definition of meaningful collaboration, and the power and flexibility that it affords, that is the central focus of this essay.

Methodology

This methodology defines a philosophical and sociological approach to technological analysis of CSCW technologies. It argues that effectiveness is achieved through the analysis of processes, not code. While code occupies a central position, this analysis focuses on the processes shaped by code that define the way we collaborate. As a result, these questions look at code not as the implementation of technical specifications but as the implementations of processes encoded in technical specifications and re-encoded, always slightly differently, in code itself.

This section is divided into several technical areas of analysis. It aims to serve as a useful model for a deep analysis of collaborative technologies and does not attempt to be exhaustive. In each of the following cases, the central and underlying question can be articulated as one of control. The following descriptions is both descriptive of and highly dependent on the existence of this connection.

The Product

It seems obvious that new types of collaborative literary technology implementing new collaborative literary processes will result in new types of collaborative literature. In defining and limiting the scope of this analysis, we must again look at the question of "what constitutes collaboration," and the question of "what constitutes literature." New technology has further confused both questions.

If we begin with a dictionary definition of literature, like "learning; acquaintance with letters or books" (Webster1913), we have "limited" our discussion to nearly *everything* on the Internet. Email, the web, and instant messaging, the three most popular, most used, and in most

cases most useful part of the Internet, are purely literary medias. While I feel that these forms are interesting, important, and increasingly influential, I must also acknowledge that I can not analyze every Internet-based communication technology.

By focusing on products like novels, reports, letters and dictionaries with clear historical antecedents, I can speak to the concept of collaborative literary work more generally and effectively. More importantly, the type of collaboration that products like mailing lists and web logs facilitate is less meaningful because control, and the medium as a result, is highly compartmentalized. The product of these technologies are single texts but are not controlled as a single entity. The final product is fragmented.

In addition to an important step in the definition of scope for this analysis, this consideration of product is the first step in the analysis of any collaborative writing technology. Most collaborative writing systems create a single type of document. However, the types of documents produced vary widely between applications. Collaborative processes are frequently employed in the the production of hypertexts (non-sequential texts) and many collaborative tools produce electronic documents. Others are geared toward traditional printed work. Eliminating systems facilitating the production of unsuitable or desirable document forms is an important and intuitive first step in any evaluation.

It is important to remember that products reflect the processes that create them. Processes hinging on less meaningful compartmentalized collaboration tend to create documents that are highly structured and logically broken up into pieces. Editors are often employed to mediate this effect—newspapers are a strong example of the effects of this type of compartmentalized work; a newpapers may comprise articles from hundreds of authors working for a large number of organizations and a paper's editor will rewrite and change the articles to promote coherency and consistency within a paper. A system promoting meaningful collaboration can support the creation of large highly integrated documents and allow the authors or managers full freedom to control where, when, and where and when not to structure and compartmentalize.

In addition to producing documents, many collaborative writing systems, especially those based on the web, contain integrated distribution mechanisms; most collaborative web-based writing tools provide a method of automatic web publishing. It is especially important in these cases to consider the nature of the product that readers will encounter and the relationship

between how the document is read during production and how it is read after publication. What effect will these differences have? Can readers become collaborators? If so, what process does this change entail? Do new collaborators need to learn a complex interface or mark-up language? The use of annotation or comments is an important feature in the production of collaborative documents. Is it something a documents readers can do as well?

In answering the questions above, certain products will emerge as more useful, flexible, and suitable than others. Certain processes will seem more readily applicable than others. Carefully considering this evaluation cannot be underestimated. While the rest of this essay considers the structures of control exhibited between collaborators, the analysis of product asks us to consider the nature of the relationship between the reader and the text and, by extension, the relationship between the reader and the authors. Since the common goal of all writing processes, collaborative or not, is to be read, this process cannot be underestimated.

Access Control: Hierarchical vs Peer

A particular subset of collaborative literary tools replace the term "collaborative" with "participatory" and describe collaboration as a democratic process or a method of more equitable decision-making. The designers of these tools are responding to the political implications of, and distinguishing their own work from, hierarchical systems for the collaborative production of literature.

Many collaborative writing systems, like most word processors described in the Section called *Modern Word Processors: Microsoft Word and OpenOffice.org*, for example, have no explicit system for controlling access—if you have the ".doc," you control it totally (this is discussed in more detail in the Section called *Modern Word Processors: Microsoft Word and OpenOffice.org*). Deciding whether changes are integrated into a "master copy" is a bureaucratic decision, and not one that the software explicitly helps. For systems that are simultaneously authoring and publishing systems, access control is an essential consideration from the beginning.

Some tools (like Wiki described in the Section called *The WikiWikiWeb*) radically "open" the publishing system by eliminating any reader-writer hierarchy. Everyone involved has equal

access to, and control over, all documents. This type of access is particularly interesting because through its instantaneous integration into the copy read by everyone, it has no historical antecedent; it turns mass-publishing tools into mass-authoring tools. It is through the creation of these types of tools that the technological context of collaborative writing is shifting radically.

Wikis, however, are unusual (although also unusually successful) in their radical approach to peer-based writing. Most web-based CSCW tools restrict the ability to make changes to authenticated (i.e., logged in) users. The most simple model splits users into those who can read, and those who have the additional power to write. For web publishing systems, this is often cast as the administrator/user hierarchy. There are those that control the content and those that consume it. More complex systems introduce more complex hierarchies that create access and power differences between groups of users (i.e., administrators, authors, editors, technical facilitators).

Replacing or eliminating traditional hierarchies is one of the most intriguing possibilities of CSCW. Ann Hill Duin and her own group of collaborators found that the use of software to facilitate collaborative writing in the classroom created a more productive context for collaboration between students and instructors by encouraging new and less hierarchical patterns of sharing information and by altering social norms that had previously controlled the exchange of written copy (Duin1991 158).

Hill shows the way that open access results in growth and change in ways that are dramatically different, and often dramatically better than those foreseen by a document's original architect. Open access on the Internet allows for a wide diversity of cultural, intellectual, and ideological viewpoints to shape a text. This type of unmediated and uncontrolled access, and the resulting lack of explicit hierarchies in similarly "anarchic" systems, is popular in part because it is easy to implement technically. Reproducing technical control systems analogous to the complex hierarchies used in the traditional publishing industry is in many cases prohibitively difficult. See the Section called *Decision Making Roles* on the use of roles in division of labor for a more in depth discussion.

While this philosophy of open peer-based access is unsurprisingly popular in Internet and the free and open source software communities, it also seems to be credible in the world of

corporate and industrial collaboration. Research into peer and hierarchical editing by Henrietta Nickles Shirk has compared and contrasted attitudes toward and effects of editing by peers and by those operating within explicit hierarchies. Her conclusions are largely in support of peer editing. Eighty-nine percent of authors found peer-editing less threatening and ninety-four percent seriously considered peer editors' input for the final product. A large majority found it useful (Shirk1991).

Shirk describes the way that all editing is difficult because it involves a certain amount of psychological stress associated with critique of one's *own* ideas or expressions. Shirk sees editing, as an act of collaboration, as difficult because it involves a loss of control and "ownership" (Shirk1991 252). Peer-based editing, even if the difference is merely one of labels, allows this loss of control to be less threatening and the final product to improve—few will argue that great literature is written under stress and duress. However, peer editing can also act as a form of collaboration that emphasizes shared ownership of a document which deemphasize this stress by reconfiguring it as input of additional collaborators.

However, the power of hierarchical systems should not be completely dismissed. While a vast majority of students in Shirk's study felt they benefited from peer editing, authors tended to feel that professional editors' advice was more useful and beneficial to their work than they did peer-editors'. These hierarchical editors were perceived to have more credibility than their peers during the editorial process (Shirk1991 245, 249-50). These feelings framed and were reflected in the incorporation of peer advice into the final products.

While academic investigations of psychological stress in response to editorial decisions can be enlightening and useful, they will not decrease either the usefulness or use of either peer or hierarchical editing. Any well edited document will have been edited by peers and any document that can afford to will employ a more traditionally qualified editor. In all cases though, the best editorial work can only occur when an author or editor feels a degree of control over the document and is empowered to make changes—even if many of these changes are subsequently rejected. An open and flexible system can be employed both to challenge or harness external hierarchies when necessary toward the production of quality texts.

Decision Making Roles

Systems that create hierarchies of users and writers often do so by defining roles for participants. In the most simple model of access control already discussed, participants are divided into readers and writers. The labels reader, author, editor, administrator, facilitator, and technical administrator each implies certain positions of power, certain types and degrees of control, and certain possessive capabilities. In implementation, each system has the opportunity to define these roles. Each system defines them differently.

Many pieces of software attempt to create roles based on analogues in the traditional publishing industry. A system dividing users into editors, readers, and authors is an example of how this is often done. While using the metaphor of an editor is convenient and familiar to a large number of potential users, software engineers find it exceedingly difficult to define these roles in technical terms. How should software differentiate between authors and editors *technically*? On one level it seems obvious that authors should be empowered to make larger and more meaningful changes, while editors' power must be more limited. But what does this mean in technical terms? Should the author be forced to review each editorial change? Should the system attempt to define "limited changes" in technical terms (e.g., percentage of words changed)? Either of these solutions will be complex and ugly and better alternatives are not forthcoming.

More problematically, while successful in the traditional publishing industry, the model of the editor on which software bases its technical analogues is not useful in the context of most real-world collaborative writing. James R. Weber is a scientific researcher who has analyzed the collaborative production of documents within one large scientific laboratory. While he felt that leadership roles were useful and important in collaborative writing, he saw these roles falling into two major groups:

- *lead authors* who served as "project managers" routinely made changes in the other authors' contributions and who were responsible to meet contractual deadlines and negotiate directly with the sponsor of the project; and
- *document coordinators* who rarely made editorial changes but merely oversaw the work of other authors and collected and integrated pieces into a single document (Weber1991 55).

Weber points out that the desire for a strong lead author by collaborators (as in the first example) can be read as part of the desire for an single overarching view of the work and thus perspective on one's own contribution to the whole; however, he noticed problems emerge quickly. By appointing or empowering one person as a lead author, certain feelings of ownership and propriety are implied. As a result, secondary authors feel less motivated to contribute meaningfully and extensively. Only by distributing control evenly can a system maximize collaboration.

The role of a document coordinator attempts to balance the need for coordination and an overarching view of the document with the desire to invest authors with a greater degree of control over their own work in the larger document and the shape of the text as a whole. It implies editorial control in a less threatening manner. By distributing control while retaining centralized coordination roles, it provides one useful model that can support a more meaningful and effective form of hierarchical production in CSCW.

Other noteworthy roles include any number of different kinds of administrators with different types and levels of access to documents. Some administrators have special textual responsibilities that include integration or maintenance. While the discussion in the preceding paragraphs emphasizes leadership roles, division of labor in CSCW in a non-hierarchical manner is both possible and useful. Toward this end, software designers can mediate the power imbalance introduced by administrators by defining and limiting administration to technological assistance and maintenance.

Regardless of the type of role under consideration, it is essential to consider the type of control conferred by each role and the manner in which this control will affect collaboration. Hierarchical or not, explicit division of labor within a collaborative production will play a dramatic role in the evolution and interactions of collaborative writing groups. While the creation of leadership roles can foster feelings of ownership and responsibility that can hinder or slow meaningful collaboration, its power as a motivating factor should not be deemphasized either. The analyst's job includes balancing the power of both control and responsibility with the desire for meaningful collaboration. As this balance will change with every group and with time in any group, the importance of flexibility in in defining and redefining these roles cannot be

underestimated.

Synchronous and Asynchronous Collaboration

All communication, and collaboration as a result, is either synchronous or asynchronous. Synchronous communication requires that both parties work on the same clock. The telephone is an example of a synchronous communication medium. Asynchronous communication allows users to work on different and uncoordinated schedules. Examples include letters and email. Synchronous communication is convenient but requires additional scheduling. Like communication, synchronous collaboration balances convenience with coordination. If three individuals collaborate on a single document synchronously, only one can write or edit the document at any given point.

Synchronous collaboration is often facilitated through systems of "locking" or "checking out" pieces of text and marking them as off-limits to other collaborators. Anyone who has collaborated using email and a word processor (a process described in detail in the Section called *Modern Word Processors: Microsoft Word and OpenOffice.org*) is familiar with an ad-hoc version of this type of system. Fast and meaningful communication is essential as every author must know the sum of applied changes to a piece of a document before they can alter it. While often inconvenient and burdensome, this increased level of communication is always beneficial to a project in the ways mentioned in the Section called *Intra-Project Communication*.

Conversely, asynchronous collaborative writing systems allow each user to work without these limitations. At any given point, authors need not know what their collaborators are working on—even when they are working on the same piece of text. Consequently, an asynchronous collaborative writing system is one in which authors will inevitably create conflicts in the texts they produce; they might both rewrite a sentence in a different way. These systems must be technically equipped to monitor for conflicts and then provide methods for these conflicts to be analyzed, addressed, discussed, and resolved.

From a technical perspective, synchronous systems are easier to implement. When there is no technical ability to create conflicts, there is no need for a technical method to detect and resolve conflicting changes. As a result, most CSCW systems operate synchronously.

However, this ease of implementation can impose severe limitations on many projects. Within synchronous CSCW systems, there is a fixed ceiling on the number of hours of work any group can put into a document within a given period; a single document, or compartmentalized piece of a text, can only be worked on by one person at any given time. While in small groups, this restriction is unproblematic, it presents a critical limitations as the size of the group increases. This type of compartmentalization, as the only possible recourse in such situations, renders collaboration less meaningful.

By supporting collaboration in both small and large groups, software operating asynchronously is automatically more flexible and more meaningful than software operating synchronously. By opening up collaboration to larger groups and by allowing each person full reign over an entire document at all times, CSCW technology working asynchronously gives each person constant and total control over the complete document. As a result, asynchronous collaboration, while more technically difficult, is almost always preferable. Any system coupling synchronous or near-synchronous communication—as is simple on the Internet—with asynchronous collaborative writing technology can support collaboration in a synchronous manner.

Tracking Changes and Version Control

A CSCW system supporting meaningful collaboration must allow collaborators to change or suggest changes to text that they did not write. Unless authors are willing to reread an entire document after each set of changes, blindly and completely trust the judgment and vision of their collaborators, or communicate the totality of their changes through a medium outside the CSCW software, any effective technical system for collaborative work needs a method for isolating and representing changes made to documents. Additionally, representing these changes is essential to the process of describing and resolving conflicts created by asynchronous textual collaboration. As a result, the ability to represent changes is essential to any CSCW system.

The three basic changes possible are addition, subtraction, or alteration and an effective system must be able to represent each. Changes to mark-up (e.g., a change in font, a new line, the addition of emphasis), which convey a large amount of meaning, is also important to represent. Many word processors can include the ability to compare two documents and represent

these differences through colored text or strikeouts. Other programs like GNU diff and wdiff can examine two versions of a document and produce a third document that unambiguously represents the differences in several human and computer readable formats.

By allowing collaborators who are familiar with a document to quickly bring themselves up to date with the latest version of a document by perusing the changes made to it, version control facilitates efficient and meaningful non-hierarchical collaboration and peer-editing to develop. By simply tracking the changes made, a larger number of people can be familiar with the current status of a document and can share the position of lead author or document coordinator. In this way, the representation of changes can facilitate decentralized control and less hierarchical systems of collaboration.

Collaborative software development processes, which David Farkas compares to collaborative writing processes, are heavily based on systems that track and record all changes made to a given piece of text (in software's case, it is source code) through the use of "version control systems" like BitKeeper, CVS, RCS, and subversion. These version control systems store all changes made to a document in computer parsable and software reversible format. At any given point, anyone with access is able to have the software quickly back-track to *any* desired version of the document or request a list of the changes between any two version of the document based on the day, version number, or "tag" placed on a particular version.

By storing all changes, version control systems make collaborators feel more empowered to make major changes to pieces of source code, and it stands to reason that these systems could be broadly applied to the production of literature as well. With the knowledge that a document can instantaneously be reverted to any older state, authors feel more willing to take or share control of a document and are less hesitant to make changes. By lessening the long-term consequences of major changes, authors are willing to take control of the document. As nothing is lost; every change is merely a suggestion.

While not always common in CSCW software, the power of this ability to efficiently track changes, and to do so in a way that also facilitates asynchronous collaboration, is increasingly recognized and increasingly common. Both the ability the represent changes and the ability to track and record these changes over time set the stage for meaningful collaboration in ways that are important and often essential for effective collaborative work.

Intra-Project Communication

Communication is clearly essential to any successful collaboration. The act of working together is a form of interaction and involves transitions and retransmission of ideas between collaborators. Philosophers have gone so far as to define communication itself as the collaborative construction of ideas Weiss1991. Empirical studies have backed up this connection by demonstrating that when the social sphere for communication is well defined within a collaborative project, interaction on content is more meaningful and the collaboration more efficient and effective (Weber1991 59).

As a result, it's unsurprising that the computer initially emerged as a tool for collaboration through its role as a tool for communication. In fact, early researchers defined computers as useful in collaborative writing simply because they make communication process faster and easier (Duin1991 Weber1991). William Van Pelt's article on the computer in collaborative writing highlights computers' usefulness as a community device as the single most important use for the computer in collaborative writing (Pelt1991).

Anne Hill Duin monitored computer communication during collaborative writing. Her group counted more than two messages or documents created per person per day. These messages discussed writing strategy, issues of audience, verification of ideas or sections, discussions of content, questions about the technology and off-task conversation. The majority (sixty-two percent) centered around issues of verification (Duin1991 159-60). The study demonstrated that effective collaboration requires both the transmission of the text being authored and the facilitation of extra-textual conversation. These discussions, while not part of the finished document, provide the bulk of written work and lead to an informed group capable of sharing control of the document and engaging in meaningful collaboration.

Communication systems in CSCW systems can be either integrated or separate. Word processors assume discrete communication systems like networked file systems, email, and telephone or teleconferencing technology for transmission of documents and communication. Other systems provide integrated or semi-integrated forms of synchronous communication like chat-channels, video-conferencing and instant messaging. Asynchronous systems like email linked with the ability to make supra-textual annotations.

This ability to communicate in ways that are linked or integrated into the text is immeasur-

ably useful. The nature or degree of integration of the text with extra-textual discussion will vary in nature and effectiveness between CSCW systems, though the functionality is commonly cast as ability to insert "comments" into a document or to attach log messages summarizing the changes as an author checks in a new version. Discrete systems of communication, be they coordinated real-world meetings, instant messaging, or email communication, augment rather than replace integrated systems but are easier to implement and are more widespread.

Strong systems of communication are important in a technology's ability to distribute control over a document for the same reasons that the ability to track changes are essential—both types of functionality create a larger more informed group of collaborators and let authors interact with the text and each other more meaningfully. Through extensive public or group-wide communication, collaborators are able to contribute whenever they feel their input will be useful or appreciated. Both integrated and discrete communication in regards to the text are essential in promoting collaboration. Just as each system facilitates communication or links discussion to the text in particular ways, the interaction of the writing system with communication defines the terms of control and collaboration in an equally individual manner.

Face-to-Face Meetings

CSCW is successful in part because it is a computer mediated phenomenon. Anne Duin Hill's research has found that writing group members who used electronic messages are less inhibited than in face-to-face groups, and that such groups had a reduced chance of one person dominating the conversation (Duin1991 161). However, these benefits come at the price of a great deal of non-verbal communication that is important to many involved in collaborative writing. Communicating large amount of extra-textual data can be slow and frustrating, especially using asynchronous communication systems. As a result, the use of CSCW technology proves difficult for many writers.

As a result, James R. Weber and others recommend augmenting CSCW technology with at least one face-to-face meeting if possible, even when the groups are geographically separate (Weber1991 62). Weber notes that these meetings can be invaluable in setting deadlines, formats, rhetorical considerations, and beginning discussion on a project. Additional meetings, in most cases, are also beneficial.

Recognizing the potential power of face-to-face meetings, several pieces of software provide methods for integration of these meetings into the collaborative software in a number of ways. A simple mechanism might allow for notes, transcripts, or a recording of the meeting to be archived or made available through the software. Other more complex and creative mechanism vary in their design and implementation. While none of the software reviewed in the case studies below incorporates this sort of functionality, when present, it can shift power and control dynamics within group and prove immeasurable helpful to many collaborators. As a result, it may be an important consideration in choosing or evaluating a collaborative writing system.

Flexibility

Flexibility has been alluded to in many of the sections above. It is so important, however, that it warrants revisiting. Flexibility speaks to the fact that just as every collaboration is different, no CSCW software will be perfect for everyone or for every collaborative endeavor. As a result, the final and perhaps most important area of analysis for any collaborative system is its flexibility—its ability to become what it is not.

Anne Hill Duin breaks the logical structure of collaborative document production into planning, drafting, revising and packaging and then considers each area separately (Duin1991 148). Her analysis points to the fact that the production of a single document may be best served by different types of technological facilitation at different points in a document's development and growth. A person in a leadership role at one point may feel the need to change roles or involvement as the project evolves. A flexible system is one that easily change and adapt to fit such dynamic needs.

In her own analysis of writing groups within NASA, Elizabeth Malone found that the tension between a group's normative consensus and the changing demands of the problem-solving process meant that certain individual behaviors and the larger groups' normative consensus were productive and counterproductive in different phases of the project (Malone1991 110). As the importance and effect of particular individual behaviors and group consensus changed over the duration of projects, so should their treatment and facilitation by CSCW software. A call for flexibility argues that the answer is not to divide the collaborative process into dis-

crete sections and provide specialized technical solutions for each period, but rather to create a system that is dynamic enough to cater to each effectively and to change when it fails to do so.

When an analyst considers the social and political implications of hierarchies created by a particular writing system, he or she should also consider the degree to which the system, and the particular control structures and roles created by it, can be adapted or modified to fit the *dynamic* needs of a project. Can a collaborator change roles? How flexible are the definitions of roles themselves? Through the codification of a system of control, this essay has established that CSCW software determines the terms on which collaboration occurs. Emphasizing flexibility ensures that we ave a hand in helping define and redefine those terms and our needs and goals inevitably change.

Recognizing this flexibility is often not difficult. This sort of flexibility can commonly be found in administrative interfaces or technical configuration options. Free and open source software provides another meaningful type of flexibility through assuring the technical and legal ability to make changes to the software and distribute their these modifications. By choosing free software, one rests assured that they will have the ability to collaborate on their own terms and to change or modify the system to reflect their own needs.

Application and Case Studies

Xanadu

Xanadu is a groundbreaking collaborative hypertext system begun in the sixties and developed, through several complete rewrites, through the nineties. Xanadu will be remembered, when it's remembered at all, for its status as the first hypertext system. Designed and implemented by the man who coined the term "hypertext" and developed most of the underlying concepts, Xanadu was the explicit inspiration for Hypercard, Lotus Notes, and the World Wide Web (Xanadu2001 BernersLee1989).

Xanadu's visionary architect and project leader was Theodor Holmes Nelson, who had

training and experience as a philosopher, sociologist, and computer scientist before he embarked on the project. Nelson spent decades writing about Xanadu explaining and justifying the design of the system as it was constructed and reconstructed. Xanadu's stated goals were to create "a magic place of literary memory and freedom, where nothing would be forgotten" Xanadu2001.

In his "shortest description" in *Literary Machines*, the self-published book in which Nelson lays out the philosophy and design of Xanadu, he describes the document publishing system as "a fast linking repository with windows and criss-crossing super-documents" (Nelson1981 3/2). Understanding Nelson's description, and the system itself, requires readers to first become familiar with concepts of windowing, linking, document repositories, criss-crossing, and super-documents, most of which Nelson defines and describes in his nearly one hundred page introduction to the system. As a consequence, describing Xanadu fully is impossible in any short essay. Fortunately, Xanadu can be understood as an intriguing and unique example of a collaborative tool even with an incomplete knowledge of the system.

To make matters worse, there is no single or authoritative version of Xanadu available; the software is available to the public in at least two radically different versions.[1] Additionally, its authors put a large deal of their effort into the design and development of a front-end/back-end interface protocol to free users from dependence on a single interface and method of interacting with the data.[2] This allows for a system that affords a great deal of flexibility, which of course is a plus, but it comes at the expense of consistency in interface and interaction with the software. This makes describing the system difficult.

1. Xanadu's technology was proprietary and secret for several decades. As it became increasingly clear that the World Wide Web was succeeding in Xanadu's niche, the Xanadu Operating Company (OC) transfered intellectual property rights for most of its code and trade secrets to a new company, Udanax, which released two version of Xanadu as free/open source software. It is important to note that the trademark for Xanadu was not transfered so the software was renamed Udanax before it was released. The literature and documentation used in this analysis refers to Xanadu but the software I have access to is Udanax. From a technical perspective, this is inconsequential; the difference lies only in the ownership and use of the Xanadu trademark. To avoid confusion, I will refer to the software as "Xanadu" throughout this section. Keep in mind that the screen shots and my own impressions are of a version of Xanadu renamed "Udanax Green."
2. In fact, no production quality client was ever created by the Xanadu team. Not until Udanax was released to the public was a simple front-end hastily constructed to demonstrate the Xanadu server's capabilities. All the figures below are made with this rather primitive Udanax Python front-end distributed with Udanax Green.

Figure 3-1. Xanadu: link source

Figure 3-2. Xanadu: link target

However, every version of Xanadu is based on a single philosophy of literature and collaboration. Nelson sees literature as "an ongoing system of interconnecting documents" and Xanadu is an attempt to create a system that codifies this philosophy and allows for the kind of borrowing, influence, and collaboration that he feels defines literary connections (Nelson1981 2/7). The technical implementation is in "links" that are often similar to the links found on the World Wide Web. However, Xanadu's links are more complex and nuanced than Berner-Lee's. Every link connects a source (see Figure 3-1) and target (either a point or a part as in Figure 3-2). While Xanadu's links can act like "jump links," similar to those on the web, they can also act as "quote links" which are described by Nelson elsewhere in *Literary Machines* as "windows" onto another text in the Xanadu system. Additionally, the system treats both footnotes, marginalia and commentary as links of different types. Readers or authors mark any number of targets and sources (a link need not have only one source and one target) and then chose the type of link they want to insert from a menu (see Figure 3-3).

Figure 3-3. Xanadu: "Select Link Type" menu

Any document placed within Xanadu can be linked, in any of the ways listed above, by any author and in any document. Through windowing or quote linking, a text can be manipulated and reused while simultaneously guaranteeing the original author attribution, original document integrity, and compensation. As Xanadu is a system where documents can be easily created, augmented and reworked by others, it harnesses the power of people working together to create better documents and facilitates collaboration in an unusual but powerful way.

If for example, I thought that Hans Christian Anderson's *Little Mermaid's* ending was too sad, I could create a new version that was almost entirely a window to the original text but that included my own more up-beat ending. If Anderson were still in control of the copyright, he would receive a proportional amount of compensation each time my work was purchased or read (the vast majority in this example) and all of the attribution for his contribution to the given work. In this way, with a couple clicks of the mouse, new and ad-hoc literary collaboration is born within the Xanadu system.

Documents might be nothing but collections of windows to other documents forming a sort of collaborative literary collage. In turn, these windows might also include windows or quote-links to yet another set of documents. In each case, the system will keep track of where the data is "really" stored and represent the text's inclusion in other documents as a series of nested windows. The system retrieves and assembles documents each time they are requested. At any point, readers can navigate through a window to instantaneously see the source of a quote, passage, or idea, or see the list of all places which have linked or windowed to a targeted point or section.

Vastly different from every other system analyzed in this study, Xanadu's collaborating authors do not work on the same document at all, but work on copies (windows actually) of documents belonging to others. The product, in each case, is single document made of of

references and sums of changes to existing texts.

Each user is in full control of their own documents but cannot control the ad-hoc creation of new documents windowing to their text. The system has no enforced hierarchy or roles with the exception of technical administrators, who have access to the back-end server configuration and the unique capability to remove documents altogether. The system is flexible enough to allow labor divisions, like the creation of editors, to evolve organically and meaningfully. As each user creates their own copy of a document and edits it, the system works asynchronously without any problem. However, two users working simultaneously creates divergent copies and the system provides no explicit technical method to assist in merging divergent texts.

However, Xanadu includes the functionality to make this type of comparison easy and possible. In perhaps its most impressive design element, it is built upon a robust version control system. Links will automatically update to the latest version of a paragraph or sentence or, if the text has been removed or changed radically, to a version found within one of the archived older documents. New revisions begin as new documents containing a single window to the entire previous revision; changes are additions to, deletions from, or replacements within this window. The document compare window in Figure 3-4 illustrates the way that links interact in a revised document to concisely and unambiguously describe differences.

Figure 3-4. Xanadu: comparison of documents

Nelson makes it clear that he conceives of Xanadu not as a collaborative writing tool but as "a system for selling data online" (Callister1995). As a result, functionality to integrate intra-project communication or face-to-face meetings is non-existent. More importantly, existing implementations are hardly usable for anything other than experimental and historical purposes. However, Xanadu is an intriguing experiment because, while even its own authors

did not conceive of Xanadu as a system for collaborative production of literature, it is founded in and reflective of a collaborative approach to the literary process. What is most interesting about Xanadu and Nelson's philosophy is that it tries to balance a desire to maintain very conservative ideas of ownership, attribution and compensation—even extend their them—with a social constructionist philosophy of literature and knowledge that de-emphasizes individual control.

In its current undeveloped state, Xanadu is probably not the right technical tool for any collaborative project. However, its approach to collaboration is broad, novel, and unique enough to warrant continued evaluation and provide meaningful and useful inspiration.

The WikiWikiWeb

Wiki[3] is a Web-based hypertext system not unlike Xanadu in many regards. Both systems support dynamic linking within an enclosed system (as opposed to the World Wide Web for example), extensive support for collaborative revision, and integrated version control. As a result of several subtle but core differences, the history, experience, success, and nature of the two systems differ wildly. Ward Cunningham claims that he chose the term "wikiwiki," the Hawaii word for "fast" or "quick," because "QuickWeb" already referred to another program. Cunningham, usually abbreviating the terms to just "Wiki," describes the core concept as being "at once both so simple and so novel that it is difficult to grasp" (Leuf2001).

Figure 3-5. Wiki: example page (PHPWiki)

In his book on Wiki, co-authored with programmer and collaborative writing facilitator Bo Leuf, Ward Cunningham describes wikis as "freely expandable collections of interlinked Web

3. Wiki's author suggests that the term "Wiki" should be used to refer to the essential concept while the particular implications be called "wikis" (Leuf2001).

'pages,' a *hypertext system* for storing and modifying information—a *database*, where each page is easily editable by any user with a forms-capable Web browser client" (Leuf2001 14). Put more simply, Wiki is a collection of interconnected web page where anyone, including people without specialized knowledge, computer savvy, or extra software, can create, edit, and reorganize World Wide Web content quickly and easily. The authors elaborate and describe the three essential goals and mechanisms employed by Wiki:

- A wiki invites all users to edit any page or to create new pages within the wiki Web site, using only a plain-vanilla Web browser without any extra add-ons.
- Wiki promotes meaningful topic associations between different pages by making page link creation almost intuitively easy and by showing whether an intended target page exists or not (See Figure 3-6).
- A wiki is not a carefully crafted site for casual visitor. Instead it seeks to involve the visitor in an on going process of creation and collaboration that constantly changes the Web site landscape (Leuf2001 16).

In each of these ways, Wiki attempts to facilitate collaboration by making the system as simple, accessible, and flexible as possible.

Figure 3-6. Wiki: links (PHPWiki)

A Wiki page (pictured in Figure 3-5) looks like a normal, albeit a text-heavy web page. However, unlike other webpages, each Wiki page has a button or link at the bottom that allows *every* user to edit *every* page.[4] Upon clicking these links, users are presented with a large text

4. Logging into a Wiki is almost all cases optional and rarely even involves entering a password. The point of signing in is not to provide authentication but simply to provide a way for a series of changes to be associated with a single author or individual and allows for more organized discussion around a particular page or change. One author could sign in using multiple usernames. Similarly, multiple authors might share one username, or simply choose work anonymously at any point.

box containing the contents of the page in an editable form (pictured in Figure 3-7). Noting that the Hypertext Mark-up Language (HTML), the computer language that webpages are written in and that your web browser understands and translates into viewable pages, is unfamiliar to most web-surfers and prohibitively complicated for many, Wiki make use of a simple set of text formatting rules visible to users editing pages. The provided key acts to both describe the mark-up in the edit box and to explain how the user, even if they are unfamiliar with wiki mark-up, can make changes of their own. Wiki mark-up (described in Figure 3-8), is designed to be as simple and accessible as possible. For example, underling a word or phrase is as simple as affixing underscores ("_") to each side of a word or region; creating a bulleted list is a simple as beginning each bullet on a new line with an asterisk ("*"). The hope is that within 15 minutes, everybody can begin writing and changing making Wiki webpages.

Like Xanadu, linking is an essential concept in Wiki. However, unlike Xanadu, Wiki pages do not belong to individual authors. All pages in a wiki belong to all members of the community; all readers of a page are potential co-authors or collaborators. Links are important because, through linking, ties between different texts are rendered explicit and documents can borrow, hook, hint, and connect with other texts. Linking in Wiki is limited to "jump links." Creating links is as simple as running capitalized words together: "HowToUseWiki" is automatically a link. However, because wikis are enclosed systems, links to targets that do not yet exist are marked as such (see Figure 3-6). As a result, Wiki authors can leave visible hints and suggestions to their collaborators and to themselves about directions they want to take a text.

Figure 3-7. Wiki: "edit" page (PHPWiki)

Figure 3-8. Wiki: PHPWiki's summary of text formatting rules

Leuf and Cunningham claim that "Wiki is inherently democratic—every user had exactly the same capabilities as any other user" (Leuf2001 17). By describing the method as "democratic," the authors make explicit reference to the political ramifications and the context of control created by the non-hierarchical editing structure in Wiki, a system they call "open editing." The only possible exception is that in many implementations and clones, there are administrative users who have special abilities to "lock" pages (mark them as temporarily or permanently unchangeable), and to get access to statistical information on wiki usage and the technical ability to make or restore backups. Aware of these possible and considered exceptions, Leuf and Cunningham's comments speak to extremely non-hierarchical, unobtrusive, and flexible nature of control that create a highly dynamic and flexible technical environment.

In most incantations, Wiki works synchronously. However, because Wiki is web-based and each user edits a single master copy on a web server, latency issues are minimized and every user is aware of a changed version instantaneously. On each Wiki page, is a link to a list of recent changes and edits is provided so that each user can consult to determine if another author is working on a given document (see Figure 3-9). This ability to track changes provides a way for a Wiki author to easily find the sum of changes made to a work. Many wikis provide list of all pages that have changed since the last time an author visited. While unlikely, it is possible that if two users are editing a document simultaneously, the second might overwrite the first's changes. In these cases, rare even on the largest and most actively modified wikis, the overwritten changes can easily be reintroduce through Wiki's strong system of version control.

Figure 3-9. Wiki: "Recent Edits" page (PHPWiki)

Using strong version control, Wiki saves every version of every document. As such, authors tracking the "Recent Edits" page can easily display a neatly formatted description of the differences between the current version of a file and the most recent, or between any two arbitrary version of a file (see Figure 3-10). By tracking changes over time, different authors are able to work asynchronously and without a huge investment in extra-textual communication.

Figure 3-10. Wiki: "Show Difference" page (PHPWiki)

Wikis approach to facilitating communication is interesting because it is completely unintentional. Unconsidered by Cunningham while designing Wiki, Wiki itself has been adapted by users to facilitate both intra and extra-textual communications. When Wiki authors commit a change, they leave short (one line or so) summaries of their changes. While this is useful to those skimming a particular wiki, this functionality cannot facilitate meaningful dialog between Wiki authors. Using the system itself, long conversations are often executed as series of edits to a single page. Each author simply edits a page and adds a bit to the bottom (or to a relevant place that signifies that it is in response to a particular comment). These conversations occur on dedicated Wiki pages and in reserved sections of normal pages to comment on the page topics. Complex systems of notation and etiquette help shape and frame these conversations. While kludgey, or an ugly hacked-together solution, this answer is surprisingly effective in its simplicity in generating, and preserving, meaningful discourse on a topic.

Much in Wiki arises from custom and kludge. While often ugly or unpredictable, these

solutions speak to Wiki's immense flexibility. This flexibility has translated into success. The first Wiki run started by Cunningham for the Portland Pattern Repository (available online (http://c2.org/cgi/wiki)) expands at over 500 new wiki pages a month. Wiki has facilitated dynamic interconnections between previously unconnected communities and more separated "walled gardens." As Wiki is used by more people in more places for more purposes, the potential for Wiki has yet to be fully revealed. Through its dynamic and flexible articulation of control, Wiki has taken on a vibrant life of its own.

Wikipedia is an impressive project to build a Wiki-based encyclopedia as well as a good example of how wikis can be used. *Wikipedia*, which has partial translations into twelve languages, currently has 115,606 articles in its English version. These are articles are well cited, heavily cross-referenced, and often very long. Because every reader can edit each page, controversial pages, like those on the Israeli-Palestinian Conflict, represent compromises by going into great depth and describing the conflicting positions of authors on both sides. While it's possible for someone to erase or modify pages maliciously, this happens extremely rarely and, through version control, can easily be undone. Although the system is extremely open, it's also extremely edited; each entry is edited each time it is read.

The collaborative powers of Wiki have been harnessed by several other ambitious web-based projects like *Wikipedia*. One, *the Wikitionary* is a Wiki-based project attempting to build a massive cross-referenced dictionary. Wikis are also used by individuals and small groups; I used a wiki for the organization of notes for this project. It provided a quick and flexible way of organizing my thoughts with the full ability to insert cross references, links, and to keep track of the changes over time. Wiki has been put to use at Georgia Tech and in an large number of classes and educational institutions, at Motorola and a growing number of corporations—in the Debian Project and growing number of non-profit organizations (Leuf2001). Wiki has been recognized as a useful way for a product, systems, or technical solution to "self document:" both users and designers can insert, update, and change documentation as the software changes, as bugs are found, or as shortcomings are recognized.

Modern Word Processors: Microsoft Word and

OpenOffice.org

The following analysis need not dwell long on the introduction of contemporary word processors like Wordperfect and Microsoft Word; they are doubtlessly familiar to the vast majority of readers. As the primary mode of electronic textual composition, it is unsurprising that those wishing to compose electronic texts collaboratively have immediately looked to familiar software. As the Internet has massively increased the amount of communication and collaboration possible, designers and programmers of word processors have scrambled to keep up. Originally quite simple and highly designed for the individual production of text, word processors have been repeatedly reinvented.

While Microsoft Word and Corel Wordperfect are probably the most widely used word processors, they are both proprietary, "closed source" software. In addition to the intense quality of inflexibility this adds in a way described in the Section called *Flexibility*, the inaccessibility of source code makes it impossible to analyze each in the manner used in previous case studies. However, there are a number of free/open source software word processors available.[5] Of these, OpenOffice.org, a free software spin-off of Sun Microsystem's Star Office, is by far the most similar in design, layout, and functionality to Microsoft Word and Corel Wordperfect. While the figures and descriptions pertain to my experience with OpenOffice.org, they will, in almost cases, describe parallel functionality in Word and Wordperfect.

Figure 3-11. Word Processors: basic view (OpenOffice.org)

Word processors, for the most part, develop text in a "What You See Is What You Get" (WYSIWYG) method (see Figure 3-11). Most go so far as to display the edges of the printed page that will be produced to frame the users workspace. While taken for granted by many users, WYSIWYG technology imposes limitations the nature of what can be written—one can

5. In testing software for this article, I used the free word processors KWord, Abiword, LyX and OpenOffice.org and the proprietary Star Office 6.0, Microsoft Word 2000 and Corel Wordperfect 8.0 Personal edition.

only get what one can see and a link is complex to represent on a printed page. Both Xanadu and Wiki documents have viewable forms that are manipulated and changed through modification of distinct document "source" not unlike computer software; word processors collapse this difference.

Unlike both Wiki and Xanadu, the product of word processors is printed pages. Links and explicit systems of interconnected documents are either meaningless or must be articulated in very different ways on a printed page. One can refer readers to links but unless one is going to supply printed copies of *all* literature within the web of links within which a given documented is embedded, and this is rarely practical, these references are rarely followed.

However, as Chapter 2 demonstrated, the collaborative production of printed text is at least as possible and precedented as electronic textual production. Features useful or necessary for collaboration have been tacked onto word processors in the course of the genre's evolution. While meaningful, the *post facto* nature of much of these additions, and of other functionalities' continued absence, has hindered the word processors' total effectiveness at promoting meaningful collaboration.

For example, OpenOffice has no integrated method for limiting access to documents; anyone with access to a document can do anything they wish with it. Since there are no centralized servers, every user with a document has ultimate and unmediated control over the text. As the Section called *The WikiWikiWeb* has shown, this lack of structure can facilitate flexibility that can increase the effectiveness of the writing process. However, Wiki facilitates non-hierarchical access to a single centralized repository; while users feel empowered to make major changes, there changes are always described in a single authoritative copy. With word processors, there can easily be as many incompatible—often impossible to merge—copies of a documents as there are collaborators.

The result is a need for non-technical systems of organization and roles outside those provided by the word processor. For example, one collaborator might be designated as the editor or document leader and every change made by every collaborator must be proxied through this individual onto a single authoritative text that is controlled. The side effect of course, is the insertion of a single individual with ultimate control; the replacement of technical proxying mechanism with a human one. Another option is the "round robin" model where each collab-

orator makes a change before passing the document to the next person in a circular list. While eliminating individualized control, this sacrifices the asynchronous element of collaboration; you can only edit when it is your turn. These two methods, while far from exhaustive of the ways that users of word processors can structure collaboration, are indicative of the way that systems built around word processors involve serious negative side effects.

Figure 3-12. Word Processors: show changes mode (OpenOffice.org)

Perhaps the recently added feature most meaningful to collaborators is the ability to record, track, show and manage changes made to a document. In many cases, two versions of a given document can be compared with a resulting third document describing the changes as additions, removals, and formatting alterations wherever possible.[6] Changes are usually highlighted in a noticeable color and deletions are struck out (see Figure 3-12. While mark-up changes are recorded, they are often difficult to describe or convey in a WYSIWYG environment; for example, it's difficult to implicitly represent the merger of two paragraphs in a way that makes sense.

With this ability to represent changes come the ability to record them; with the ability to record changes comes the ability to step through them one-by-one and apply or reject each given change. OpenOffice.org provides a window with a list of all changes recorded into memory. When a change is selected in this window (see Figure 3-13, the changed text is highlighted in the document (see Figure 3-14). Using this feature, a collaborator can easily compare a new version of a document to an older copy, see the list of changes, and walk through each change considering each individually and applying or rejecting each. The usefulness of this feature

6. This is in contrast to the slightly more useful model of displaying additions, subtractions and *changes*. While all changes can be described as the addition or subject of text, this description is often awkward of difficult for humans to interpret correctly . Because in most non WYSIWYG editing environments, mark-up and formatting is explicit, physically written in the text like "<emphasis>emphasized text</emphasis>" or "\emph{emphasized text}", there is is no need to distinguish between mark-up and text changes.

for the purposes of collaborative writing, particularly editing, is readily apparent. By making changes visible to users, word processors succeed by breaking out of the purely WYSIWYG model.

Figure 3-13. Word Processors: accept/reject changes - Picture 1 (OpenOffice.org)

Figure 3-14. Word Processors: accept/reject changes - Picture 2 (OpenOffice.org)

This type of breaking out of the WYSIWYG model reflects a transition to what the author of the rather atypical word processor LyX calls a "What you See Is What You *Mean*" (WYSIWYM) environment. Increasingly common, this model is proving increasingly effective. For example, OpenOffice.org is able to embed inter-textual comments that, while visible to those editing the document, are not displayed when the document is printed. These comments can be placed either at points or in reference to regions to allow meaningful commentary on the text. However, they act only as one-way communication devices and, outside of a two person collaboration, do not easily support the display of inter-textual dialog between for the benefit of other collaborators.

The ability to leave comments and track changes is extremely important for collaborative writing using word processors such as OpenOffice; however, this type of functionality is still the exception, not the rule for word processors. As a result, word processors are often combined with other software systems in collaborative writing projects. Networked filesystems of groupware systems have been adapted to provide version control to word processor documents.

External version control systems can keep track of old versions. Email, mailing lists, and Internet Relay Chat (IRC) or Instant Messaging (IM) systems are used to increase communication between collaborators. Each of these, while not uniquely helpful to word processors, can play an essential role in augmenting the use of software like OpenOffice.org for collaborative purposes.

At the end of the day, the fact remains: like Xanadu, word processors are not collaborative writing tools at all. They are tools designed to assist *individuals* to write which, because of their wide popularity, have been adapted for collaborative purposes. Through their strong individualization, these tools articulate control in a way that makes collaboration more difficult. While changes to the software in recent years have pushed word processors through an increasingly reflection and more meaningful facilitation of CSCW, the softwares shortcomings have had an impact. As a result, they seem less likely to succeed as tools for collaborative writing than those geared toward production of text for use within the new mediams of distribution and geared particularly toward collaborative production.

Conclusions

Each of the systems evaluated above prove very useful in facilitating certain forms of collaboration and each produces a very different type of document. Their divergent nature seems to imply that an ideal system is impossible. However, they also provide insight into the type of functionality that frames more flexible and meaningful collaboration. Through use or omission, they demonstrate the effectiveness of systems that can produce a single document, work asynchronously, allow for dynamic and flexible role through non-technically enforced hierarchies, provide strong systems of version control, facilitate both intra and extra-textual communication and demonstrate the ability to tie in work in face-to-face meetings. Through analysis along these lines, analysts can take meaningful steps toward the facilitation of meaningful collaboration in their own projects and on their own terms.

Chapter 4. Copyright and Collaborative Literary Production

Introduction

At the core of my analysis is the law. In part, the law is useful because it is more explicit than social constructions of authorship; I have on my bookshelf a printed copy of Title 17, the text of United States Copyright law. With this type of explicit codification, connecting effect to cause is often easier than when both effect and cause are debatable. In this way, the law provides a more "real" target for critique. Additionally, the law is useful because it is more accessible to most readers than computer code. Proprietary computer code, like Microsoft Windows, is completely inaccessible and utterly unmalleable—even for those with the technical ability to understand the code or make changes. The law is useful because it is, at least in theory, a dynamic and flexible entity. Critique and challenge, when advanced consistently, intelligently, and over a long period of time, can prompt meaningful changes in legal systems and their effects. Finally, the law is useful because it has special force. As Siva Vaidhyanathan says in *Copyright and Copywrongs:*

> A seventeen-year-old mixing rap music in her garage does not care whether the romantic author is dead or alive. She cares whether she is going to get sued if she borrows a three-second string of a long-forgotten disco song (Vaidhyanathan2001 21).

Conceptions of authorship can be overcome and technology can be altered without serious negative repercussions in a way that the law cannot.[1] The repercussions of breaking a law have a very different effect.

As the codification of individualized control in regards to collaborative writing, the law, reflected and embodied in contemporary copyright, sits at the center of my argument. The following is a critique of contemporary copyright that, like the preceding chapters, argues

1. The Digital Millennium Copyright Act, which will be covered in more detail in the Section called *Twenty-first Century Copyright*, may be changing this by criminalizing certain types of technical modifications that can be used to circumvent technological copyright protection schemes. This complicates but reinforces claims about the special potency of the law.

for a system of control more supportive of collaborative writing processes. While incomplete without similar shifts in systems of both social and technological control, copyright provides a excellent place to end this analysis—and to begin real change.

Contextualizing Copyright

As described in some depth in the Section called *Control as Copyright* in Chapter 1, copyright is the legal grant of monopoly control over a particular expression of an idea. The idea behind copyright is that ideas themselves are uncopyrightable; only particular expressions of ideas can be copyrighted.[2] Changes in technology and in social attitudes of authorship, the increasingly profitability of certain types of individualized control, and the powerful industries created as a result, have forced a constant reevaluation, reinterpretation and rearticulation of copyright.

Both the historical chapter earlier and the section on twentieth-century copyright (the Section called *Twenty-first Century Copyright*) below demonstrate the way that legal systems of control force what become "recalcitrant" forms of collaborative writing to articulate themselves in awkward and ineffective ways. The section on technology continues this discussion by demonstrating the way that control is articulated in modern CSCW technology. While computer technology allows writers to define the writing process in technical and material terms, the case studies in the preceding technical analysis reveal the way that many designers are bound by the socio-legal models of collaborative literary thought.

Legal conceptions of authorship are highly connected to these social and technical contexts described in detail in the preceding chapters. While CSCW software has succeeded in manipulating the social attitudes around collaborative writing by changing the terms on which people communicate, law is not so fluid. Every piece of writing, collaborative or not, written with any piece of software or by hand on a piece of paper or a napkin, is copyrightable and copyrighted. Explicitly codified, built on systems of precedent, and enforced by real civil and criminal consequences in cases of violation, copyright law is robust and powerful. However, this robustness comes at the price of dynamism and its statutory nature makes it susceptible to

2. As dynamic social and technological systems have muddied distinction between ideas and expressions, lawmakers have been forced to constantly reinterpret this division. They have increasingly interpreted this division in ways that are supportive of the extension of rights to copyright holders.

political and economic pressures. Copyright's legal nature makes it slow to react to changes in technology and social attitudes toward authorship; the creation of copyright itself trailed the invention of the printing press by more than a century.

As copyright continues to occupy an important position in defining and redefining authorship and control, its inability to react quickly and dynamically proves potentially dangerous. Copyright, emerging from and reflecting a particular type of technical and social shift in attitudes, seems particularly ill suited to the new world of collaborative writing. Rooted in a social attitude toward authorship and collaboration that copyright itself has helped to reinforce—a process pushed for by distribution organizations whose power and fortunes are grounded in the control granted by copyright—copyright is being pushed in directions that are hostile to collaboration.

Twenty-first Century Copyright

The two centuries of American copyright have seen copyright enlarge in purview, widen in reach, increase in power, double in duration, and expand in enforceability. This pattern accelerated dramatically during second half of the Twentieth Century as copyright was extended eleven times in forty years (Lessig2002 2). Most recently, American copyright was revamped in 1998 with the passage of the "Sonny Bono Copyright Term Extension Act," or CTEA.

As a result, copyright in the United States lasts longer than ever before. Currently, works by living authors will not expire until 70 years after the death of their author or 95 years in the case of creative works works made for hire (see the Section called *The Works Made for Hire Doctrine* for a more in depth analysis and description). Patterned after a similar extension in 1976 and a series of preceding extensions, the latest increase was applied both pro- and retroactively. As a result, no copyrighted works have expired into the public domain for twenty years and no copyrighted works will do so for another two decades. Writers' access to borrow freely from their contemporaries and predecessors has been crippled as the public domain has been reduced from a dynamic entity into a fixed and increasingly antiquated entity.

Copyright applies to a wider group of works than it ever has before. In addition to pho-

tographs,[3] advertising[4] and motion pictures, copyright's scope has been extended by courts and congress to encompass the broadly defined areas of literary works, musical works, including any accompanying words, dramatic works, including any accompanying music, pantomimes and choreographic work, pictorial, graphic, and sculptural works, motion pictures and other audiovisual works, sound recordings and architectural works—so broadly interpreted that computer code and databases count as literary works and something as vague as "look and feel," qualifies as audiovisual[5] USCO2000.

Copyright means increasingly more as exceptions and stipulations playing an essential mediating role in the facilitation of collaborative production have been scaled back or deemphasized in court. These include fair use, the idea/expression dichotomy, and the first sale doctrine. Each have been limited or interpreted in ways that shift power into the hands of copyright holders and legal mechanisms outside of Title 17 like the DMCA DigitalSpeech2003. While the DMCA blocks consumers from exercising their fair use rights in ways that might circumvent copyright protection schemes, fair use itself has come under siege as courts have taken an increasingly conservative approach to borrowing and parody in a number of recent high profile cases. The idea/expression dichotomy made famous in *Baker v. Selden* and *Stowe v. Thomas* has been eroded in common law. This process has been accelerated by new technologies that confuse the distinction between ideas and expression. Where does one draw the line between the idea of a piece of computer software and its expression (Rothnie1998)? Especially when confronted with new information technologies, courts continue to justify the enlargement of copyright in terms of this dichotomy while other decisions, especially in regards to "look and feel" reflect the merging of the two concepts. Finally, the first sale doctrine has been rolled back through technical and legal methods. Digital Rights Management (DRM) technology have played a major role in limiting consumers rights to manipulate data they possess.

3. Photographs entered the domain of copyright as a result of the important Supreme Court decision in *Burrow-Giles Lithographic Company v. Sarony*. While it seems clear today that the author and owner of the intellectual rights to a particular photograph belongs with its photographer, the numerous creative roles that can might involved in the production of a a photograph (e.g., models and photograph developers, just to name two) made the definition of the photographer as the sole author more complicated and controversial that it may appear today.

4. In *Bleinstein v. Donaldson Lithographic Company*m primarily non-artistic works (circus posters in *Bleinstein*) were marked as copyrightable.

5. The often controversial copyrightability of "look and feel" in regards to a particular piece of software is documented by Jack Russo and Jamie Nafziger and is highlighted in cases that most notably include *Whelan Associates, Inc. v. Jaslow Dental Laboratory* and a handful of related *Apple v. Microsoft* cases (Russo1993).

DRM has been flanked by legal actions, especially in regards to computer programs; in 1990, Congress amended the copyright act to prohibit commercial lending of computer software and to effectively end non-profit and library based distribution.

Additionally, American copyright is becoming increasingly internationalized. The World Intellectual Property Organization (WIPO) has been a major player in this effort. Membership to the World Trade Organization (WTO) is predicated on agreement with the Trade Related aspects of Intellectual Property rightS (TRIPS) agreement which standardizes, and in most cases extends, the reach of copyright. Proponents of the Sonny Bono CTEA claimed harmonization with European copyright as their highest goal—copyright law in Continental Europe has a different history and form from U.S. and British copyright (i.e., there is no concept of fair use and authors have so called "moral rights" to their works) and the terms lasted significantly longer than U.S. copyright terms. In most cases, law has harmonized by giving the most control to copyright holders, leveling the field at the higher common denominator of control.

Finally, mechanisms for enforcing copyright have gained new and unprecedented reach and power. The Digital Millennium Copyright Act (DMCA) alluded to above criminalizes the production, distribution, or assisted distribution of copyright circumvention devices. So far, criminal charges have been tied to the production and distribution of software that, among a number of potential uses, circumvents copyright protection methods to allow GNU/Linux users to play DVDs and to allow blind users to have E-Books read aloud. Technology enforcing copyright blocks utilization clearly within the scope of fair use and the DMCA uses the very real threat of legal action to block methods that sidestep these technological barriers.

This enormous growth in the scope and power of copyright has been fueled by the increasing amount of copyrighted data being produced, the increasing profitability of copyrighted data, and the resulting increase in the power of copyright holders.[6] As new systems of mass distribution allow the quick transmission of a text, movie, image or piece of software to millions, technology and law have responded by making enforcement in unprecedented way and on unprecedented levels a reality. Groups of copyright holders, most famously represented by the Recording Industry Association of America (RIAA) and the Motion Picture Association of American (MPAA) are represented by powerful lobbies in Congress whose influence and

6. Hollywood alone is worth more than fifty billion dollars (MIT2002).

success is increasingly evident in increasingly restrictive copyright laws.

These laws are demonstrably counterproductive to borrowing, sharing, collaborative writing and the general concept of collaborative creativity. The National Writers Union, the American Library Association and fourteen other library associates, and a large group of writers, lawyers, economists, and non-profit, professional, corporate and educational organizations and associations have explicitly spoken out against the increasingly broad scope of copyright (Balkin2002, Moglen2002, Jaszi2002, Lutzker2002, Englert2002). These groups are in agreement on contemporary copyright's inability to serve the American people through adherence to the Constitutional mandate allowing for the promotion of "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." Extended repeated and retroactively, the public is not served, the arts are not progressing, and the times are not limited. This message was clearly delivered to the government by Lawrence Lessig and amici in *Eldred v. Ashcroft* argued in front of the Supreme Court on October 9, 2002. In January of the following year, the court released a 7-2 decision upholding the constitutionality of the CTEA. The court agreed that Congress's repeated extensions of copyright were both objectionable and unlikely to help promote the production of more works. However, they agreed with the state's claims that as long as copyrights term could reasonably be defined as limited, as they felt it could, the nature and duration of copyright was ultimately the subject of Congress's judgment. The legal situation seems unlikely to change.

Problems with Copyright in the Context of Collaboration

In a talk on copyright, Jonathan Zittrain described a gulf between Title 17 (a reference to the United States Copyright Act) and reality (MIT2002). In an article he wrote on *Calling off the Copyright War*, Zittrain presents examples of copyright clashes as representing a, "clash between the law of intellectual property as understood among sophisticated corporate intermediaries and the reality of intellectual property as experienced by the public" Zittrain2002. The

Girl Scouts of America, a Norwegian teenager and a Russian programmer have each served vivid examples of the discrepancy between the way copyright articulates control and the way people feel that legal control of expression *should* work.[7] Few Americans who do not work for ASCAP believe that the Girl Scouts of American should have to pay royalties to sing *Happy Birthday To You* around a campfire. Until recently, both the public and the copyright holders were largely content with this discrepancy. But recently, the public's ability to act as their own mass distribution medium, and copyrighted work's incredible profitability that seems to be threatened by this shift, has prompted large copyright holders to frantically grasp at their legal and technical abilities to control copyrighted works. It has prompted a legal need to control works in ways that are unprecedented in reach.

Technical responses to the increased public ability to share, borrow, and appropriate includes broadcast flags and digital rights management—technical mechanisms enforcing and enforced by the law.[8] In the manner detailed in the previous chapter, each technical response creates a particular technological system around a conceptual basis of strong individual control in a way that makes meaningful collaboration difficult or impossible. Legal restrictions like the DMCA make attempts to redefine technology with the purpose of facilitating more meaningful collaboration—even for legitimate purposes—criminal. Together, these mechanisms present barriers to legally protected fair-use, borrowing and ad-hoc aggregatory and synthetic creation that problematizes collaborative writing in an immediate and intense way.

Copyright, as a system of strong control, is poorly suited to the facilitation of meaningful textual collaboration. Its shortcomings in this regard can be broken down into a number of

7. The Girls Scouts of America were threatened with legal action by the copyright royalty collection organization ASCAP to pay for the use of music at camps that included song sung around the campfire like *This Land is Your Land*, *Edelweiss, God Bless America*, and *Happy Birthday* (Bannon1996a). All of these songs are still copyrighted and their use is restricted and controlled accordingly. Jon Johanson is a Norwegian teenager who was arrested for writing software that under the DMCA qualified as a copyright circumvention device. His software, *DeCSS* allowed users in possession of a DVD to decode the DVD security scheme allowing for previously impossible uses that included playback under GNU/Linux and the export of video for use in reviews. Of course, it attracted attention because it also facilitated digital DVD copying (the MPAA even claimed this was the only legitimate use) (HeraldSun2000 Harvey2000). Finally, Dmitri Skylarov is a Russian programmer who, while in Russia where laws like the DMCA do not apply, wrote a program that decoded an encryption scheme protecting Adobe E-books. He was arrested by the F.B.I. and held in the U.S. while attending a conference in Las Vegas Lee2001. Each of these actions provoked outrage and protest from a diverse range of communities.

8. Broadcast flags are electronic "watermarks" placed on all broadcast materials that all recording equipment will be mandated to recognize and, when instructed buy a flag, refuse to record. Digital Rights Management is similar types of watermarking and control mechanisms built into larger computer-based digital media. They aim to prevent people from sharing copyrighted digital media between devices or individuals.

more specific problems. By privileging individualized control, copyright law ignores the effectiveness of collaborative writing. Similarly, it ignores collaborative writing's persistent and historically precedented nature. In these three ways, contemporary copyright in the context of new technology works counter to its stated Constitutional goal of promoting the sciences and the useful arts. Each of these problems describes how copyright underestimates the collaborative literary process and makes writing less effective. Additionally, copyright is also problematic in that it limits the public freedom to express themselves collaboratively.

Copyright is Unreflective of Collaborative Writing's Effectiveness

In the Constitution's copyright clause, Congress is empowered to secure for authors the rights to their works with the goal of promoting progress in the sciences and arts. Limited by this mandate, copyright's primary goal is to benefit the nation and the people; rights given to copyright holders are merely the means to this end. Copyright's grant of ownership and control and the secondary effects of attribution and compensation are merely a way of creating incentive for the promotion of a greater social good. However, copyright is only one possible model that Congress might employ in the promotion of art and science. Patents are a good example of a very different way that Congress exercises its power under this same mandate.

American copyright, itself a copy of Britain's copyright statute, was not an unchallenged method of achieving this goal when it was chosen. Thomas Jefferson makes it clear that he was uncomfortable with all monopolies, including temporary monopolies created by the government through copyright. In letters to Isaac MacPhereson, Jefferson claimed that the nature of ideas makes them particularly ill-suited to the yoke of control systems like copyright. In making his argument, he alludes the power of sharing and collaboration stating that, "he who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine receives light without darkening me" (Jefferson1909). Contemporary copyright is testament to the fact that the Federalists had their way and Article 1, Section 8 became a reality and in 1790, the first United States Copyright Act was passed.

However, the result is a compromise—a situation that is alluded to even in Federalist Paper

43 where the Constitution's "copyright clause" is discussed (Writer1966). Copyright exists because at the time of its codification it appeared to the founders to be the most effective way to promote literature, art and science. In *Mazer v. Stein*, the United States Supreme Court make the purpose of copyright clear:

> The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual efforts by personal gain is the best way to advance public welfare through the talents of authors and inventors in Science and the useful Arts (SCOTUS1954).

In the opinion, the court affirms the fact that while extensions and growth of Title 17 have changed the face and nature of American copyright, it must still be defended against the purpose laid out in the Constitution. If and when it is determined that copyright is acting to *hinder* the sciences and useful arts, Congress is operating outside its Constitutional mandate. By underestimating the effectiveness of collaborative writing processes, contemporary copyright is clearly acting outside this mandate. The inflexible nature and the consistently growing scope and duration of copyright, paired with a common law tradition enshrining the Romantic conception of authorship, has left no room for an environment fostering meaningful collaborative literary creation.

Chapter 1 offered a glimpse into the prevalence and importance of collaborative writing. Through its socio-historical analysis of group writing, Chapter 2 gave a snapshot of collaborative writing's long history of production high quality literary work. With knowledge of the established collaborative processes behind many cherished works in the world's literary canons, collaborative writing is demonstrably effective and effectively indispensable. Confirming this observation is a growing body of evidence from research around collaborative writing in classroom and industrial settings supporting the argument that collaborative writing, in many cases, produces more writing and writing of a higher quality than texts written by individuals.

Some writers and literary critics are quick to condemn attempts to quantify or compare efficiency in a discussion of art and literature. They feel that discussions of effectiveness in regards to art and artistic writing are irrelevant at best and often inherently dangerous. They are correct insofar as an empirical analysis or a study of learning will only consider a few of the processes that go into a great work of art. With full knowledge of this attitude, many of the studies cited in the paragraphs above collapse the distinction between collaborative writing and

collaborative learning—our society seems to be more accustomed to discussions of effectiveness and efficiency in regards to learning—by focusing on students learning composition and centering their argument not on the fact that writers produce better text when writing together but that they *learn* better when they engage in collaborative writing.

These critics may be justified in condemning the use of "effectiveness" as a criterion for evaluating the art of writing. However, copyright hinders creative work by limiting authors' access to particular expressions because Congress feels that the creation of limited monopolies is more *effective* at promoting the creation of new work and promoting the public interest than alternative methods. The analysis and discussion of the effectiveness of artistic processes may be awkward but in evaluating and reevaluating copyright, we have a responsibility to make this analysis.

In making this analysis, copyright seems particularly ill-suited to harnessing and promoting the effectiveness of meaningful and extensive collaboration. Copyright is problematic both in that it limits access to copyrighted works for the purposes of borrowing, appropriation and synthesis and that it enshrines and enforces an inflexible concept of authorship and ownership that makes the social processes of working together difficult for would-be collaborators.

By virtually eliminating the growth of American literature's public domain, contemporary copyright makes the type of flexible borrowing and ad-hoc or appropriate collaboration prevalent before the dominance of copyright impossible. Peter Jaszi describes this as the marginalization of "the cultural significance of ... 'serial collaboration'—a writing practice that cannot easily be accommodated within the Romantic conception of 'authorship'"—a conception codified in an increasingly egregious fashion in modern copyright. Recognizing the importance of this type of collaboration, copyright was created with strict limits on both duration and scope. As these limits have eroded, copyright has eroded the possibly for the creation of meaningful collaborative writing.

By placing the writing process in an environment of individualized authorship and ownership, the increasingly prevalent and largely inescapable nature of copyright limits collaborative writing in an insidious manner. In her in-depth sociological and psychological analysis of the effect of textual ownership in writing groups, Candace Spigelman describes how in effective writing groups, writers must be able to relinquish a measure of personal investment and control

in their writing so that the text "temporarily becomes community property" (Spigelman2000). In a legal sense, unless copyright is explicitly relinquished, writers *cannot* relinquish personal control over their work. In describing the most effective writing groups, Spigelman emphasizes the need for flexible and dynamic attitudes toward textual ownership, property, and control. In the context of copyright and its advocation of inflexible approaches to these concepts, collaborative writing happens only infrequently. Shaped and influenced by copyright, instances of collaborative writing are less meaningful and their product less effective. In the worst cases, would-be collaborators will not work together at all. The effects of this are particularly apparent in largely hostile socio-legal attitudes toward joint authorship (discussed in depth in the Section called *Joint Authorship*).

In the ways illustrated above, modern copyright clearly fails to account for the demonstrable effectiveness of collaborative writing. Because in many cases, collaborative writing can be shown to be *more* effective than the products of Romantic authorship, Congress, in supporting, expanding, and reinforcing copyright as the the lone method for the promotion of science and the useful arts, is failing in its Constitutional mandate.

Copyright is Unreflective of Collaborative Writing's Persistence

If collaborative writing were demonstrably effective but exceedingly unusual, rare or difficult, copyright's chilling effect for collaborative literary processes might be more easily supported. However, the contrary is true; collaborative writing is both historically precedented and culturally persistent—even in the context of unsupportive legal, technical, and social environments.

Chapter 2, has through its description of changing social attitudes toward collaboration, already established the persistent nature of collaborative literary creation. While the modes and methods of collaboration have evolved and grown from those employed in the creation of the Talmud, the King James Bible, Elizabethan drama, traditional Chinese literature, William Wordsworth and Samuel Taylor Coleridge, T. S. Eliot and Ezra Pound, Raymond Carver and Gordon Lish, and ubiquitous examples of contemporary ghost writing, they represent points

along a continuum of literary collaboration. They demonstrate that collaborative writing is as old as writing itself. The analysis demonstrates that copyright, as an institution of systemic control, hinders and limits collaborative writing in an inexcusable fashion. Chapter 2 also demonstrates the effect that copyright exerts on attitudes toward literary ownership, control, and collaboration. Collaborative writing has persisted but largely in emaciated, limited, and mediated forms.

Collaborative writing represents a trope in the history of literary creation whose power, effectiveness, and presence play a major role in defining literary history. The past decades have seen contemporary collaborative writing revealed as alive and prevalent. As a result, the threats and limits to collaborative writing described above represent a real and immediate danger. In providing a hostile context for collaborative writing, copyright limits, restrains, and threatens one of the most effective models of literary collaboration in an immediate and dangerous fashion.

Copyright Limits Writers' Freedom to Express Themselves Collaboratively

I've argued in the previous two sections that in creating a system of control purely reflective and supportive of individualized authorship, copyright fails to reflect the power and persistence of collaborative writing and demonstrates a failure to promote the progress of science and the useful arts in the way that the Constitution demands. However, there is a second Constitutional point from which to critique copyright: As a system of law that regulates speech, copyright should not be immune to examination and challenge under the First Amendment. By stating that no individual can sing, speak or write a particular expression—by stating that no individual can articulate an idea in a particular way—simply because it's been said in the last century casts copyright as potentially dangerous intrusion on free speech as guaranteed by the First Amendment. As a result, restrictions on speech created by copyright must be weighed carefully against the First Amendment.

Alexander Meiklejohn's argues that the First Amendment aims to protect speech as it plays into a broadly defined social and political discourse essential to any well functioning democ-

racy (Meiklejohn1975). In this narrow definition, copyright's ability to interfere with democratic discourse is clear. While in theory copyright restricts only the use of expressions, not ideas, certain protected expressions may be essential or important to the articulation of an idea within a political discourse. Martin Luther King, Jr.'s famous "I have a dream" speech represents a good example.[9] Dr. King's estate has and will bring legal action against those who appropriate any part of the speech without permission and prior arrangement. This serves as an example of the powerful implications that copyright can have in limiting speech and the importance of free speech considerations in evaluating copyright. While many writers or speakers wishing to use Dr. King's speech may be able to obtain permission from his estate, copyright provides a barrier that will often create a chilling effect blocking the works' use. In the case of large corporate copyright-holders with blanket policies regarding use of their copyrighted material, borrowing or appropriation for any purpose may be impossible. In one documented case, a scholarly journal refused to publish an article containing excerpts of Civil War era correspondence unless the researcher obtained signatures from families or copyright holders because, under the CTEA, works created by the last living Civil War veterans would not expire until 2039. Unsurprisingly, the cost in time and money required to do this additional research and obtain the necessary permission prevented the article from being published altogether (Lutzker2002).

In a literary environment of meaningful and extensive collaboration, writers must be able to borrow freely and merge their own ideas with those of their contemporaries and predecessors. Copyright's idea/expression dichotomy aims to allow the most basic form of collaboration—synthesis but even this falls short. In her analysis of copyright and the First Amendment, Janice E. Oakes notes that it is often the case that "ideas alone are not sufficient to enable an author to express his own ideas, and the rights of free speech and free press demand access to the particular from of expression contained in a copyrighted work" (Oakes1984). In such cases, copyright is inflexible and restricts speech of those who which to express themselves synthetically or collaboratively without explicit and complex legal or business relationships organized in advance. While technically this only bars transgressive collaboration or collabo-

9. Martin Luther King, Jr.'s speech is a particularly good example because it has been the subject of a high profile copyright case between Dr. King's estate and CBS. While a District Court's opinion placed the speech in the public domain on a technicality, this decision was reversed and the copyright's validity confirmed in a Federal Appeals Court opinion (USDC1998, FedAppeals1999).

ration without prior consent, the effective barrier to creative work and borrowing is huge.

While in the *Eldred v. Ashcroft* Ashcroft, the court was dismissive of the petitioners First Amendment arguments in regards to the unconstitutionality of the CTEA, the court has a long history of balancing First Amendment law and copyright (Lessig2002, SCOTUS2003).[10] This balance is perhaps most important not on a case-by-case basis but in evaluating the acceptable length and scope for copyright and controlling the nature of copyrights systemic limits on free speech. While the location of this balance is ultimately up to Congress, there is a point when copyright becomes expansive enough to limit expression otherwise protected under the First Amendment in ways that raise Constitutional concerns.

In expanding copyright eleven times in the past half-century, Congress appears to be testing the limits of this balance. The petitioners in *Eldred v. Ashcroft* paint the picture clearly:

> The significance of this speech regulation has only increased over time. The scope of the monopoly that the government confers under the copyright laws has expanded dramatically over the nation's history, and with it the severity of copyright's interference with freedom of speech (Lessig2002).

By creating monopolies based on what has been said, sung, or written by others, the full severity of this expanding interference will continue to be felt on appropriative and collaborative speech.

The petitioners continue and point out that the only justification that the Supreme Court has recognized for restricting free speech for the benefit of authors were based on the concept that the restrictions would create incentives to create more speech. However, by barring appropriation and synthesis that lies at the root of a demonstrably effective and widely prevalent form of literary creation, Congress seems to have demonstrated poor judgment in setting this balance (Lessig2002 41).

Alternatives and Answers

I have established in the previous sections that particular systems of control reflect particular systems of authorship and facilitate and reflect a particular climate of collaboration. As a

10. Recently and perhaps most influentially, the free speech and copyright relationship was considered in the decision in *Harper & Row v. Nation Enterprises* (*SCOTUS1985*).

result, wide variety of collaboration requires a wide degree of flexibility in how we define control, be it technically, socially and legally. In the following section, I describe four attempts that have been made to alter or augment copyright to facilitate creation collaborative work. Paired with collaborative technology described in Chapter 3 and collaborative notions of authorship alluded to in Chapter 2, a successful legal systems is the final piece in defining an environment of control supportive of collaborative literature.

The first two sections, the Section called *Joint Authorship* and the Section called *The Works Made for Hire Doctrine*, describe partial solutions that already exist within the systems of copyright. For reasons I describe in more depth, I feel that neither are particularly well suited to the facilitation of collaboration. The final two sections, the Section called *Limit the Terms and Reach of Copyright* and the Section called *Free Licensing*, stand in opposition to recent trends in copyright law but, in my estimation, hold more promise. In evaluating each of these alternatives, I attempt to distinguish between control by groups of individuals and control by groups which are, in and of themselves, a non-individualistic collaborative entity representative of the will and decisions of the collaborators as a group.

Joint Authorship

The most simple method for the facilitation of collaborative writing and control within the existing copyright regime is joint authorship of a single document. Joint authorship requires no modification to existing copyright and is a mature and tested concept both in the writing communities and in the laws that help define it. Unfortunately it is also the least constructive and the most problematic of potential "solutions" offered in this essay.

Joint authorship automatically occurs when two authors collaborate on a document outside of a stated contract, license, or agreement. Joint authorship requires that the collaboration be preconcerted and will not apply to many of the most historically influential and important forms of appropriate or serial forms of collaboration. Secondly, the individual contributions of each author must be both distinct from each other and copyrightable in and of themselves. For example, if one authors invents a character, plot, or idea and the other author executes it in text, only the person writing the words and *expressing* the idea could claim authorship and ownership over the final product.

Peter Jaszi describes the nature of joint authorship by stating that, "in effect, a 'joint work' has several individual 'authors:' Each 'joint author' must possess the legal attributes and should retain the legal prerogatives associated with solitary, original 'authorship'" (Jaszi1994). Quoted in a article on the impact of the Romantic conception of authorship in American copyright law and jurisprudence, Jaszi's description touches on the fact that copyright treats joint authorship not as joint control of a joint work, but as individual control of two distinct copyrighted works that happen to share the same page or paragraph. Jaszi goes on to argue that the consequences of classifying a work as one of joint authorship "reflect the individualistic bias of American copyright doctrine" (Jaszi1994 51). Imbued with bias and set in restrictive terms, the flexibility needed for many of the most useful and meaningful types of collaboration is fully absent. In fact, because each author technically "owns" or controls their portions of the joint text, each author has the ability to control their sections as they see fit without regard to their collaborator. Erecting fixed barriers between what is one author's and what is another's in a text is, at best, counterproductive to collaborative writing.

In this way, the legal concept of joint authorship facilitates meaningful literary collaboration less effectively than it represents the influence of copyright's inability to deal with de-individualized mechanisms of control. Peter Jaszi describes how in this way "copyright law thus tends to treat 'joint authorship' as a deviant form of individual 'authorship.' Indeed, in many particular instances copyright refuses to acknowledge the existence of 'joint authorship,' or does so only grudgingly." In support this argument, Jaszi cites the major 1976 revision to the copyright act that added the requirement of face-to-face meetings "at the time the writing is done" to the definitions of what copyright law would recognize as an example of joint authorship (Jaszi1994). Jaszi's point is well taken and this aspect of the 1976 copyright act revision is only one example of copyright's increasing embodiment of the Romantic and highly individualized conception of authorship and its growing hostility toward collaborative writing processes.

Even before the amendment in 1976, copyright's support for joint authorship existed as a kludge fully deserving of every negative connotation associated with the term. Joint authorship is an attempt to support collaborative writing through joint *individualized* control and—when described as such—its poor track record in supporting or encouraging a meaningful environment for collaborative writing and a large number of collaboratively authored texts is hardly

mysterious.

The Works Made for Hire Doctrine

In two sections of *An Act to Amend and Consolidate the Acts Respecting the Copyright* passed and put into effect during 1909, the United States Congress created a legal reality of corporate authorship through what is referred to as the "Works Made for Hire Doctrine." The new law, aimed primarily at publishers of periodicals, encyclopedias, and other complex aggregations of multiple authors' works, allowed an author to transfer all ownership and control over their work to an employer or proprietor. Through contracts and agreements, copyright became a commodity. Siva Vaidhyanathan calls the birth of works for hire "the real 'death of the author,'" and the point where copyright became demonstrably "a construct of convenience, malleable by contract" (Vaidhyanathan2001 102).

Since 1909, the doctrine has provided the legal backbone for the motion picture and recording industries and helped the publishing industry reinvent itself as well as paving the way for other copyright-based industries. While often used as a legal mechanism for the transfer of authorship from individuals to publishers or distributors, its intended role as a legal umbrella for the aggregation of multiple creative works has been equally influential and provides the most impressive contemporary demonstrations of the effectiveness of creative collaboration.

Using the works made for hire doctrine, the richest and largest copyright holders—corporations with household names like Disney and AOL/Time Warner—appear to have become poster children for the power and effectiveness of creative collaboration. Hollywood movies, complex musical recordings and mainstream book and newspaper publishers stand out as paragons of how working together facilitates the creation of large, high quality creative works in a quick and consistent fashion. Disney's feature-length animated films and the *World Book Encyclopedia* are profit driven endeavors that would clearly be impossible for individuals working alone. Corporate creative work as practiced under copyright's works made for hire doctrine is successful for the reasons implied in this essay; it creates a system where individual control of work by authors in systemically minimized.

While this corporate model for creative collaboration has been conspicuously missing from

my discussion so far, its omission is fully considered and fully intentional. While authorial control over works is eliminated under the works made for hire doctrine, it is replaced with individualized control by a new—usually corporate—actor. The doctrine is effective in dethroning the Romantic author but the system of individualized control rooted in the concept of romantic authorship is left fully intact; it is merely transfered to a different individual. With the systems of social and legal control unchallenged, an *owner* under the works made for hire doctrine has the full power to control, change, alter, or reform the work for her own goals in the highly individualized manner granted by copyright as well the assurance that this control is not legally available to other entities, including the work's authors. In this way, it represents a merging of collaboration creation with individualized control.

Works made for hire is clearly an effective legal mechanism for the creation of high quality and complex texts. However, while this collaboration leads to larger, more complex, and higher quality creative works than can achieved through individualized authorship, the nature of copyright's strong systems of individualized control mediate the power of the collaborative process. While to some degree, power dynamics play a role in every collaborative project, works for hire is particularly ill-suited to meaningful collaboration. Individualized control is left fully intact and is often fully transfered to an non-authorial entity.

While works for hire are often highly creative works, their creativity is highly constrained. Even a work's authors have no ability to write, alter, or borrow from the work in a way that the owner disagrees with. In a high profile court case, John Fogerty's former record label, which owned the rights to music he had written and preformed earlier in his musical career, sued him for copyright infringement of songs that Fogerty had written; the owner accused Fogerty of sounding too much like himself at an earlier point in his career (USDC1987, FedAppeals1993). Additionally, the collaborative process, while effective during the production of the work, is limited to the creation of that particular work. Collaboration by borrowing, synthesis, or rewriting is impossible without the unusual and unlikely permission of the owner.

Through the adoption of the corporate model by collaborating authors, it seems plausible that the works made for hire model could be harnessed to secure control within groups of authors. Collaborators might create corporations, directed and controlled by themselves, which control the works created by the group. Of course, these corporations would need bylaws that

described the process in eventualities that include the addition, dismissal, or withdrawal of a collaborator, the division of monetary and non-monetary compensation as well systems for resolving disagreements within the group. In addition to being prohibitively difficult to implement and maintain in many, even most, cases, the doctrine, by simply creating a new type of individualized control by the group, sets up strict limits to the scope of the collaborative process for the life of the works copyright—it can only facilitate one voice.

With this awkward exception considered, the works made for hire doctrine cannot solve the the problem of systemic and individualized control. Rather, it harnesses some part of the power of collaboration by transferring control away from those who are creating the work. Authors are not merely dethroned, they are disempowered and disenfranchised.

Limit the Terms and Reach of Copyright

The growth of copyright and the proportional elimination of support for collaborative writing implies the common-sensical idea that strong systems of legal control prove more hostile to collaborative work than less strong systems. To more effectively support collaborative writing, one only needs reduce the strength of systemic legal controls. In advocating "thin" rather than "thick" copyright, Siva Vaidhyanathan engages in such an argument (Vaidhyanathan2001). His calls echo and are echoed by those of a increasingly wide variety of individuals and organizations. The list of authors and supporters of amicus briefs in *Eldred v. Ashcroft* stands in as a recent snapshot of the most high profile members of this chorus. This diverse group united major American library associations, the Intel Corporation, and the National Writers Union, and a diverse group of lawyers, economists, software developers and non-profit organizations. They stood together behind Eric Eldred's call to establish real limits to the reach and duration of copyright (Eldred2003).

Their's was not a call for the destruction of copyright—many of these groups' livelihood is dependent on income from copyrighted works. But the National Writers Union and others were aware that the continued extension of copyright benefited writers minimally while dramatically limiting their ability to borrow and share with their contemporaries and predecessors. These groups were united in their opposition to copyright's standardization of control in ways that are counterproductive for anything other than a highly individualized model of authorship.

Through continued extensions of copyright, the public domains is frozen in a way that restricts serial collaborative unions. Of additional offense is the fact that of the 425,000 works whose expiration was postponed by the most recent extensions of copyright, only 77,00 are profitable (Lessig2002 7). Through continued extensions of copyright, the government is hurting the public ability to collaborate for the benefit of a a handful of rich copyright holders. Since the steady advance of copyright has created the crisis in which contemporary collaborators have found themselves, stopping and reversing copyright's advance comes to the forefront as a potential solution.

In *Stewart v. Abend*, the Supreme Court affirmed that "the copyright term is limited so that the public will not be permanently deprived of the fruits of an artist's labors" (SCOTUS1990). However, since, in the previous century, copyright has been retroactively extended each time the passage of copyrighted work into the public domain becomes imminent, many have begun to question the nature of these "limits." Still, the difference between "effectively" and "actually" unlimited is inconsequential to those seeking to use, reuse or access copyrighted works. Of consequence is the fact that copyright, originally set at 14 years, was better at supporting collaborative writing two hundred years ago than it is today.[11] Since copyright's expansion has aggravated the problems associated with its codification of highly individualized authorship through highly individualized control, limiting its scope, reach, and duration may in fact serve as an effective way of helping to promote collaborative authorship.

The petitioners in *Eldred v. Ashcroft* asked the Supreme Court to strike down the most recent twenty-year extension on copyright for many of the reasons I have presented so far. In a amicus brief written on behalf of fifteen library associations including the American Library Association, Arnold P. Lutzker argued the importance of shorter limits for copyright:

> As the time of protection becomes progressively less and less limited, Congress should be required to have a progressively greater foundation for determining that enlarged protection is necessary to promote the progress of science and useful arts (Lutzker2002).

11. Of course, copyright holders argue that copyrights ability to support the creation of creative works has increased through continued extensions that provide added incentive. In the context of retroactive extension, this argument seems dubious—no additional control can prompt a dead author to produce new work. In the case of the proactive extension granting an addition of twenty years fifty years after the death of the author, both common sense and empirical evidence seems to imply that the the net effect is negligible (Jaszi2002, Lessig2002).

Citing numerous egregious example of how extended copyright had blocked meaningful educational, scholarly, or democratic discourse and collaborations, Lutzker presents strong argument for limits on copyright and the test by which Congress must hold copyright to. When limits are extended and freedom and the creation of new collaborative works are limited, an argument that ignores the importance and benefit of greater *access* to existing works, Congress must be able to demonstrate that the extended copyright maintains a balance between the rewards given to copyright holders and the net benefit to the public. By scaling back copyright, petitioners and *amici* feel that scaling back copyright is one way to reclaim the balance present in early copyright that is now clearly missing.

The return to real limits for copyright is clearly a step toward an environment more supportive of collaborative writing. On the other hand, major copyright holders demonstrate their ignorance of collaborative production's power and potential by arguing that because compensation of authors prompts the promotion of new works, there is no conflict between the interest in promoting new works and the interest of copyright holders (OTA1989). Their philosophy leaves no room for collaborative work, borrowing, appropriate forms, or anything outside of the extremely narrow conception of highly individualized Romantic creativity. Reflective of heavy lobbying by these groups, the government's argument in *Eldred v. Ashcroft* took this position. However, it was not primarily concerned with debunking the petitioners arguments that contemporary extensions to copyright are poorly suited to encouraging the the promotion of science and the useful arts. Instead, the state argued that regardless of the effect, it was Congress that was mandated to decide the terms of copyright. Congress, the subject of political pressure by well funded interest groups and corporations like Disney, Time Warner and Sony, has been unresponsive to the less profitable needs of collaborative writing's practitioners.

Unfortunately, if *Eldred* is to serve as an example, the potential for reversing copyright's consistent and steady growth is doubtful. In the crushing 7-2 opinion, the Supreme Court rejected the Constitutional challenge of the CTEA and afforded only three pages to the First Amendment arguments made by the petitioners. The Court was simply unwilling or unable to interfere in Congress' actions as defined under the Copyright Clause for reasons outlined above.

Eric Eldred and Lawrence Lessig, the Stanford law professor representing Eldred in his

Supreme Court case, have since help found the *Creative Commons* project that attempts to secure a public domain through other means. *Creative Commons'* first licensing program, the *Founders' Copyright* aims to reduce the counterproductive aspects of long copyright protection, including the effect on would-be collaborators, by limiting the term of copyright to fourteen years, the length of copyright in the first American copyright act. The description of the *Founder's Copyright* project reads:

> The Framers of the U.S. Constitution understood that copyright was about balance—a trade-off between public and private gain, society-wide innovation and creative reward. In 1790, the U.S.'s first copyright law granted authors a monopoly right over their creations for 14 years, with the option of renewing that monopoly for another 14 years.
>
> We want to help restore that sense of balance—not through any change to the current laws, but by helping copyright holders who recognize a long copyright term's limited benefit to *voluntarily* release that right after a shorter period (CreativeCommons2003a).

The Creative Commons project realizes that through contractual agreements, they can achieve a more limited form of copyright. Of course, their project is purely voluntary. As a result it will have no effect on those copyright holders who chose not to relicense their work. It will also not affect those copyright holders who retain legal control of the work but are inactive—like the families of Civil War veterans who are in all likelihood oblivious to the fact that they control letters written by their great great grandfather or even to these texts very existence. The estates of many authors have no interest in a particular copyrighted work and, even if they may have no reservations with placing their work in the public domain, are unlikely to take this step.

In this uphill battle to create and foster a vibrant public domain and an environment suitable to the promotion of collaborative literature, at least one large book publisher, O'Reilly and Associates, has already agreed to place a large number of their books under *Creative Commons' Founders' Copyright* (CreativeCommons2003a). O'Reilly realize that in fourteen years, the copyright on their technical manuals will be almost entirely unprofitable—Founders' Copyright will result in little or no lack in revenue. However, ever after this period, the texts, most of which will be long out of print, may still be useful or desirable to a small community of users. O'Reilly aims both to win favor with these users and to convince other publishers to follow suit. They recognize the potential of an environment where authors of technical manuals might

freely borrow from a rich public domain. In this commons, better texts can be created more quickly and O'Reilly, and probably other companies along the way, will as a result become more profitable.

Free Licensing

The description of Lessig's work on *Creative Commons*—and the allusion to O'Reilly—presents the perfect transition the final, and perhaps the most exciting and effective, method available for supporting collaborative writing under, or in opposition to, existing systems of copyright. While *Creative Commons' Founders' Copyright* project is an unique and exciting example of voluntary and extra-legal limitations being placed on works by copyright holders, *Creative Commons'* mission is to use this type of hybridization of copyright and contract law to promote sharing and collaboration in meaningful ways in a varieties of forms. Their goal, and that of others following similar models, is an exciting attempt to create viable alternatives to highly individualized control.

Creative Commons gains it inspiration from the example of the Richard Stallman, the Free Software Foundation, and the larger free and open source software movements. Popularized by the continuing success of the GNU/Linux operating system, the free software movement[12] uses licenses to, in the words of Peter Jaszi, "approximate a public domain for software" (Jaszi2002 12). Free Software is a concept invented started by visionary MacArthur fellow Richard M. Stallman, who quit his job at MIT as a result of the growing proprietization of computer software that eliminated what he saw as a vibrant culture of sharing, borrowing and collaboration in the world of computer programming. Stallman founded the GNU project, an attempt to write an operating system that was completely free (Stallman famously explains that Free Software is "free like free speech, not like free beer"). For software to be "free" under Stallman's definition, users must be able to use the software for any purpose, share the software with their neighbor, change the software, and then share and redistribute those changes freely. Finally,

12. Free Software is often confused with Open Source. While subtle, the difference between the two movements are largely philosophical. The more pragmatic Open Source movement has its root squarely in free software and the text of the first version of the Open Source Definition is an almost verbatim copy of the Debian Free Software Guidelines. The camps collaborate on many projects and can claim joint responsibility for the success of most free/open source software projects. Richard Stillman's' *Why "Free Software" is better than "Open Source"* presents the split between the two camps clearly (Stallman2002).

Stallman wanted a method to secure his software's freedom and to keep it from proprietarization—although this was not part of his definition.

Of course, this model runs counter to the highly individualized control described by copyright.[13] As a result, Stallman used software licenses, the same contractual agreements that clarified, limited, or eliminated those scaled-back freedoms guaranteed under copyright to increase users freedom rather than to restrict it. In the conceptualization and creation of the GNU General Public License, he went a step further codifying a concept he called "copyleft" that not only secured the types of freedoms listed above but added a clause requiring that derivative versions also be licensed under the GNU GPL. The result, of course, is that any piece of software using any GPL licensed code must also be licensed under the GPL. Bryan Pfaffenberger calls this "the most important achievement of the free software movement," and argues that it "provides a meaningful alternative to the prevailing copyright regime" (Pfaffenberger2001).

In providing this alternative, the Free Software movement has facilitated a meaningful space for the promotion of collaborative work on software. The results of the experiment are fully in line with my wildest claims about the effectiveness of collaborative work. Almost solely through volunteerism, tens of thousands of programmers have contributed to the the GNU/Linux operating system which IBM and HP have chosen over internally written alternatives programmed and maintained over decades by paid workers. There is a three in four chance that a given web page was served using a Free Software web-server. In the *Cathedral and the Bazaar*, Open Source proponent Eric S. Raymond places the success of the Free and Open Source Software movements in their power to facilitate meaningful collaboration. Raymond claims that Linux's success can be traced back to the simple axiom he calls "Linus' Law": "Given enough eyeballs, all bugs are shallow " (Raymond1999 41); bugs, or errors in computer software, are found and resolved more quickly and more effectively with more collaborators on a given a project. In essays on the gnu project and a speech on *Free Software: Freedom and Cooperation*, Stallman echos the same point (Stallman2002).

Gaining inspiration from the Free and Open Source Software movement's philosophy, methods, and success, *Creative Commons'* adopted Free Software and GPL-like licensing of

13. It became clear in the beginning of Free Software's life that software itself was copyrightable although, given the nature of copyright and the nature of software, this is not necessarily obvious. Recently, software has increasingly been the subject of patents. The Free Software movement is currently attempting to respond to and mobilize against this very different form of proprietization.

artistic work as their primary method. Toward this end, *Creative Commons* has published a list of licenses for use in securing free and open access to websites, scholarship, music, film, photography, literature, courseware and other copyrightable forms. Their website allow users to dynamically select licenses that allow them to place their work in the public domain while requiring others to attribute their work or to share-alike (the viral—all derivative versions share the license of its predecessor—or "copyleft" quality of the GNU GPL) or to bar commercial use or derivative works.

Through clear instructions and a simple interface, *Creative Commons* encourages authors and artists to open their work to access, distribution, or improvement by others. Like the Free Software movement, *Creative Commons* is poised to recreate a vibrant public domain where meaningful collaboration can occur. By placing their work under a *Creative Commons* license, collaborators are able to effectively free their work from the power and scope of copyright. Only a year old, it remains to be seen if the *Creative Commons* initiative will be as successful in creating a real alternative to mainstream publishing in ways that mirror the free software movement's success.

The Future of Ideas

In all likelihood, a hybrid solution of the methods and alternatives described above, and others I've neglected or that have yet to come to my attention, holds the most promise for the future of collaborative literature. While the specific methods are unclear, the direction that copyright needs to move in obvious. Popular conceptions of authorship and modern technology do not correspond to control articulated by copyright; millions see absolutely nothing wrong with trading a few songs on Napster, Audiogalaxy, KaZaa or the next peer-to-peer file trading service even though it is clearly illegal under copyright. Either society and technology is broken or it is copyright. Large copyright holders are pushing education campaigns to "fix" society and using the DMCA and closed technological standards and systems of "trust" to "fix" technology. They are attempting to "fix" the users because we have outgrown the legal apparatus and eventually, they will lose this battle.

While the Software Publishing Industry, the MPAA and the RIAA have occupied the spot-

light in terms of copyright scandals and battles, the publishing industry is quietly waiting its turn. Its turn it seems, is at hand. The functional equivalent of Napster for books exists already and the "pirated" books scene is growing quickly. E-texts are beginning to flow freely and the web is facilitating plagiarism in ways that was not seen before. The storm is at hand.

Meanwhile, new tools for collaborative creation are growing alongside the peer-to-peer tools for collaborative distribution. People are able to write and distribute their own texts that will, probably before the same phenomena occurs int the music industry and certainly before it occurs with movies, simply create systems that, through the use of new collaborative technology and free licensing, operate outside the traditional publishing system absolutely. These systems are defining control in ways that support collaborative writing and, as it gains speed, will redefine literature once again.

An optimistic picture of the future remains vague but is not unimaginable. It is a place where community ideas are controlled by communities. It is a place where collaborative literature is controlled—perhaps the word "control" will be ill suited to the concept by this point—*collaboratively.*

Bibliography

[Alford1995] WilliamP. Alford, *To Steal a Book Is an Elegant Offense*, 1995.

[Berg1978] A Scott Berg, *Max Perkins: Editor of Genius*, 1978.

[Cox1998] JeffreyN. Cox, *Poetry and Politics in the Cockney School*, 1998.

[Daiches1941] David Daiches, *The King James Version of the Bible: An Account of the Development and Sources of the English Bible of 1611 with Special Reference to the Hebrew Tradition*, 1941.

[Daiute1986] Collette Daiute, *Do 1 and 1 Make 2?*, 382-408, 1986.

[Eliot1971] T S Eliot, *The Waste Land: A Facsimile and Transcript of the Original Drafts Including the Annotations of Ezra Pound*, Valerie Eliot, 1971.

[Evans1984] G R Evans, *The Language and Logic of the Bible: The Earlier Middle Ages*, 1984.

[Felder1983] Leonard Felder, *Successful Collaboration: When Two Pens are Better Than One*, 96, 20-22, 1983.

[Gaebelien1924] FrankE. Gaebelein, *Down through the Ages: The Story of the King James Bible*.

[Laumer1977] Keith Laumer, *How to Collaboration without Getting Your Head Shaved*, Damon Knight, 215-217, 1977.

[Leonard1994] *Author-ity and Textuality: Current Views of Collaborative Writing*, JamesS. Leonard, ChristineE. Warton, RobertMurray David, and Jeanette Harris, 1994.

[Levine1985] MarkL. Levine, *Double Trouble*, 65, 3, 34-35, 1985.

[Lindsay1921] W M Lindsay and H J Thomson, *Ancient Lore in Medieval Latin Glossaries*, 1921.

[Max1998] D T Max, *The Carver Chronicles*, 35-40, 51, 56-67, 1998.

[Muller1985] Marcia Muller and Bill Prozini, *Should You Collaborate?*, 98, 3, 7-10, 45, 1985.

[Nesset1995] Kirk Nesset, *The Stories of Raymond Carver: A Critical Study*, 1995.

[Neusner1973] Jacob Neusner, *Invitation to the Talmud*, 1973.

[Stillinger1991] Jack Stillinger, *Multiple Authorship and the Myth of Solitary Genius*, 1991.

[Strack1972] HermannL. Strack, *Introduction to the Talmud and Midrash*.

[Stull1993] *Remembering Ray: A Composite Biography of Raymond Carver*, WilliamL. Stull and MaureenP. Carroll, 1993.

[Vail2001] JeffreyW. Vail, *The Literary Relationship of Lord Byron and Thomas Moore*, 2001.

[Watson1985] Virginia Watson-Rouslin and Jean M.Peck, *Double Time*, 65, 3, 32- 36, 1985.

[Zall1966] *Literary Criticism of William Wordsworth*, PaulM. Zall, Essay, Supplementary to the Preface, 1966.

[Woodmansee1984] Martha Woodmansee, *The Genius and the Copyright: Economic and Legal Conditions of the Emergence of the Author*, 17, 4, 425-448, 1984.

[Woodmansee1994] *The Construction of Authorship: Textual Appropriation in Law and Literature*, Martha Woodmansee and Peter Jaszi, 1994.

[Jaszi1994] Peter Jaszi, *On the Author Effect: Recovering Collectivity*, Martha Woodmansee and Peter Jaszi, 29-56, 1994.

[Vaidhyanathan2001] Siva Vaidhyanathan, *Copyrights and Copywrongs: The Rise of Intellectual Property and How it Threatens Creativity*, 2001.

[Woodmansee1994a] Martha Woodmansee, *On the Author Effect: Recovering Collectivity*, Martha Woodmansee and Peter Jaszi, 15-28, 1994.

[Lay1991] *Collaborative Writing in Industry: Investigation in Theory and Practice*, HarryM. Lay and WilliamM. Karis, 1991.

[Farkas1991] DavidK. Farkas, *Collaborative Writing, Software Development, and the Universe of Collaborative Activity*, HarryM. Lay and WilliamM. Karis, 13-30, 1991.

[Weiss1991] Timothy Weiss, *Bruffee, the Bakhtin Circle and the Concept of Collaboration*, HarryM. Lay and WilliamM. Karis, 31-48, 1991.

[Weber1991] JamesR. Weber, *The Construction of Multi-Authored Texts in One Laboratory Setting*, HarryM. Lay and WilliamM. Karis, 49-64, 1991.

[Couture1991] Barbara Couture and Jone Rymer, *Discourse Interaction between Writer and Supervisor: A Primary Collaboration in Workplace Writing*, HarryM. Lay and WilliamM. Karis, 87-108, 1991.

[Malone1991] ElizabethL. Malone, *Facilitating Groups through Selective Participation: An Example of Collaboration from NASA*, HarryM. Lay and WilliamM. Karis, 109-119, 1991.

[Duin1991] AnnHill Duin, LindaA. Jorn, and MarkS. DeBower, *Collaborative Writing--Courseware and Telecommunications*, HarryM. Lay and WilliamM. Karis, 146-169, 1991.

[Pelt1991] WilliamVan Pelt and Alice Gillam, *Peer Collaboration and the Computer-Assisted Classroom: Bridging the Gap between Academics and the Workplace*, HarryM. Lay and WilliamM. Karis, 170-205, 1991.

[Shirk1991] HenriettaNickles Shirk, *Collaborative Editing: A Combination of Peer and Hierarchical Editing Techniques*, HarryM. Lay and WilliamM. Karis, 242-261, 1991.

[Wiener1986] HarveyS. Wiener, *Collaborative Learning in the Classroom: A Guide to Evaluation*, 48, 1, 52-61, 1986.

[Collins1964] BarryE. Collins and Harold Guetzkow, *A social psychology of group processes for decision-making*, 1964.

[Ede1985] Lisa Ede and Andrea Lunsford, *Research in Collaborative Writing*, 32, 4, 69-70, 1985.

[Ede1986] Lisa Ede and Andrea Lunsford, *Why Write ... Together: A Research Update*, 5, 1, 71-81, 1986.

[Ede1986a] Lisa Ede and Andrea Lunsford, *Collaborative Learning: Lessons from the World of Work*, 9, 3, 11-26, 1986.

[Dix1992] AlanJ. Dix and VictoriaC. Miles, *Version control for asynchronous group work*, 1992.

[Dix1997] Alan Dix, Roberta Mancini, and Stefano Levialdi, *Communication, Action and History*.

[Kirby1997] Andy Kirby, Paul Rayson, Tom Rodden, Ian Sommerville, and Alan Dix, *Versioning the Web*, R Conradi, 163-173, 1997.

[Dix1997a] Alan Dix, Tom Rodden, and Ian Sommerville, *Modeling Versions in Collaborative Work*, 1997.

[Vitali1995] Fabio Vitali and DavidG. Durand, *Using versioning to support collaboration on the WWW*, 1995.

[Wiki2003] *Wiki*, 2003.

[BernersLee1989] Tim Berners-Lee, *Information Management: A Proposal*, 1989.

[Ditlea1997] Steve Ditlea, *Xanadu's Creator at 60: Still Visionary, Still Cantankerous*.

[Callister1995] Lee Callister, *ZigZag and Xanadu: A Chat with Ted Nelson*, 1995.

[SpringGardner1994] Cara Spring-Gardner, *In Search of Xanadu*, 8, 14-15, 1994.

[Xanadu2001] *Project Xanadu® History (lo-res)*, 2001.

[Bush1945] Vannevar Bush, *As We May Think*, 106-107, 1945.

[Nelson1981] TheodorHolmes Nelson, *Literary Machines*, 1981.

[Udanax1999] *Udanax Green Febe Protocol*.

[Lessig2002] etall LawrenceLessig, *Eldred v. Ashcroft: Brief for the Petitioners*, 2002.

[Balkin2002] etall JackM.Balkin, *Eldred v. Ashcroft: Brief of Jack M. Balkin, Yochai Benkler, Burt Neuborne, Robert Post, and Jed Rubenfeld as Amici Curiae in Support of the Petitioners*, 2002.

[Moglen2002] Eben Moglen, *Eldred v. Ashcroft: Brief Amicus Curiae of the Free Software Foundation in Support of Petitioners*, 2002.

[Jaszi2002] Peter Jaszi, *Eldred v. Ashcroft: Brief of Amici Curiae National Writers Union, et all*, 2002.

[Englert2002] Jr. RoyT.Englert, *Eldred v. Ashcroft: Brief of Amici Curiae in Support of Petitioners*, 2002.

[Lutzker2002] ArnoldP. Lutzker, *Eldred v. Ashcroft: Brief of Amici Curiae in Support of Petitioners*, 2002.

[Eldred2003] *Eldred v. Ashcroft: Legal Documents: Supreme Court*, 2003.

[Morrill2002] RobertB. Morrill, *Micrel, Inc. v. Linear Technology Corp.: Petition for a Writ of Certiorari*, 2002.

[SCOTUS2003] SupremeCourt ofthe UnitedStates, 2003.

[USCO2000] UnitedStatesCopyright Office, *Copyright Basics*, 2000.

[Russo1993] Jack Russo and Jamie Nafziger, *Software "Look And Feel" Protection in the 1990's*, 1993.

[DigitalSpeech2003] DigitalSpeech Project, *About the DMCA*, 2003.

[SCOTUS1879] SupremeCourt ofthe UnitedStates, *Baker v. Selden*, 1879.

[SCOTUS1903] SupremeCourt ofthe UnitedStates, *Bleinstein v. Donaldson Lithographing Company*, 1903.

[SCOTUS1884] SupremeCourt ofthe UnitedStates, *Burrow-Giles Lithographic Company v. Sarony*, 1884.

[SCOTUS1954] SupremeCourt ofthe UnitedStates, *Mazer v. Stein*, 1954.

[SCOTUS1990] SupremeCourt ofthe UnitedStates, *Stewart et al. v. Abend, DBA Authors Research Co*, 1990.

[SCOTUS1985] SupremeCourt ofthe UnitedStates, *Harper & Row, Publishers, Inc., et al. v. Nation Enterprises et al*, 1985.

[FedAppeals1986] UnitedStatesCourt of AppealsfortheThirdCircuit, *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc*, 1986.

[FedAppeals1994] UnitedStatesCourt of AppealsfortheNinthCircuit, *Apple Computer, Inc. v. Microsoft Corporation, Inc*, 1994.

[USDC1998] AtlantaDivision UnitedStateDistrictCourtfortheNorthernDistrictofGeorgia, *Estate Of Martin Luther King, Jr., Inc. v. CBS, Inc*, 1998.

[FedAppeals1999] UnitedStatesCourt of AppealsfortheEleventhCircuit, *Estate Of Martin Luther King, Jr., Inc. v. CBS, Inc*, 1999.

[USDC2002] AtlantaDivision UnitedStateDistrictCourtfortheNorthernDistrictofGeorgia, *Estate Of Martin Luther King, Jr., Inc. v. CBS, Inc*, 2002.

[USDC1987] UnitedStatesDistrictCourt forthe NorthernDistrictofCalifornia, *Fantasy, Inc. v. Fogerty*, 1987.

[FedAppeals1993] UnitedStatesCourt of AppealsfortheNinthCircuit, *Fantasy, Inc. v. Fogerty*, 1993.

[Rothnie1998] WarwickA Rothnie, *Idea and Expression in a Digital World*, 9, 1, 1998.

[Zittrain2002] Jonathan Zittrain, *Calling Off the Copyright War: In battle of property vs. free speech, no one wins*, 2002.

[MIT2002] Siva Vaidhyanathan and Jonathan Zittrain, *Copyright and Culture*, 2002.

[Bannon1996] Lisa Bannon, *Lawsuit threat means silence around the campfire*, 3, 1996.

[Bannon1996a] Lisa Bannon, *The birds may sing, but campers can't unless they pay up*, 1996.

[HeraldSun2000] HeraldSun Melbourne, *DVD Copy Case*, 2000.

[Harvey2000] Ian Harvey, *Netizens Rally Behind Teen Hacker*, 7, 2000.

[Lee2001] Jennifer Lee, *U.S. Arrests Russian Cryptographer as Copyright Violator*, 2001.

[Moglen2001] Eben Moglen, *The dotCommunist Manifesto: How Culture Became Property and What We're Going to Do About It*, 2001.

[Patterson1968] LymanRay Patterson, *Copyright in Historical Perspective*, 1968.

[Thomas1967] Denis Thomas, *Copyright and the Creative Artist*, 1967.

[OTA1989] Officeof TechnologyAssessment, *Copyright and Home Copying: Technology Challenges the Law*, 1989.

[USCO1963] UnitedStatesCopyright Office, *Copyright enactments: laws passed in the United States since 1783 relating to copyright.*, 1963.

[Gere1987] AnneRuggles Gere, *Writing Groups: History, Theory and Implications*, 1987.

[Lessig1999] Lawrence Lessig, *Code and Other Laws of Cyberspace*.

[Stallman2002] RichardM. Stallman, *Free Software Free Society*, Joshua Gay, 2002.

[Raymond1999] EricS. Raymond, *The Cathedral and the Bazaar: Musings on Linux and Open Source by an Accidental Revolutionary*, Tim O'Reilly, 1999.

[Pool1997] Robert Pool, *Beyond Engineering*, 1997.

[Provenzo1986] Jr. EugeneF.Provenzo, *The Gutenberg Galaxy: Microcomputers and the Emergence of Post-Typographical Culture*, 1986.

[Schleifer2000] Ronald Schleifer, *Analogical Thinking: Post-Enlightenment Understanding in Language, Collaboration and Interpretation*, 2000.

[Clifford1981] John Clifford, *Composing in Stages: The Effects of a Collaborative Pedagogy*, 15, 1981.

[Bruffee1973a] KennethA. Bruffee, *Collaborative Learning: Some Practical Models*, 34, 5, 634-643, 1973.

[Bruffee1981] KennethA. Bruffee, *Comment and Response: Collaborative Learning*, 43, 7, 745-747, 1981.

[Gebhardt1981] Richard Gebhardt, *Richard Gebhardt Responds*, 43, 7, 747-749, 1981.

[Gebhardt1980] Richard Gebhardt, *Teamwork and Feedback: Broadening the Base of Collaborative Writing*, 42, 69-74, 1980.

[Bruffee1984] KennethA. Bruffee, *A Collaborative Learning and the 'Conversation of Mankind'*, 46, 7, 635-652, 1984.

[Stewart1988] DonaldC. Stewart, *Collaborative Learning and Composition: Boon or Bane?*, 7, 58-83, 1988.

[Bruffee1986] KennethA. Bruffee, *Kenneth A. Bruffee Responds*, 48, 1, 77-78, 1986.

[Writer1966] Alexander Hamilton, James Madison, and John Jay, *The Federalist*, Benjamin-Fletcher Wright, 1966.

[Bollier2002] David Bollier, *Silent Theft: The Private Plunder of Our Common Wealth*, 2002.

[Lefevre1987] KarenBurke LeFevre, *Invention as a Social Act*, 1987.

[Spigelman2000] Candace Spigelman, *Across Property Lines: Textual Ownership in Writing Groups*, 2000.

[Oakes1984] JaniceE. Oakes, *Copyright and the First Amendment: Where Lies the Public Interest?*, 59, 1984.

[Pfaffenberger2001] Bryan Pfaffenberger, *Why Open Content Matters*, 30, 2001.

[Benkler2001] Yochai Benkler, *Coase's Penguin, or, Linux and the Nature of the Firm*, 2001.

[Speck1999] *Collaborative Writing: An Annotated Bibliography*, CatherineP.Dice BruceW.Speck, TeresaR.Johnson and HeatonLeonB., 1999.

[Meiklejohn1975] Alexander Meiklejohn, *The First Amendment is an Absolute*, PhilipB. Kurland, 1-22, 1975.

[CreativeCommons2003a] Creative Commons, *Projects: Founders' Copyright*, 2003.

[Leuf2001] Bo Leuf and Ward Cunningham, *The Wiki Way: Quick Collaboration on the Web*, 2001.

[Foucault2002] Michel Foucault, *What is an Author?*, David Finkelstein and Alistair McCleery, 15, 225-230, 2002.

[Barthes2002] Roland Barthes, *The Death of the Author*, David Finkelstein and Alistair McCleery, 15, 221-224, 2002.

[Benkler1999] Yochai Benkler, *Free As the Air to Common Use: First Amendment Constraints on the Enclosure of the Public Domain*, 1999.

[Netanel1996] NeilW. Netanel, *Copyright and a Democratic Civil Society*, 106, 2, 283-387, 1996.

[Barrett1989] *The Society of Text: Hypertext, Hypermedia and the Social Construction of Information*, Edward Barrett, 1989.

[Barbato1986] Joseph Barbato, *Giving up the Ghost*, 229, 3, 34-38, 1986.

[Donoghue1998] Emma Donoghue, *We are Michael Field*, 1998.

Appendix A. Software (,) Politics and Indymedia

This article was written for Mute magazine. It reflects much of the ground work that has gone into the technical analysis.

Introduction and History

In addition to many other milestones in the activist and anti-globalization communities, the 1999 meeting of the WTO in Seattle marked the birth of the Independent Media Center, also known as Indymedia. Within a year, Indymedia had exploded in size. With slogans like "Be your own media" and a grass-roots publishing structure to back them up, Indymedia's attempt to provide a non-corporate and more democratic alternative to mainstream media struck a chord that resonated with activist communities across the globe.

For the first year, Indymedia's face on the web was *Active*, a web application written by a group of Australian hackers for the purpose of facilitating independent media. However, *Active* was unable to keep up with the IMC's tremendous growth in size and political diversity. There were more people interested in reading Indymedia and interacting on the IMC websites than there was bandwidth and computer power to support them. Users and media activists demanded performance, internationalization, flexibility, and features; *Active* and its developers were unable to cater to all of these needs.

The more technically inclined in Indymedia banded together under the auspices of the Indymedia Tech Collective (*IMC-Tech*) and tried to relieve the pressure on *Active's* developers. A year after Seattle, IMC-Tech had installed *Active* so many times that they had automated the process so it was as simple as: "'I'd like an Indymedia site.' *Click Click.* 'Here's your password.'" As people put *Active* in a growing number of places and used it for a growing number of purposes, its shortcomings became more difficult to ignore. Technical "under-the-hood" complaints were paired with calls for new features, increased flexibility and maintainability by

less technical volunteers.

Within six months of *Active's* christening in Seattle, IMC-Tech was excitedly discussing specifications for *Active's* replacement, dubbed simply *Active 2*. In these discussions, the political, social and technological collided on the IMC mailing lists. Suggestions for user-moderation, in the manner made famous by websites like *Slashdot* or *Kuro5hin* were viewed by some to be analogous to the advocacy of a minor form of fascism--moderation makes some voices more visible than others and, according to some, institutes an indefensible hierarchy. It was clear that *Active* needed to be replaced but that was more difficult said than done.

The geeks of IMC-Tech were keenly aware that each technological design or set of features creates a particular publishing structure, and, as a result, empowers users to "be their own media" in an equally particular way. In an organization constituted by extremely political individuals who accurately examined the political implications of every technical decision, *Active's* minimalist feature set acted as form of common ground--a least common denominator. *Active 2* was never written.

There's a story, perhaps apocryphal, that describes a point in Indymedia history when there simultaneously existed three different and disconnected attempts to rewrite *Active* within the IMC Tech community--each attempt kept hidden for fear of political clashes over functionality or design decisions. True or not, it seems possible.

It seems possible that the politicization of each technical decision and long conversations with what appeared to be impossible resolutions made writing a new piece of software as a group seem impossible. It seems possible that Indymedia simply encompasses multifarious political and social ideologies that can only be represented in multiple pieces of software.

Fast Forward a year and a half. While *Active 2* is still little more than a discussion topic on mailing lists, there are at least eight pieces of software in use by Independent Media Centers across the globe and countless slightly modified derivatives. At least five have been written from scratch for use by IMC tech-activists. Others have been adapted from existing pieces of software (like the weblog/content management systems Slash or Drupal) to fit an IMC's needs. Indymedia's political and social differences and their ideas of what the most fair publishing structure does or does not contain have spawned technical divisions in the software it uses.

Learning to Look at IMC Software

Other authors have established the existence and importance of the connection between the technological (Lessig calls it *code*) and the social structures that are created by and reflected in technological choices. In a case like Indymedia, this connection is explicit and central.

However, every effective developer knows that if every line of code and every technical detail must first stand up to political debate, every piece of software will have a history like *Active 2's*--no history beyond the conceptual. Every effective developer knows that bugs should be fixed, while features or design decisions should be discussed or debated. This division is a muddled one.

Indymedia provides the perfect venue for an analysis of this muddy distinction. Because most IMC-Techs see their work on Indymedia software as a part of their political and social activism, they make the political or social motivations behind technical decisions unusually explicit.

But IMC software is also a useful example in that it lets an analyst easily isolate the technical choices. Every piece of IMC software serves the same fundamental function--empower Internet users to be their own media--and does so by following extremely similar models. It is difficult for even an educated visitor to determine which software an IMC is running at first glance.

But the software is *not* all the same. Differences can seem subtle but they are intentional, considered, and extremely important. For some, these "subtle" differences represent the difference between media that is democratic and media that is tyrannical or fascist.

For these reasons, an analysis of the points of convergence and differentiation between different Indymedia software can give us invaluable insight into the nature of the fuzzy area at the intersection of the political, societal and technical.

Active's Template and Points of Convergence

As the first piece of Indymedia software and the application behind a majority of Media Center websites, *Active* provides the template on which all other Indymedia software has been

based. *Active* development has included little more than minor and necessary bug fixes since it was rolled out in 1999. As it stands, it provides the basic functionality common to all of the major pieces of Indymedia software.

Active's interface design and layout may be its longest lasting legacy. Its basic design is similar to the design used effectively by many mainstream media and information outlets.

The Indymedia front-page consists of a tool bar on the left with links to documentation, information about Indymedia and the software, other Indymedia sites, a simple search, and links to other IMCs. It usually includes a box through which viewers can subscribe to an email newsletter.

The middle column on the front-page is the most visible and prominent piece on the web-site. Consequently, the space is reserved for "features." For IMCs, features usually include headlines, images, thematic text, and links to a selection of representative or exceptional articles of the theme.

In *Active*, features are produced as HTML fragments. As a result, the ability to create and manipulate features requires technical sophistication, familiarity with HTML, and access to the web server on which *Active* is running. It is almost always necessary to restrict the ability to manipulate features to a small trusted group--often an editorial collective. As a result of this structure, features tend to be thematic and include an aggregation of other content submitted through the more open parts of the publishing structure.

The left column contains an overview of the *newswire*, the feature for which Indymedia is famous. Visitors to the site are allowed to follow a form-based submission process that allows them to upload articles, images, audio, or multimedia, into the newswire. On most Indymedia sites, articles are published in the newswire automatically and immediately and are displayed in reverse chronological order. The newswire lists the article subject (headline) and the date and time on which it was first posted.

Active's users have the option of filtering the newswire by media-type (i.e. only images or only text articles). Whey they click on an item in the newswire, the article is presented along with comments posted by readers. At the bottom of each article page is a form where readers can join reply to the article or comments themselves. This form, like the media submission form, allows users to specify a name or nickname but provides no system of authentication or

name registration.

Active's Spin-Offs and Points of Divergence

Even the brief description of *Active* above alludes to several of the major points of contention and areas of divergence among those who have orchestrated *Active's* spin-offs.

The way featured articles are implemented acts as an example that exemplifies a larger debate over issues of selection and information hierarchy. On *Active* and most of its derivatives, features are managed by a small group of authenticated users. Issues of control and management are compounded by the fact that the creation of features is often prohibitively complicated technically. Some feel that by limiting the ability to write features to a particular group, IMCs are privileging one set of viewpoints over others and are creating hierarchies, a form of censorship, and power structures that are no better than those in the corporate media.

Authentication is another contested topic. Several of *Active's* re-writers have seen the lack of user authentication for comments and article publishing as a serious barrier to the development of trust within Indymedia. Others see the anonymity provided by this system as essential to Indymedia's goals.

Other major issues include internationalization and localization--features that *Active* left largely neglected in its first incarnation. As alluded to in the discussion of features, the manner and degree to which developers should simplify *Active's* interface for less technically inclined people has provided yet another nexus for diverging opinions as well. Still more differences are evident around attitudes toward the importance of maintenance and updatability as fixing bugs and tracking changes in deployed copies of *Active* proved extremely problematic.

Each *Active* rewrite has evaluated and approach each of these problems differently.

Case Studies

While eight pieces of Indymedia software may seem unnecessary, each piece of software exists because it is slightly different, and in the minds of its author, at least slightly *better* than

the available alternatives. Each piece of software reflects the technical, political, and social attitudes and opinions of its authors.

An analysis of these applications as a group is interesting and useful in the context of a larger project to chart the intersection of software and its social and political implications. An in-depth discussion of the individual applications sheds light on the specific political and social points of contention, and the ways in which they have been handled.

SF-Active

SF-Active began out of a technical need to migrate *Active* from a dependence on one piece of database software (PostgreSQL) to another (MySQL) in the summer of 2000. By changing *Active* to support MySQL, a team of San Fransisco hackers forked [1] *Active* development and *SF-Active* was born. The SF hackers have taken *Active* development in new directions by setting new goals and rewriting almost every piece of the code.

The *SF-Active* hackers want to turn active from a web application used for IMC websites into a set of classes (one can think of classes as little semi-isolated bundles of features or functionality) designed to useful for a more flexible and dynamic type of Indymedia. Their software handles issues of updatability by sharing programming code among a number of sites running on one machine.

One of *SF-Active's* goals was to balance the need for moderated news queues without prior restraint censorship. Toward this end, *SF-Active* sites each run multiple news wires. All uploaded news is put directly into an "Other/Breaking News" wire and then is "promoted" to "Local" and "Global" news wires by the sites editors.

Control of features is handled by the strong administration system which makes administration accessible to less-technical inclined users--but only those that have access to the administrative section. As a result of this restriction, *SF-Active* attempted to approach these articles, like *Active*, as *thematic features* that are meant to summarize and reflect on a number of the articles in the newswire.

1. The Jargon File describes a fork as "what occurs when two (or more) versions of a software package's source code are being developed in parallel which once shared a common code base, and these multiple versions of the source code have irreconcilable differences between them."

The *SF-Active* team has not chosen to implement functionality similar to user authentication. Entering a name is free form and unrestricted as in *Active*, but they are considering password authentication in a scheme that they conceive of as a form of "nick registration." Rather than a form of authentication or trust building, nick registration's goal is simply to avoid confusion and allow people to develop reputations. If someone registers "Joe", only they can post as "Joe."

Gekked, a long time *SF-Active* coder, tried to sum up the *SF-Active* philosophy saying that, "*SF-Active* coders do not have any psychotic notions about what IMC is and isn't. Our experience working with collectives from Chile to Palestine to Iowa tells us that any attempt by engineers to prescribe process will be counterproductive and mostly just annoying."

SF-Active has documentation in English, Spanish and Italian and "almost-finished" translations from English in Arabic, Turkish, Dutch, and French. It is being used in a quickly growing number of Indymedia sites including http://sf.indymedia.org .

Mir

Mir is a java-based system based on a content management system written by German hackers for the blog-like nadir.org and then adapted to the German Indymedia site. Mir hacker Zapata admits that originally, it was "a system fit for the German IMC way of doing things." The "German IMC way" reflects a legal environment which prohibits racist, hateful, and revisionist speech in way that necessitates prior restraint story moderation in a way that many IMCs are uncomfortable with.

Over time, Mir has grown and changed. Zapata describes his own programming philosophy in stating that, "basically I do not, as a developer, want to dictate how a group should run their site." While he realizes that this is ultimately unachievable, this attitude has directed *Mir's* development toward this type of flexibility by emphasizing internationalization, static content, and a dynamic system of customizable categorization.

Mir supports readers/posters and authenticated administrators who can write features, and hide, edit and reclassify postings. While there is currently no method for rating or user moderation, there are plans to allow for different levels of administrators (i.e.. one might writes

features, another might edit postings) but this feature remains unimplemented.

Mir's support for internationalization is good and getting better while projects to add support for easy translations of articles in the newswire are advancing quickly. At the moment, this is handled by a categorization system that is elegant and flexible in its simplicity. Every article posted to an IMC running *Mir* "belongs" to zero or more categories. Users can sort and group by these categories and *Mir* administrators can set up alternative start pages or news wires for each thematic categories. Since *Mir* also categorizes articles by language and "type" (a type or administrative category that might include "newswire" "feature" or "trash") *Mir* users can easily separate all content in by language, issue, or type.

For example, featured articles in *Mir* are standard newswire articles with a "feature" type. While from a programmer perspective they are identical to newswire articles, they can only be promoted or classed as features by administrators. In practice, features tend to include a mix of articles promoted from the newswire and the sort of editorial "thematic features" used in *Active* and it's derivatives.

Mir has been translated from German into English, Spanish, Portuguese, Dutch, Euskera, French, Swedish, Turkish, Chinese, and there is work on Arabic. *Mir* is in action at http://mir.indymedia.de and a growing number of Indymedia sites.

FreeForm

FreeForm is a project started and largely maintained by an Ithaca, New York hacker named Arc. Now just over a year old, the software is nearing a point of widespread usability. It is written in Python and will soon be released as a GNU project.[2] Its developers are more explicitly interested in issues of software freedom and politics than the other Indymedia projects.

FreeForm is particularly different in that featured articles *all* begin on the newswire and are promoted to feature status. This can be done by editors, the public through a system of rating and moderation, or a combination. *FreeForm's* authors feel that the more traditional editorial method is unfair and hierarchical, and see an open system of moderation and rating as a way to

2. GNU is a recursive acronym standing for (G)NU's (N)ot (U)nix. It is the effort led by Richard Stallman and the Free Software Foundation to create a totally free operating system.

resolve this problem. Arc feels that "politically, a hierarchal system is never good" and makes this a fundamental axiom upon which his technical decisions are made.

Outside of DadaIMC, a non-free application from Baltimore, *FreeForm* is the only piece of software to incorporate user authentication. As Arc puts it, "its all great being all informal and such, but hard to build up a real system of trust when everyone is anonymous." Arc, whose other goals include the creation of a global Indymedia cryptographic "web of trust," likes the idea of users being identified as *specific* individuals without this information necessarily being connected to a real names, addresses, IPs, and other traceable information. *FreeForm's* goal is to facilitate a greater degree of trust, accountability, and reputation building within an Indymedia community.

Finally, *FreeForm* is different in that it is the only IMC application that processes all media content--others simply serve the content as is. *FreeForm* will take an uploaded photo, open it it, look at the resolution, and let the user crop it before saving it again at several different sizes. For sound, *FreeForm* integrates the free streaming program Icecast2 to process media that can be immediately entered into a 24/7 IMC Internet radio stream. However, because *FreeForm* refuses to touch media and multimedia formats that are controlled by patents, the software does not support GIF, MP3, AVI, MPEG, QuickTime or Real Media of any type. Because it promotes freedom from patented and proprietary formats, Arc views this as a feature, not a bug. In terms of multimedia, *FreeForm* supports Ogg Theora, a free multimedia compression standard that will hopefully be fully released by this summer. For media activists dependent and accustomed to other proprietary standards, this can be small consolation.

FreeForm has been translated from English to Spanish and there is ongoing work on a Farsi translation. Example sites can be seen in IMCs in Rochester and Ithaca. Like *Mir*, several non-media and non-political organizations have expressed interest in some of *FreeForm's* functionality.

Other Indymedia Software

By no means are the four pieces of Indymedia software described in this article the only pieces of software in use by IMCs. Most notably neglected is a version of the software written

by tech activists in Philadelphia in 2000 that is built on top of Slash, the software made famous by Slashdot and includes a good deal of advanced user-moderation and administration features not found in other Indymedia software. While certainly interesting, *IMC-Slash* never caught on and recent talk suggests that Philadelphia will be moving away from their own software to one of the options mentioned above.

Also important to note is *DadaIMC*. Dada is famous for being easy to install and configure. It is infamous for being the only major non-free IMC software. It was written in Baltimore and along with *FreeForm* is the only piece of software that supports user authentication or nick registration.

The Indymedia in Quebec, which has a reputation for doing things their own way, has written two versions of Indymedia software. Their current web application if based off the web-log style content management system Drupal. Their site has a look, feel, and set of features that are massively different than other Indymedia solutions. A fair analysis of the political and social implications of their software in the context of these other pieces could easily take place in its own article.

Conclusions

With a critical eye toward the technology, we can analyze the publishing structures created by these differing applications and their political implications. When we look at these systems together, we begin to get an idea of the difficult balancing acts that the programmer-activists in Indymedia struggle with.

Emphasizing a strong and accessible administration structure creates what some view as an indefensible hierarchy. Deemphasizing the role of editors eliminates thematic features which readers find useful. Cutting users' connection to non-free media formats is at the expense of convenience and access by the majority of Indymedia's current video and audio producers.

These decisions are rarely a matter of right and wrong. They are technical decision that create a particular publishing environment and reflect a particular political ideology. They each aim to create the "best" possible system for the production and distribution of grass-roots

media. There is a diversity of political and social ideologies within Indymedia and there must be a diversity of software to realize them. There will be no single answer.

And diversity, in terms of ideology and in terms of software, is a good thing. The ability to fork software and modify it to fit your differing needs is one reason that Indymedia is so closely tied to free software--it is essential for software with participatory aspirations. Zapata has worked heavily on *Mir* but is interested in getting involved with *SF-Active* development. He says, "I think it's good to have multiple code bases. It helps decentralize the software development part of Indymedia and having competition stimulates me to improve *Mir*. Also, our users have real choice, and can compare advantages between the code bases and choose the one that fits their needs best."

During the early stages of every new IMC, media activists must wrestle with the question, "Independent from *whom?*" There is clearly no correct answer. Through the creation of multiple pieces of Indymedia software with different and explicitly stated political motivations, the Indymedia movement grants us a meaningful form of freedom--the independence to choose the socio-technical terms on which we communicate.