Storytelling as collaboration and community

Designing an interactive multi-author environment for hypertext fiction

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Chapter 1

INTRODUCTION

When we first saw it emerge into public life, the World Wide Web promised to change the way we live. We would communicate, write, participate, and make friends through a web of connected machines. Life would be fundamentally different due to this groundbreaking technology of connectivity. Theorists like George Landow promised that aspects of life as fundamental as patterns of human thought would be drastically altered by the Web. The Web was trumpeted as a democratizing and revolutionary communication medium of freely available information, a medium of freedom and possibility. Charles Ess posited in "The Political Computer" that the Web would enhance human potential, providing a forum for communication and a resource for rapid access to and dissemination of knowledge. In other words, the Web would become the ideal communications network. Jay Bolter described the potential fundamental impact of the Web as: "a hypertext in which no one writer or reader has substantial control, and because no one has control, no one has substantial responsibility" (Bolter 29).

While web technology has become pervasive, it might be argued that it has made few fundamental changes in the way we live. John King et al. describe this failure to fulfill the potential of Web technology as the "Fall of Netville." In their essay they describe the promise of skyrocketing potential of networked computers for Computer Supported Collaborative Work (CSCW) and new forms of communication and society, technologies with the potential to fundamentally change thought and lifestyle. They describe an early culture characterized by "an ethos of open access across the network" and "designing solutions to social problems" (King 13, 21). King et al. continue by describing the proliferation of Web technology facilitated by the graphical browser and the emergence of corporate entities that brought the Web to the forefront of the Internet and brought the Web to the masses. Much as urban sprawl threatens the health and culture of physical cities, King et al. argue that the rapid growth of the once intimate and select group of online citizenry undermined the spirit of their creation. Popularity, along with proprietary and corporate influence changed the goals and focus of online life. In many ways this change in goals resulted in the Internet failing to fulfill much of its initial promise.

One result of this technological "sprawl" was that instead of radical fundamental changes, many of the popular uses for the Web became merely conveniences or means by which we spent time differently, all the while engaging in essentially the same old activities. For example, we can book airline tickets online. We are ostensibly saving time, but we are not taking part in an activity fundamentally different from purchasing tickets in the days before modems and DSL. A fundamentally different experience would not just replace the ticket agent with a website. A fundamentally different experience would make it easier for multiple people to communicate and coordinate their ticket purchases for group travel. A

fundamentally different experience would empower the ticket purchaser instead of merely streamlining and cutting the costs in the sales process for the airlines. A fundamentally different experience would allow more people to find tickets and travel freely. A fundamentally different experience would be, in short, fundamentally different for users, and not just a convenience.

This airline ticket example demonstrates the popular emergence of the Web as a pervasive agent of convenience. However, the popularity of online activities like purchasing airline tickets does not negate the Web's potential to make fundamental changes in the way we live and communicate. Rather, popular use has merely overshadowed that potential. When analyzing the rapid proliferation of Web technology, it is helpful to consider the Web as a young species early in its evolutionary cycle. Such species are more prone to change as they try to get their footing and establish their means of survival in their environment. Presented with different environments and survival factors, what was once a single species can split into multiple species showcasing traits that keyed their survival in their given environment. Because the Web is very young, it is like a young species with potential to follow many evolutionary paths.

The Dot-Com Web and the Users' Web

So far, the Web has followed two primary paths guided by two primary evolutionary environments. The first path can be called the Dot-Com Web. This Web species is characterized by its widespread popularity; it is the Web that exploded with the emergence of modems on home computers and America Online. The Dot-Com Web's evolutionary environment focuses on economics. Sites like Amazon.com, Yahoo.com, MSN.com, ESPN.com, and Salon.com deliver content and shopping to the masses with the aim of turning a profit through sales or advertising. For many people, this commercial collection of sites became the entire Web. The Dot-Com Web thus became a pervasive species of commerce and convenience.

The second evolutionary path for the Web can be referred to as the Users' Web. The Users' Web seems to be frequented by fewer users than the Dot-Com Web. However, these users seem to be more loyal, spend more time during each visit, and take more ownership in the Web domains they frequent. The Users' Web evolved out of the diverse communication applications that dotted the Internet landscape before the introduction of the graphical browser and the dominance of the Web. Before the browser asserted its dominance, it was part of a list of technologies including Usenet, discussion groups, text chat, Multi-user Domains (MUDs), and Graphical Worlds (Kollock and Smith, 5-8). As browsers grew in popularity and programming flexibility, some of these user-centered technologies emerged within browsers and formed the backbone of the Users' Web. The Users' Web evolved in an environment dominated by communication and interaction rather than profit. Users' Web technologies like chat, discussion groups, and MUDs brought people together and often facilitated online communities.

Static, Dynamic, and Interactive Webs

The differences between the Dot Com and Users' species of the Web are significant considering they evolved from similar technological bases. The most basic difference lies in the triad of static web, dynamic web, and interactive web. The static web can be defined by web pages with unchanging or rarely changing content. The dynamic web consists of web pages with rapidly changing content or content that changes based on user input. The interactive web consists of applications and web pages that facilitate communication amongst users.

Dot-Com Web domains flourished when they evolved from static content delivery to dynamic content delivery. For example, the Web became a viable and popular source of up-to-the-minute news when Web developers automated the dynamics of updating content. Still, whether static or dynamic, these sites largely used the Web as a means of broadcasting information in hopes of generating advertising dollars or maintaining a prominent name amongst offline information sources. Evolving to dynamic content delivery made a site fresh upon each visit, but timeliness aside this hardly differed from the freshly printed newspapers that landed on doorsteps each morning long before computers entered households.

This example illustrates how the Web is used as a means for broadcasting information to a large audience. Using the Web as a broadcast tool, however, is a narrow use of a broad technology; it is the sign of an unnecessarily specialized species. The narrow evolutionary path that the Dot-Com Web followed resulted largely from its environment. For Dot-Com Web domains, survival meant shaping Web technology into a media of pervasiveness and convenience. In other words, Dot Com sites needed to force their way into a prominent position in peoples' lives and provide these people with some perceived value – often ease of locating information or performing routine transactions. When they succeeded, a few large media groups (i.e. CNN.com) and some successful e-commerce ventures (i.e. Amazon.com) overwhelmingly controlled the successful sites that received the heaviest traffic. These sites came to define the Dot-Com Web by their shared, narrow, and often competing, focus.

Many of the Dot-Com Web's significant technological advancements were driven by profit -- and the scope of the implementation of these technologies narrowed in order to meet economic objectives. As Java, SQL, and myriad expensive-to-develop buzzword technologies immensely increased the power and flexibility of online media, the power balance on the Web seemed to shift away from those with big ideas and toward those with big budgets. The big budget developers had different goals than many Web pioneers; foremost amongst those goals was profit. During this transition of power, the goals of those wielding the most cutting-edge technologies turned toward achieving pervasiveness and convenience in order to financially validate their existence. In evolutionary terms, the Dot-Com Web species were developing new and fundamentally species-altering traits at a

rapid pace, but was mainly using these traits to repeatedly accomplish the same banal survival tasks: delivering static and dynamic content.

If the static and dynamic components of the Web triad represent the narrow use of Web technology, the interactive component represents the potential of Web technology. When discussing the potential of the Web, it is important to consider why the Web and the Internet were heralded as life-altering upon their conception: The Web brings remote users together, facilitating communication, collaboration, and sharing. These three activities are all activities of interaction; and interactivity is why the Web received so much attention upon its inception. In the age of the Web, however, interaction is a word with a very loose definition. For clarity, interaction will be defined in this paper as an activity shared by two or more humans wherein these participants are aware of each other's actions. One participant can observe the actions of others, and an initial action can influence subsequent actions by other participants. Importantly, interaction occurs between humans, not between a human and a machine. A machine may facilitate the interaction between these humans, but not be one of the agents of interaction.

We can look at non-Web technologies for examples of interaction. Reading the newspaper is not interactive because it involves persons merely receiving broadcast information generated by other persons. Indeed, the only interaction part of a newspaper is its letters-to-the-editor section. On the other hand, talking on the phone to another person is interactive. However, entering numbers to communicate information to a machine at the other end of a phone line is not interactive because there is no obvious link to another human who will perform an observable action as a result of the initial action. Similarly, making a purchase from an online store is not an interactive activity despite the user entering information into the system. The online store is not facilitating communication, sharing, or collaboration amongst humans when one person enters her purchase information into a web form. Finally, merely clicking on links provided on a Web page is not interactive. The choices made available by holding a mouse are not synonymous with interactivity. Interactivity in this scenario would involve an opportunity to provide some of the links available at a given web site. The important distinction in this Web page example lies in the dichotomy of reception and production. Reception activities, like choosing from a list of links, are passive, and therefore not interactive in the same way that producing some of the link choice on a webpage is interactive.

Parts of the Dot-Com Web evolved interactivity as a means of survival, but interactivity is very much a property of the Users' Web. The Users' Web evolved more directly from a heritage of interactive applications like MUDs and chat. The primary environmental pressure that affected the evolution of the Users' Web was the desire of people to make use of networked computers as a new media for communication and collaboration. The resulting species was a network of online communities characterized by the interaction of multiple users. This interaction within online communities represents the fundamental life

change that the Web promised all along. This is the legacy that the Mahoney Project aims to follow.

Introduction to the Mahoney Project

The Mahoney the Cat stories were originally part of an oral tradition of storytelling. They grew out of my father's imagination and penchant for sharing with young people. As young children my brother and I would beg my dad to tell us a Mahoney story. These magical tales followed the adventures of a gifted and curious cat as he explored the Enchanted Forest and dealt with the Evil Wizard. If we were lucky, we heard installments of an elaborate story night after night. Through our childhood we heard many installments and versions of the Mahoney stories. My dad maintained a basic premise and theme, but always varied the story a little bit -- sometimes to keep up with his maturing audience, sometimes because he couldn't remember what the story was the last time he told it, and sometimes because he asked for input from my brother and me.

As we grew older the Mahoney stories remained a fond memory of childhood. My father hoped that one day he could write his stories in order that they might be shared with many more children. Sadly, he passed away before he could transcribe many of his memories and ideas; so the stories only existed as a few sheets of paper with my father's distinctively scrawled handwriting and some fond memories from my youth.

The humble, wrinkled sheets and my fading memories felt like an inadequate tribute to what had once been. The Mahoney stories were a definitive part of my childhood and one of my fondest memories of my father. I wanted to write the Mahoney stories to preserve my father's memory, but each time I began I was frustrated by having so many plotlines in my head from the many different times I heard the ever-changing and evolving stories. I could not conceive of a single, authoritative, and linear story; and writing efforts stalled.

It seemed that I could not translate the stories; I needed a nontraditional and flexible environment for writing the story and publishing the text. I also needed help from other writers, just as my father solicited help from my brother and me as he told the stories. These two challenges appeared to be well met by online technology. Specifically, the Web and its hypertext structure facilitate nontraditional structures and publication as well as interaction for multiple authors. Thus, the Mahoney Project went online as an effort to bring a story to many readers and writers. Figure 1.1 below shows a screenshot of the Mahoney Project's home page.
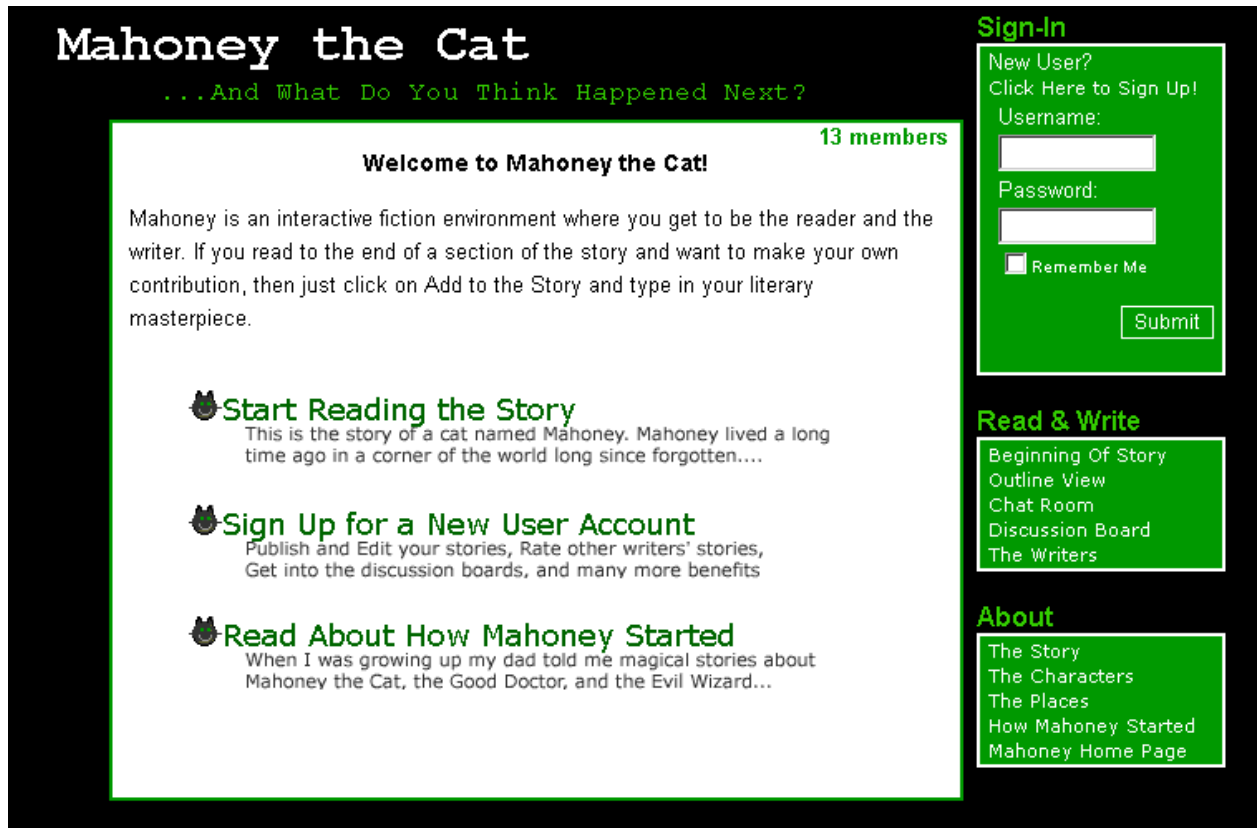
Figure 1.1 The Mahoney Project home page describes to users the intent of the site and acts as a portal to the Mahoney Project.

The Mahoney Project was designed as a hypertext fiction environment for facilitating interaction and collaboration among a community of writers and readers. It is the logical result of a marriage between the traditional (my father's oral storytelling) and the modern (networked computing and hypertext). At the time of writing, the Mahoney Project is still early in its development. The following are the goals for the Mahoney Project:

1. **To produce a cohesive fiction with significant literary quality.** The Mahoney Project could be seen as the first in a series of projects leading up to the professional publication of the Mahoney stories – either in print or as hypertext software. In order for the stories to attract a large reading audience they must be written with a quality rivaling that of published novels and children's books. This criterion of literary quality means that the stories should have a polished style and tone. The criterion also means that the stories must have cohesive transitions, so the text as a whole is cogent instead of a series of unrelated nodes pieced together through arbitrary structure.

2. **To facilitate and encourage multiple reading paths through the fiction.** One of the most empowering facets of hypertext is the multi-directionality of the text. The Mahoney Project should take advantage of this property and allow readers to follow different paths through

the story. This multi-directionality is vital in recreating the original experience of the oral Mahoney stories.

3. **To allow unlimited authors to contribute to the effort.** While some stories flourish with a single author, other stories require many voices in order to succeed. When my dad told the Mahoney stories he always asked for contributions from his listeners and received ideas from many people over the years. In light of the difficulty of a single author writing the stories, this practice of inclusion seems particularly important.

4. **To provide a sense of community that encourages long-term investment from readers and writers.** This goal contains two components. First, it is important to have an invested community because it validates the Mahoney Project. The activity of a long-term community shows people care about the project. Second, developing a community will encourage more and better writing. If people feel invested in the site, they will return to write and discuss with the result being a positive experience for the community members and an engaging story.

5. **To exist within the domains of the Users' Web.** The Mahoney Project should use Web technology to facilitate a fundamental change in the way we write, discuss, read, think, and live.

These ambitions were not always compatible. At a glance, one might quickly note the disagreement between allowing an unlimited number of authors and producing a cogent and literary hypertext. The remainder of this paper deals with the challenges of meeting these goals by looking at the strategies for attracting, facilitating, and building an active online community; coordinating a collaborative online writing environment that encourages multiple authors to write together within the same primary narrative context; translating an oral story to a hypertext environment; and structuring a flexible multi-authored hypertext -- all the while balancing control and freedom. Nearly all of the planned features of the Mahoney Project are functional, but few people have become involved in the project. For this reason, the discussion of the success of the goals of the project will focus mainly on the perceived success of their implementation and save any analysis of the success or failure of the Mahoney Project in serving its online community to the conclusions.

Chapter 2

DEVELOPING AN ONLINE COMMUNITY

In order for the Mahoney Project to succeed, a community of readers and writers needs to be drawn to the web site to make contributions to the story. The Mahoney Project's goals of fostering community and honoring the legacy of the communication- and community-centered Users' Web hinge directly on the success of developing a Mahoney community. The other goals of creating a literary text, allowing for unlimited authors, and facilitating a complex text with many storyline directions all require the community's involvement and active participation. As stated in Chapter 1, the Web presents an ideal interactive medium for facilitating a similarly minded but disparately located community. It is essential, however, that the enabling technology is employed thoughtfully in order for the community to succeed.

This chapter will discuss the theory and thought behind developing the Mahoney community. First, a discussion of Derek Powazek's *Designing for Community* will establish the parameters of a successful online community. Next, the MetaFilter community weblog (http://www.metafilter.com) will be used as an example of a successfully designed online community. After the specific design successes of the MetaFilter community are discussed, the discussion will shift to the implementation of community features in the Mahoney Project.

The final three sections of the chapter will address the tools, strategies, and rhetorical choices in the implementation of the Mahoney community. In each case a theoretical baseline will be established, leading to discussion of specific design examples informed by the theoretical baseline. The first of these sections will address the importance of membership and identity in an online community. The discussion of membership will lead into the second of these design-focused sections, wherein the importance of defining users' roles when balancing social control and freedom in an online community will be discussed.

Next, the importance of the user interface and the technology behind the user will be discussed. This portion of the discussion will focus specifically on the differences between Multi-User Domains (MUDs) and database-driven design for the primary functionality of the Mahoney Project. An example of database implementation will demonstrate the primary functionality of the Mahoney Project. The discussion will then move to the strategies employed while implementing and integrating the secondary functionality of the Mahoney Project.

Establishing Design Criteria for Successful Online Communities
There are many types of online communities with a variety of goals and a variety of users. Some of these communities thrive in their online environment while others fail for any

number of reasons. Because of all the subtle differences in these myriad online communities and the many reasons for success and failure in designing for the Web, it can be difficult to establish criteria for a successful online community and analyze why one community succeeds and another fails. It is crucial, however, to establish the basic properties of a successful online community in order to know where to direct one's thought and effort while designing a Web environment for that community.

In her book *Online Communities: Designing Usability, Supporting Sociability*, Jenny Preece details many practical design choices required of online community builders. She also makes clear the connection between community planning and the subsequent success of that community -- giving designers incentive to plan well right from the beginning of the project. In his book *Designing for Community*, Derek Powazek explains where the planning efforts should be focused. He describes what a designer needs to provide at a website in order for a community to develop. Powazek writes: "Web communities happen when users are given tools to use their voice in a public and immediate way, forming intimate relationships over time" (par. 6). He continues by describing the importance of each of the key words in his definition of Web communities or online communities:

1. **Tools**: This is all about power. Giving your users tools to communicate is giving them the power. But we're not talking about all the tools they could possibly want. We're talking about carefully crafted experiences, conservatively proportioned for maximum impact. Common tools are web boards, chat rooms, and discussion areas.

2. **Voice**: Giving your users the ability to use their voice and say what they think or feel is an incredibly powerful act. When users see their words on your site, it becomes their site, too.

3. **Public**: Private email exchanges and instant messages can help foster private communities. But for a community to succeed on the web, it has to be public, at least to some degree.

4. **Immediate**: The web is an instantaneous medium. If you're calling for user participation, you need to have systems in place to accept and reward that participation immediately.

5. **Intimate Relationships**: In the end, communities are all about relationships. And participating in a web community can be a powerfully intimate experience. If your users develop a strong emotional bond with each other and the site, you've done your job well.

6. **Time**: The last element is time. Whatever your goal, it's not going to happen all at once. Patience is not just a virtue here – it's a requirement.

The most tangible and fundamental components of design in Powazek's definition are the tools. Without basic online tools there is very little to connect a community of people on the Web. Tools allow people to interact with each other instead of merely receiving information. Some graphical and technological components of tools have evolved with the

emergence of the graphical web, but many of the important interactive tools that Powazek mentions were available, in some form, early in the evolution of the Web. Contemporary community tools like chat rooms and discussion boards are the descendants of these early technologies. Thoughtfully designing these specific tools -- as well as designing the site as a whole to be a community tool – ensures the site's development of community and its existence within the Users' Web. Ultimately, designing these tools in a careful manner is critical to allowing people to hear, listen, relate, and belong – the hallmarks of community.

The MetaFilter Community as a Model for the Mahoney Project

With a theoretical framework for what constitutes a successful community established, it is useful to consider an example online community to flesh out the specifics of Kowacek's broader themes. Indeed, one of the best ways to learn which online community strategies and implementations succeed and which fail is to participate in existing communities and observe their tools and how members use them. I observed the MetaFilter community in order to determine how design decisions and the implementation of tools shaped the community and the voices and relationships within the community.

Every day thousands of users visit the online community web site MetaFilter. The site receives over 30,000 page views daily and has 14,000 registered members. MetaFilter can boast these impressive statistics without offering e-commerce or many of the features of the Dot Com Web. Furthermore, MetaFilter has essentially no advertising budget and no offline presence. Despite these limitations, it is one of the most successful and loyally visited sites on the Users' Web. Members of MetaFilter use the site to instantly voice their opinions and develop relationships with other users over time; MetaFilter is a model online community. Clearly, MetaFilter is doing something right and is a good example for the Mahoney Project to follow.

In order to understand MetaFilter's success it is useful to understand more about the site. MetaFilter is the work of Matt Haughey, who developed the site simply because he wanted to "highlight interesting or newsworthy things on the web" (Kowazek par. 5). Haughey elaborates on these objectives:

> As I built it, I figured a small group of authors and readers would probably like to comment on each others' work. They could create discussions around articles and sites, in a small-scale way. It wasn't too much extra work to code the commenting capabilities, so I went ahead and added a built-in comment system that let authors and readers interact with one another. I never really intended the site to become a bustling community, I just wanted to make something useful that others could enjoy. (Kowazek par 7)

There was no underlying motive other than Haughey's desire to put his new-found SQL skills to work and his desire to create something for people like himself to share. Fittingly, the MetaFilter community works on a very basic premise of sharing interesting and newsworthy topics and discussing them. Registered MetaFilter users can post links to intriguing web sites and news stories. Users can then discuss their collective responses to these external links. Both the site and individual users have developed distinct community personalities because of the high rate of interaction between people. In other words, MetaFilter has succeeded because of its accessible interactive tools for accomplishing the primary site goals and because it exists within the Users' Web.

As is the challenge with many online communities, most MetaFilter users do not know each other offline. Yet despite their offline disconnection and disparate locales, MetaFilter users have developed a viable online community for discussing the news and trends of the day. This use of the Web to bring together a community is a significant accomplishment and not an accident. MetaFilter follows the example of early communication-centered technologies of the pre-graphical-browser Internet. It focuses on presenting ideas via simple text and bringing people together to discuss issues.

Why are so many users from so many geographical locations finding their way to MetaFilter and returning to the site multiple times per day? The users come and return because MetaFilter does many simple things right for its users. Exploring these reasons for MetaFilter's success provides a useful example of how to design a website for a literate, intelligent, interactive, and loyal online community. Based on my observations, I found that MetaFilter succeeds as an online community for five primary reasons. First, MetaFilter employs a free membership that gives users immediate and obvious advantages. Second, MetaFilter ties responsibility to the membership and uses the importance of identity and maintaining a good name as incentive to contribute thoughtful and useful information to the community. Third, MetaFilter uses a simple, straightforward interface with which nearly all Web users are familiar. Fourth, MetaFilter has clearly defined roles for its users. Fifth, MetaFilter encourages users to write about and around pre-existing content. While there are other reasons for MetaFilter's success, these are fundamental properties of the website that are most significant when considering MetaFilter as an example for the design and implementation of the Mahoney Project.

The Importance of Membership, Identity, and Voice in Online Communities

In order for an online community to succeed it needs members; without members it is not a community at all. Members are people who feel connected to the site and the community in some way. They are also people who return to the site frequently and generally benefit the site. In the case of MetaFilter, the expectation was that members would contribute interesting links and generate a worthwhile discussion of the issues related to that link. In the case of the Mahoney Project, the expectation was that members would write

worthwhile fiction and develop a culture around the discussion of that fiction. In both cases members are the only contributors to the content of the site.

Recruiting Members

Clearly, establishing an active, core group of members is vital to a community-focused web site, especially one like the Mahoney Project. The challenge, then, is to convert the visitor to the site into a member. One easy and useful way to validate membership for a site visitor is requiring the user to register a user account. Submitting a form with user information is an accepted standard of Web communication and, if done well, it gives users immediate ownership in and loyalty to the site. If designed poorly, this strategy can drive users away out of frustration.

It is important that a membership form does not present a roadblock to users and that membership requirements do not prevent a user from exploring and evaluating the site. H.L. Weber describes the delicate balance required when deciding the of ease attaining membership in a community: "The easy access an electronic account affords people to 'move about' increases the chances of meetings between people who otherwise might not meet." However, "that easy access may also lessen participants' perceived value of membership within the group, and make some less careful of their behavior" (14).

The Mahoney Project attempted to find a middle ground of ease of access. Shown below is the membership form for the Mahoney Project. The form requests required user information, such as a username, password, and email address. This compulsory information is indicated with an asterisk, as has become convention on the Web. Users can then choose what personal profile information they wish to submit in the non-compulsory fields below the compulsory fields. Requesting this additional information helps to establish a user's identity and develops community, but it also makes the membership submission form appear to be a larger initial hurdle for users. With hindsight, the Mahoney membership submission page might be designed to only request the required information initially. Later, users could customize information like their personal statements when they viewed and edited their profiles.

Mahoney the Cat

...And What Do You Think Happened Next?

Sign Up

Thank you for participating in the continuing adventures of Mahoney the Cat! In order to add to the stories you need to **sign up**. All of the **Account Information** is **required** in order to become a user. You can choose whether or not you want to allow other users to contact you via email. All of the **Profile Information** is **voluntary** and can be viewed by other users of the site. You can edit your Account and Profile Information at any time by visiting **My Profile**.

My Account Information

*My Username:

*My Password:

*Confirm Password:

*Email Adress:

☐ Let other Mahoney users see my email address

*required information

My Profile Information

First Name:

Last Name:

Gender: Select

Birthdate: mm.dd.yyyy

Location:

Personal Statement:

Hobbies, etc.:

Disclaimer:

By signing up to take part in Mahoney the Cat, you are agreeing that your submissions are part of a story developed by the creators of the website. These creators make your stories available to the public online and may use your story ideas in developing a hardbound version of the Mahoney the Cat stories. All information on the site is the property of the Mahoney the Cat developers regardless of its origin. If the Mahoney the Cat stories are ever sold for a profit, private contributors are not guaranteed any financial benefit, but you will be thanked for taking part in the effort.

Submit

Read & Write

Beginning Of Story
Outline View
Chat Room
Discussion Board
The Writers

About

The Story
The Characters
The Places
How Mahoney Started
Mahoney Home Page

Figure 2.1 The Mahoney Project membership sign-up page requests both required and non-required information. While generally successful, a better-designed membership

process might initially ask for less information, omitting the voluntary profile information until later and streamlining the sign-up process.

While the question of optional fields is rhetorically interesting, even more interesting are the roles of the required fields. When visitors sign up to become members of the Mahoney Project, there is only one required field with relevance outside of the project: an email address. When a user submits an email address, she is entering a contract of sorts. This contract makes the member accountable for her actions because she knows that her email address is associated with those actions. At the other end of the contract, the user is assured that her email will not be used for commercial gain and mass mailings.

The Mahoney Project makes additional rhetorical use of the email request by allowing the user to decide whether her email address will be available to the rest of the community. If the user decides not to share her email address, then she is allowed the privacy she requests. The user, however, must make a conscious choice of her position in the community. If she chooses to share her email address with the community, then other members of the community can contact her through email. This added means of communication, outside of the formal confines of the Mahoney website, promotes both a more active community and a greater responsibility to other members. The user that makes her email visible is making a conscious decision not to hide from other members of the community behind only a username.

Providing Incentive to Become a Member
While it is important to make it easy for a visitor to sign up for membership, it may be more important to give the visitor a reason for signing up. Indeed, the most direct method for converting visitors to members is to provide an incentive for membership – the so-called "killer app." Without this added functionality there is little reason for a user to go through the trouble of registering for membership.

MetaFilter accomplishes this task of persuasion by making the advantages of membership obvious and significant: the most involving features of the site are only accessible to members. Only registered members can post links to the site, and only members can discuss the issues concerning these links. Non-members can read all of the content and clearly see that other people, only a short registration form different from themselves, are contributing to and interacting with the site.

The Mahoney Project aims to persuade members to join the Mahoney community using strategies similar to those employed by MetaFilter. The overarching method for persuading visitors to become members is exposing the functionality of membership to visitors and suggesting that they become members in order to take advantage of that functionality. The primary functional difference for members and non-members is that only members are allowed to contribute to the permanent content of the site. For example, a non-member can see at the bottom of each story node that she can click on a button and add to the story. However, if that non-member tries to add to a story before registering as a member, then

she is instantly re-directed to the membership sign-up page. In this case the functionality of membership is advertised and the means of obtaining that functionality are automatically presented to the user. She can sign up quickly and then move on to writing her contribution to the story. Much like an overly complicated form this redirection strategy risks alienating users, but the strategy has the advantage of encouraging the most interested users into becoming invested members.

A second method for communicating the value of membership is making the existence and activity of current members obvious to non-members. For example, the Mahoney membership login is prominently located at the upper right of the screen. While offering a convenient means for members to login, this portion of the layout also indicates to non-members that members are regularly logging into the site upon each visit, and that there must be some value involved with joining the Mahoney Project. The login area features a message to new users, encouraging them to sign up and implying that joining will allow them to use the login feature. Furthermore, a simple message near the login feature indicates the total membership in the community. This strategy, employed successfully by MetaFilter, shows new users that there is an active community and that other people have found enough value in the benefits of membership to join. The login feature and the member count are shown in Figure 2.2 below.
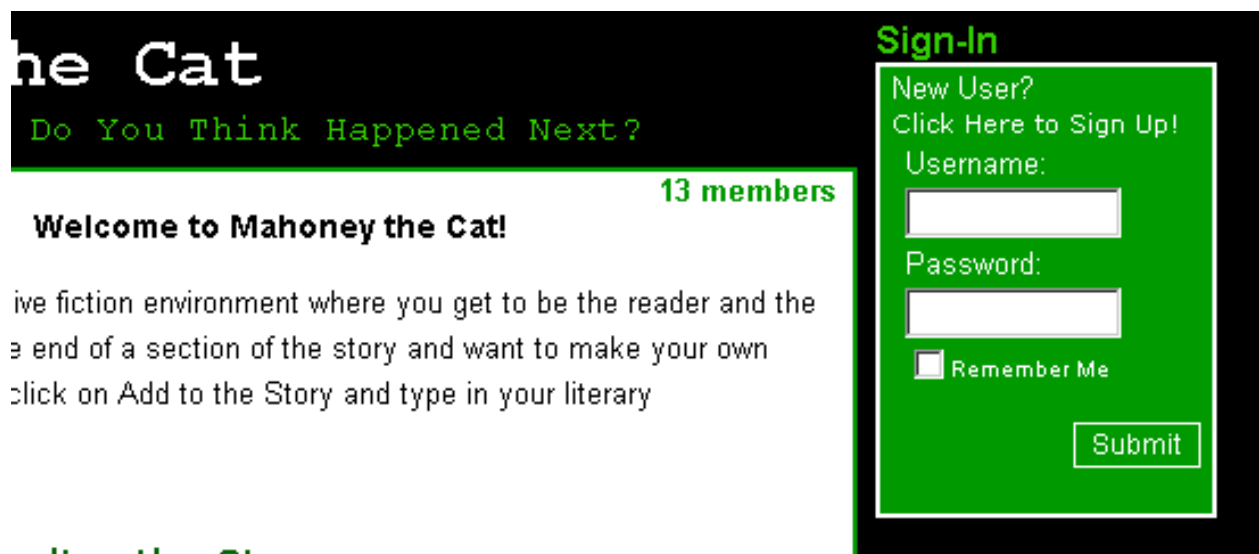

 Figure 2.2 The Mahoney Project employed a prominent login area and member count in the upper right of the layout to demonstrate to new visitors the community focus of the site.

Finally, a third method for making the benefits of membership clear is through a direct statement of those benefits. Under the large link "Sign Up for a New User Account" on the Mahoney home page reads the description of the benefits of membership: "Publish and Edit your stories, Rate other writers' stories, Get into the discussion boards, and many more benefits." This clear statement of the benefits of membership in the Mahoney Project gives first-time visitors a quick summary of reasons for joining the site.

Identity, Voice, and Responsibility in an Online Community

While requiring membership and providing incentive for users to become members are both useful for retention and loyalty, membership is more significant to a community from a standpoint of identity. When members register at MetaFilter they adopt a username and along with the name, they take on an identity – or persona -- in the community. MetaFilter ensures the significance of identity by listing the author of each primary post and each discussion post underneath the main text of either post. Members and non-members can click on the username and read information about that user, including their level of activity in the community and whatever personal information they desire to share. Identity is significant in communities like MetaFilter for two primary reasons: voice and responsibility.

While one might argue that any member of a community has some voice, voice becomes stronger -- and more importantly feels stronger -- when it is associated with a name or other form of identity. If a user sees her contribution posted to a website along with her name, then she immediately realizes the power of her voice and feels an identity within the community.

Online communities face the additional identity challenge of facilitating its members' voices without face-to-face interactions and in most cases without audio conversation. Some online communities facilitate identity and voice through avatars (i.e. Habbo.com), but text-focused online communities like MetaFilter and the Mahoney Project need to create a sense of voice through text on a screen. MetaFilter does this by providing an interactive comment system and by listing a member's name next to each contribution. Because that name is a link to a profile page, the members of the community can trust that a real, recognizable member of the site contributed a given comment. In practice, the members of the MetaFilter community often refer to other members by name, specifically addressing their comments. On some occasions, members' identities become closely associated with certain political views or technological expertise. Clearly, MetaFilter has succeeded at establishing identity through text, interaction, and a user profile page.

Fernando B. Viegas and Judith S. Donath discuss this phenomenon of online identity when they describe their online chatting environment Chat Circles. Viegas and Donath argue that text-only communication systems "the text is overloaded as a multiple signifier" (15). They describe how text is required to both communicate information and demonstrate the presence of a person in the environment. The result of text signifying presence often results in repeated insignificant posts by chatters afraid that their presence might float off the screen. In response, Viegas and Donath developed their Chat Circles environment to separate signifiers of presence and meaning. They introduce colored circles to indicate presence and simplify the significance of text to meaning. The found that chatters could easily identify themselves and others in the environment.

The Mahoney Project is more like MetaFiler than chat circles in one important way – community members need not be continuously in the environment to maintain a voice. Chat discussions are simply much faster moving, and the contributions are not persistent.

Therefore, the Mahoney Project aims to establish members' identity much in the way MetaFilter does. In implementing the project, the first step was to associate every contribution with a member's name. Just as each unit of content on MetaFilter is followed by a username, each story node in the Mahoney Project lists the author's name. This listing allows the author to realize her personal contribution to the story and allows other users to establish a sense of writing style, writing quality, and personality to associate with a given author's name. Users are also able to click on any username listing and view a page with that member's profile. A typical profile page is shown below in Figure 2.3.
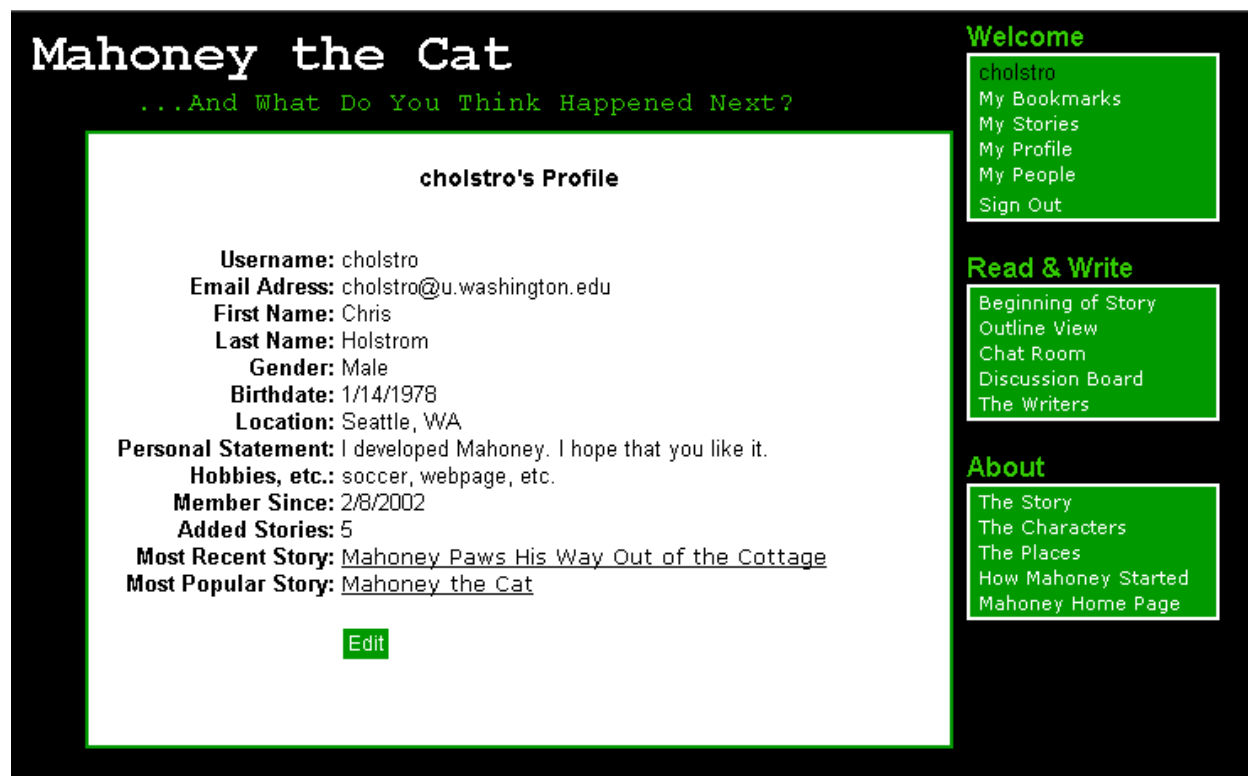

Figure 2.3 The "User Profile" page shows all users information about a specific member.

The "User Profile" page allows users to see how long a specific user has been a member and how much she has contributed to the community. The page also allows a member to express points of personal interest through the "Hobbies" and 'Personal Statement" fields. All of this user profile information allows a member to develop a specific identity for her name in the Mahoney community and can give that member a defined voice in the community.

An additional schema for developing identity and voice in the Mahoney Project was the implementation of a series of "My" pages, visible as links above in Figure 2.3. These pages included "My Bookmarks," "My Stories," "My Profile," and "My People." These pages presented members with personalized information based on their input and involvement in the Mahoney Project. For example, the "My Stories" page listed the title and date of each story a member has written, as shown below in Figure 2.4.
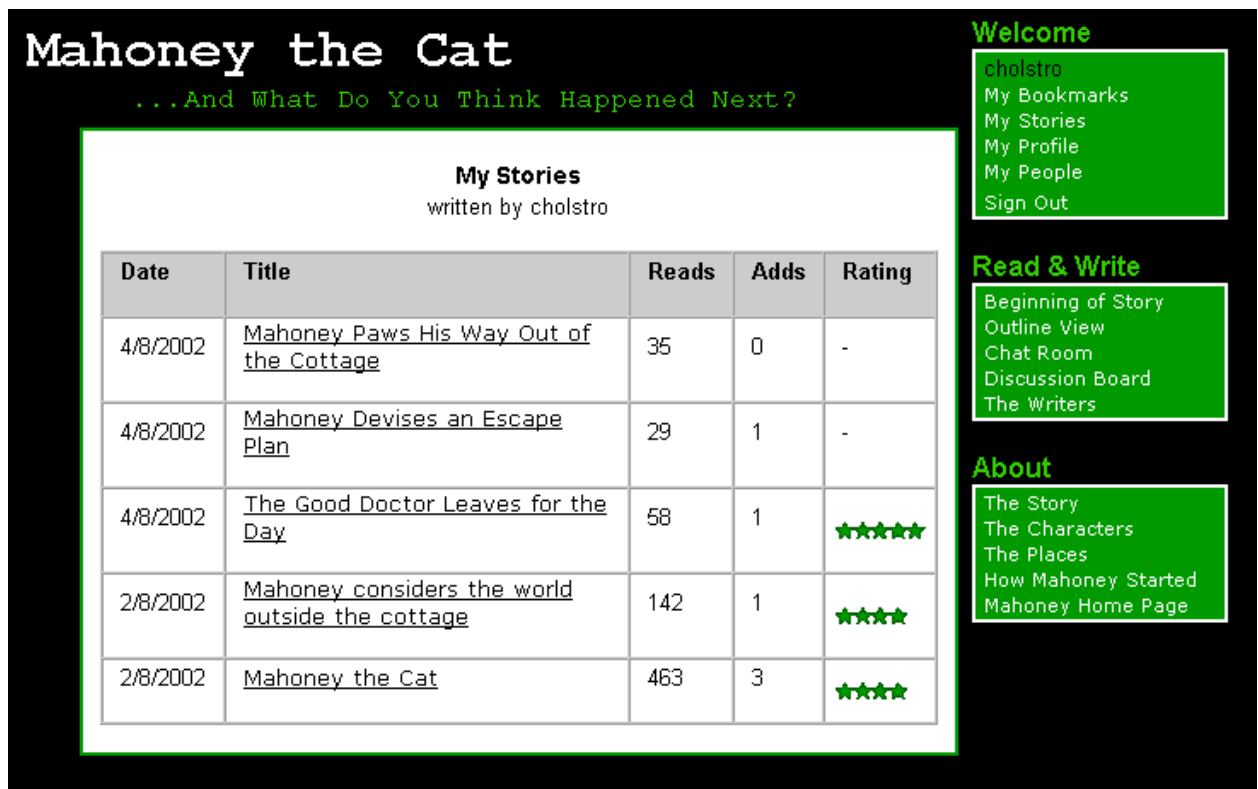
Figure 2.4 The "My Stories' page summarizes a writer's contributions to the Mahoney Project. Additionally, a writer can monitor the community's reception of her story by tracking the data associated with each contribution.

Using Identity to Promote Responsibility

While identity and voice benefit each individual member of a community on a personal level, they can also benefit the community as a whole. Indeed, with a voice and an identity within a community comes responsibility to that community. When users feel responsible to a community, or any entity for that matter, they are much more likely to take care of that community. In the case of the Mahoney Project, the hope was that the community would feel responsible for the quality of their contributions because of their desire to maintain their good name within the community. Site developer Matt Haughey describes how identity encourages responsibility at MetaFilter: "No one feels anonymous…there's a community and a code of ethics, guidelines, and unwritten rules that people follow. I think once people feel anonymous, all hell breaks loose" (Powazek par. 4). Because the Mahoney Project employs similar strategies of developing identity and voice, the community could expect to experience similar levels of member responsibility.

Defining User Roles to Create a Balance Between Social Control and a Feeling of Freedom

The discussion of responsibility in the previous section hints at the issues discussed in this

section: social control and the sense of freedom in an online community. Elizabeth Reid begins her essay "Hierarchy and Power: Social Control in Cyberspace" by stating: "The failure of the ideal of complete freedom in cyberspace was an early phenomenon" (3). With this simple observation she begins her profound discussion of the balance between freedom and control on the Web. She specifically considers the strategies used for control in MUD environments. The facilitators of these MUDs aimed to provide as much freedom for users as possible, but the easy access to the MUDs required methods such as asking for real-world identification for members and defining roles and privileges for different members.

The Mahoney Project was significantly influenced by Reid's observations about freedom and social control, as it aimed to maintain a community wherein individual freedom and creativity were balanced with the group objective. The group objectives of a literary text and a productive writing environment required significant control. Without some control, the project might spin out of control and devolve into something other than the serious writing environment intended for users. At the same time, members needed to feel free to write creatively, and they needed to feel a sense of ownership in the site. If users did not feel free to do what they wanted to do at the Mahoney website, then they would not find value in the site and would not return. Instead, they would seek a website that offered the degree of freedom they desired.

One can consider the balance of control and freedom as a spectrum of users' roles in the Mahoney Project. This spectrum is shown below in Figure 2.5.

Figure 2.5 In the Mahoney Project it was important to define the users' roles on this spectrum of freedom and control. As web site central control increased, individual user freedom decreased. The Mahoney Project aimed to strike the proper balance between freedom and control in order to facilitate a successful collaborative writing community.

On the freedom end of the spectrum, users would be able to post anything, including offensive material, without the threat of negative repercussions. This end of the spectrum represents the lowest degree of control on a user's role in the community. The opposite end of the spectrum provides complete control, but very little or no freedom in the user role. If the Mahoney Project had been designed to exist at the extreme control end of the spectrum, then the consistency of writing quality might be assured, but users' creatively might be stifled, and users might feel alienated if they felt the developers owned and controlled the site.

Developing Subtle Hints to Encourage Self-Policing
In the balance between control and freedom we see that the goal of producing a literary text is at odds with the goals of existing in the domain of the Users' Web and fostering a loyal, active, and invested community. It seems that one must choose between control and

freedom, but the Mahoney Project desired both. In order to achieve the greatest degree of both control and freedom, the Mahoney Project implemented a series of subtle hints that maintained at least an illusion of freedom while encouraging members of the community to control themselves. At the same time these methods would increase members' sense of ownership in the site, as they would be taking an active role in the definition of accepted behavior within the community. The methods of developing a self-policing community included promoting user responsibility as discussed in the previous section, implementing a rating system for stories, providing informal avenues of communication, and making the sentiment and intention of the Mahoney Project clear to all users.

The Rating System
In the MetaFilter community, each posted link lists the number of comments generated by that link. The number of comments serves as a loose voting system, as those posts that generate the most discussion are likely the most interesting and worthwhile posts. If a post generates very little interest, then the member that posted the link can learn to adapt the information she shares with the community accordingly. In the Mahoney Project, the rating system was more direct; and it gave members their most direct means of indicating their approval or disapproval of a story node contribution. At the end of each story node, members were presented with an option to rate the quality of that node on a scale from one to five stars. These ratings were accumulated, and an average rating was then associated with each node in the story. When a user was presented with a choice of multiple links to follow at the end of a given node, they could see the average rating of each subsequent node and choose accordingly. This meritocratic system served to discourage participation outside of the Mahoney Project guidelines, as established by the votes of the collective community.

Providing Informal Avenues for Communication
The section on developing secondary functionality tools will discuss the many uses of community tools such as discussion boards and chat rooms. These informal avenues of communication, however, have a specific relevance to the role of users as facilitators of control in their community. In the most practical sense, the chat room and the discussion board allow active and long-time members to answer new users' questions and make it clear when they feel someone has allowed themselves too much freedom in a story contribution or other action in the community. The collective voice of the community can be easily heard through these avenues without disrupting the continuity of the core story experience.

Clarifying Intent without Dictating
There exists a fine line between telling a user what to do in a community (and thus taking away her freedom) and letting the user realize how she is supposed to interact with the community. The Mahoney Project aimed to toe the line by providing the user subtle hints of how she was expected to interact with the community. One of example of how this was accomplished was the background information provided to users. The page describing how

the Mahoney Project started describes the stories of my childhood and my fondness for them and my late father. The page asks contributors to be respectful of his legacy, but does not explicitly dictate rules about writing style or quality. These are indirectly hinted at, so that the user feels she wants to choose to honor a legacy instead of feeling as if she is being forced into a rigorously controlled writing community.

These three rhetorical strategies, along with the dynamics of identity, voice, and responsibility created a controlled atmosphere for the Mahoney writing community while providing members with a sense of freedom. There are, however, other more sophisticated means of balancing freedom and control. One example of this type of feature was employed on MetaFilter. Powazek explains: When Matt Haughey created MetaFilter, he thought it was obvious that new members would lurk for a while and get a feel for the place before starting a topic on the homepage. When he found that wasn't the case, he made it mandatory. Now, each user is required to be a member for 24 hours and post three comments to existing threads before being able to post their own topic. (par.17)

This type of technological ingenuity serves as an example of the type of strategies the Mahoney Project might employ in the future in order to adapt and maintain a balance between freedom and control within the community.

Designing the User Interface: Primary Publishing Tools and Secondary Community Tools

The Web provides an opportunity for community because it can bring together many people with similar interests but disparate locations. While network technology is an inherent boon to easy access and a large audience, the mediation of computer technology can alter typical person-to-person interactions and if done wrong can create disconnects between the members of a community. Therefore, the effectiveness of the interface that connects the user to the computer, and thus one user to another, becomes vitally important for interaction and community.

In this section interface will refer to two types of tools: primary and secondary tools. MetaFilter makes use of primary tools to publish its main page of newsworthy links and makes use of secondary tools to facilitate discussion of the primary content. One reason for the success of the MetaFilter design is the seamless integration of these primary and secondary tools.

In order for the Mahoney Project to meet its goals, it also needed to make use of tools that would provide both primary and secondary functionality. The primary functionality for the Mahoney Project was in publishing story nodes. The primary functionality is the core of the site's content; the Mahoney Project would not exist without the primary functionality and the secondary functionality would be inconsequential without the primary to build on. Secondary functionality provides the means of discussion of the primary content. While not

the core of the site, the secondary functionality is very important, especially for the development of community. From a practical and functional standpoint, an online community needs to implement secondary tools like discussion boards, chat rooms, and polls in order to facilitate communication and make a community work. Without implementing these powerful interactive features, the communication between members that builds a community is blocked and the community's growth is stunted no matter how effective the rest of the user interface is. Both primary and secondary features, and the careful integration of the two functionalities were crucial to the development of an online writing community for the Mahoney Project. Design decisions for primary functionality will be discussed first, followed by a discussion of design considerations for secondary functionality.

Primary Functionality: Choosing Between MUD, MOO, and Database-Driven Website
The primary functionality of existing online collaborative writing environments are developed using one of two primary paradigms: the MUD (Multi-User Domain) and MOO (MUD Object Oriented) paradigm or the database-driven website paradigm. While both technological models can serve the functionality desired, these paradigms are significantly different. The choice between these technologies would fundamentally shape the structure and direction of the Mahoney Project. The choice of platform paradigm for the Mahoney Project was fundamental in its importance.

The first paradigm makes use of a MUD or MOO environment to facilitate the reading, writing, and discussion of a given text. MOOs are popular online environments wherein multiple people can interact with each other. While not necessarily designed to produce works of literature, they are specifically designed for collaboration and are well suited for bringing people together. Meyer et al. indicate that MOO environments allow multiple users to collaborate on a single writing project and facilitate quick and easy publication (79). They also note that the MOO "could easily be modified to create a hypertext fiction environment, since the MOO architecture of rooms connected by various passages could correspond to the hypertext architecture nodes connected by links" (Meyer 79). Based on Meyer et al.'s experience, the MOO can be characterized as an exceptional collaborative environment that can be adapted to easily support hypertext writing.

MOOs are also intriguing environments because they attempt to create a sense of physical space and navigation through that space. Users can create locations and design the look, feel, and rules of these locations. This spatial property would suit the Mahoney Project well because the stories often follow a journey from one distinct location to another.

There are, however, some drawbacks to developing a collaborative fiction in a MOO. Even MOO proponents Meyer et al. provided a database-driven form submittal alternative to their site. Their reasoning was that the "MOO interface can be a bit difficult for a novice to use" (79). Meyer et al. cite the difficulty of using a command-line driven system in a time when users are most familiar with graphical user interfaces. Since the 1995 publication of their article, graphical user interfaces and specifically the use of forms for submission of

data have become even more prevalent and accepted by users while command-line driven systems have become more and more the domain of highly technical computer users. This trend suggests that a forms-based submission on a traditional website backed by a database might be easier for a wide variety of users and might enable a larger community of writers to contribute to and read the Mahoney stories.

The second drawback to the MOO environment extends from its development legacy and its popular use for informal conversation. MOOs developed out of role-playing adventure games and were unique in their ability to bring multiple players together for games that were previously single-player. While this history shows the MOO is an obvious boon to online collaboration, its historical use fostered an environment not necessarily conducive to serious literary production. In Cybertext, Espen Aarseth considers the link between role-playing games and literature, suggesting that games can function as a form of literature (112). His discussion, however, centers on games developed by a single author/programmer or a group of authors and programmers (Aarseth 142). The process of developing these games resembles the traditional process of authoring a fictional text in that one person or a small group is writing for a large audience. The MOO changes this dynamic to allow multiple authors to contribute on an equal level, which definitely fulfills one of the goals for the project.

While MOOs allow multiple authors, they also create an environment where that which is written is not intentionally literary, which specifically contradicts a primary goal for the Mahoney stories' online presence: to produce something of significant literary quality. The goal for the Mahoney Project was not merely to enable and record interesting conversations, for which the MOO environment is well suited (Aarseth 146).

The MOO text tends to become more interesting as an historical, social artifact than as literature, or as Elizabeth Reid posits, "It is not a text, but a context" (Chapter 1). Reid goes on to expand her argument against MOO's ability to produce literature: "MUD sessions do not truly resemble scripts or books. The language is simply not the same. It is more dynamic and less carefully constructed. Interaction on a MUD is, after all, interactive, synchronous and ephemeral" (Chapter 1). Aarseth contradicts Reid and seriously considers the existence of literature in a MOO environment. He sees a MOO or MUD environment as an opportunity for a new form of textuality. He argues: "the differences between MUD sessions and novels and plays are trivial," citing that in all cases the text is intended for reading (or performance) even if it is not initially intended as a lasting work of art (Aarseth 147). Reid and Aarseth both make good arguments, but in the case of the Mahoney Project, the goal was to produce a story that is intentionally literary – just as the original Mahoney oral stories were – and the MOO environment seems to discourage the creation of this type of text due to its nature and history of use.

Finally, publishing via a database and HTML pages also increases users' perception that their submitted content is more permanent than submissions in a conversation-centered MOO environment. This perception encourages more literary contributions and meets the

primary goal of the Mahoney Project (Reid, Chapter 1). Choosing against a MOO environment left the second paradigm for an online collaborative fiction platform: a traditional website that makes use of forms for user submission and a database to store, organize, and publish the content of the site. It has already been stated that this paradigm is more familiar to a larger audience than a MOO environment. Many websites, including MetaFilter, employ a database-driven system for at least their primary functionality.

Not surprisingly, many of the more successful and accessible collaborative fiction sites on the Internet use database technology. Prosebush (www.prosebush.com) is one of the better-designed online fiction publishing communities, and provides a reasonable example to follow. Users can read a story by linking from one node to the next. At the end of each node users can choose to follow one of the multiple paths available or add a node to the story connected from that point. The interface for this type of system is simple and straightforward. Because of the simplicity of design, Prosebush was used as a model for the development of the Mahoney Project. The hypertext structure implications of this design decision will be discussed in Chapter 4.

Using the Database-Driven Paradigm to "Add a Story"
In the final analysis comparing the MOO paradigm to the database paradigm, the MOO proved more adept at easily facilitating collaboration, but not as adept at fostering a serious writing atmosphere. The database paradigm was chosen because it promoted a sense of literary significance in contributions, provided an easy management system for information, and because – as discussed below -- chat rooms and discussion boards can compensate for the difficulty in facilitating casual community conversation using a forms and database system.

The following section discusses the basic page design and the use of a database structure for the "Add a Story" component of the Mahoney Project. This discussion serves as a significant example of site implementation, as the primary functional goal of the Mahoney Project was to allow members to add on to the story at any point in the hypertext.

At the end of each node of the Mahoney story a user has multiple options including an option to contribute her own writing to the story. If a member chooses to "Add to the Story," she is directed to a page with a text area form for submitting a node to the story. This web page is shown below in Figure 2.6. On this page, the member sees the previous story node, her user name and text-entry fields for the title and text of her story node. When the member submits her entry, it is input into the database and becomes immediately available as part of the story. (For a more detailed explanation of this process see Appendix A.)

Figure 2.6 The Mahoney Project "Add to the Story" page allows a member to type in a story title and text, which are submitted to a database and become available to all users instantly.

The obvious technical advantage of using a form to submit to a database is that the information can be processed with minimal human site maintenance. In 1998, Waldemar Wieczerzycki described the ease with which information submitted to a database can be atomized, sorted, catalogued, and distributed to multiple specific fields in a traditional website—all from a single source point in the database (338). The implementation of the primary functionality of the Mahoney Project aimed to take advantage of this ease and immediacy of processing information by providing a member with immediate feedback after she submits a new node. Shown below in Figure 2.7 is a confirmation page, which immediately informs the writer that her contribution has been added to the story.

Figure 2.7 The "Your Story Has Been Added" page informs the writer that her contribution has been added to the story immediately after its submission.

Other primary functionality interactions with the database operate in much the same way as this "Add to the Story" scenario. For example, the "Edit My Story" feature – which will be discussed in Chapter 3 – makes use of highly similar submission and confirmation pages.

Secondary Functionality: Implementing Chat Rooms, Discussion Boards, and Rating Systems

In comparison to the MOO environment, the obvious shortcoming of the database method is the lack of easy and instantaneous interaction between users. The MOO is designed specifically to serve this function, but form submittal clearly cannot as easily provide for synchronous communication (Wieczerzycki 327). This shortcoming, however, can easily be remedied through supplemental avenues for communication and collaboration, namely chat rooms and discussion boards. These secondary functionality interfaces are widespread and widely accepted by Internet users. This section will discuss the design and implementation of two secondary functionality tools. First the development of the Mahoney chat room will be discussed. Then the discussion board implementation will be addressed. In both cases the importance of integrating the secondary functionality with the primary functionality will be stressed. For example, the Mahoney Project aims to ensure continuity between the story reading and writing section of the site and the discussion board section of the site. Because of this desire, free discussion board services were not used because they came with advertising and a look and feel that did not match the rest of the primary functions of the Mahoney Project. Similar care was taken with the implementation of the chat rooms and the rating system.

Chat Rooms

Chat rooms are an important community-building feature because they facilitate a separate venue for informal discussions. In the case of the Mahoney Project, this informal discussion supplements the stories themselves and often focuses on issues related to the stories. The topics of conversation in the chat rooms, however, are free to range outside of the narrow focus of the Mahoney Project. Because they occur in real time, chat rooms give users an immediate sense of involvement in the community. Furthermore, chat rooms are not persistent, so users need not worry about their discussions being recorded. This freedom is an important feature of the chat rooms and makes them a unique avenue of interaction within the Mahoney Project. The Mahoney Project chat rooms are integrated with the rest of the Mahoney website because it is accessible via a link from any page on the website. The chat room is unique from other portions of the site, however, because it opens in a different window. This strategy threatened to hurt the chat room's integration with the rest of the site, but it was important to allow users to chat and use the remainder of the site simultaneously.

Figure 2.8 The Mahoney project chat room allows for informal and impermanent conversation.

The Mahoney Project employs some strategies to compensate for potential shortcomings in integration. First, as shown above in Figure 2.8, the chat room is designed in a similar color scheme to the rest of the Mahoney Project, branding it as part of the project. Second, the login for members is integrated with the primary Mahoney window. When a user clicks on the "Chat Room" link, she opens a new window asking her to log in to the chat room. If she is a member already logged into the site, then her username is automatically provided. This allows a user to feel as if the chat room and the rest of the site are connected.

The login page raises another important decision regarding the Mahoney project chat room: the accessibility of the chat rooms for non-members. Non-members can provide a temporary username and are allowed in the chat room just like members. The strategy behind this rule is that non-members can be involved in the community before joining and knowing all the rules. This rule allows visitors to learn the rules while not creating any permanent content and while not risking harm to the larger Mahoney community.

Discussion Boards
While the Mahoney Project chat rooms save no permanent content, the discussion boards provide a more permanent avenue for conversation and fostering lasting community at a site. The discussion boards also provide new members with a documented record of issues and discussions that have been important to long time readers and writers at the

site. The Mahoney Project chose to make the discussion boards closed to non-members because the content of the discussion boards was to be permanent and the postings to the discussion board needed to be associated with a given user. In retrospect it might have been better to make the content of the discussion boards readable for non-members, and made posting to the message boards the exclusive right of members.

The discussion board, shown below in Figure 2.9, is tightly integrated with the rest of the Mahoney Project because it is imbedded into the familiar layout of the rest of the site. When members enter the discussion board they know that they were within the Mahoney Project.

Figure 2.9 The Mahoney Project discussion boards allow user to discuss community issues in a persistent location.

These secondary functionality tools serve to support the primary functionality of the site and help develop community by allowing community members to interact with each other. They represent the effort, described in this chapter, to make the Mahoney Project an active and functional online community capable of supporting a serious writing project. To paraphrase Powazek's definition of an online community, the Mahoney Project community is a result of giving users tools to use their voice and writing talents in a publicly shared

and immediate way. The implementation of these tools supports a community capable of forming intimate relationships and writing camaraderie over time.

Chapter 3

COLLABORATIVE FICTION WRITING AS AN EXAMPLE OF ONLINE COMMUNITY

There are many forms of online community, ranging from illness support groups to sports discussion boards to teen chat rooms. In order for these communities to succeed, community developers must address the specific activity of the community. For example, illness support group communities require careful planning to ensure a supportive and open environment. The Mahoney Project's specific activity is writing, more specifically collaborative fiction writing. The Mahoney Project started, in part, because of the failure of a single author to write the stories. Thus, the Mahoney Project endeavors not only to bring a community together online, but to have that community collaborate on the authorship of a significant hypertext fiction. One of the goals of the project became recruiting as many writers as possible. In order to succeed as an online community, the Mahoney Project needs to meet the needs of this large group of writers in a collaborative fiction writing community. This chapter will discuss the strategies employed to meet these needs. This chapter will also discuss different types of collaborative teams and how these teams function as well as different types of collaborative processes. It will not, however, address the importance of the genre on the dynamics of a collaborative writing project.

The chapter will begin with a comparison of "traditional" single authorship and a variety of collaborative writing scenarios. This comparison will inform a discussion of the unique interactions and politics that occur when writers become collaborative writers. Next, an analysis of fan fiction will inform the Mahoney Project's position in collaborative and community writing culture. Finally, the chapter will discuss online technology's ability to facilitate collaboration. This discussion will not focus on the differences between online and offline writing. Instead it will address the question of why the Web is a useful media for writing and reading a collaborative fiction. This discussion of the merits of online media will first address the importance of providing multiple interactive channels to facilitate collaboration. The discussion will conclude by addressing the dynamics of editing in an immediate, yet persistent writing environment.

Modes of Writing: Comparing Collaborators and Solo Authors

When asked to picture a writer, one might conjure images of a skilled, possibly spectacled, individual sitting alone in a paper-cluttered room with a typewriter and her thoughts. There might be a small fire burning in the fireplace across the room. The writer contemplates her thoughts and types a few pages of text. She is in complete isolation and complete control of what goes on the page. Writer Loren Barritt describes this solitary paradigm: "Writing means going off somewhere to be alone with my thoughts and plans" (qtd. in Ede and

Lunsford 6). Many consider this archetypal image of the author almost sacred. These traditionalists see the solitary author as the source of inspired greatness and, it seems, would not expect top-quality writing to be produced outside of this conventional method.

Some writers are willing to challenge tradition, however. Many authors write in non-traditional environments -- including environments wherein they are far from isolated. Lisa Ede and Andrea Lunsford discuss their views of these non-isolated writing environments in their collaboratively authored book Singular Texts/Plural Authors. They describe what they see as "the myth of the solitary author" and encourage writers to work together (Ede and Lunsford 73). They note some of the advantages of collaborative writing by detailing some of the motivation problems associated with writing alone and the benefits of combining the talents and thoughts of multiple authors on a single project. The Mahoney Project aims to take full advantage of the synergy created by collaboration by becoming a massively collaborative project – allowing any writer who wanted to contribute to collaborate in the writing process.

While collaborative writing projects can be distinctly different from solitary writing projects, not all collaborative projects are similar. We will see that the Mahoney Project is unique in comparison to other collaborative writing projects, but that the project can be informed by the differences between it and other collaborative writing endeavors. Following is an analysis of a series of collaborative writing projects that inform the collaborative writing aspect of the Mahoney Project.

The Hivemind
In their 1998 essay "Writing in the Hivemind," Don Byrd and Derek Owens describe their experiences in a collaborative writing environment designed to encourage spontaneous creativity amongst its users. The technology behind the Hivemind environment was essentially a simple chat room, but the philosophy of the environment was what made it unique, and in the developers' minds successful. Collaborators in the Hivemind writing project were expected to write freely and contribute anything that popped into their heads (Byrd and Owen 27).

The Hivemind's success in facilitating creativity and collaboration is most interesting when considering its differences from the Mahoney Project's writing environment and goals. First, the Hivemind project did not attempt to produce a final product of any merit. Participating in the Hivemind was entirely about the ephemeral experience - not about producing a lasting work of literary merit. The Hivemind occurred in a chat environment, so the free-flowing "poetry" was rarely submitted or displayed in any intelligible order. The balance, instead, was pushed entirely toward collaboration and community. Byrd and Owens compared the Hivemind writing sessions to experimental free jazz sessions. Despite the lack of a cogent final product, the users reported taking something valuable, if intangible, away from their writing experiences in the Hivemind. Overall, the freedom and creativity of the Hivemind are admirable, but the choices made for the Hivemind writing community would not work for the Mahoney site. The Mahoney site needed to employ a

different collaborative paradigm while fostering as much of the freedom and creativity found in the Hivemind as possible.

Cadavre Exquis: Accidental Poetry

Popular alt-country band Wilco has participated in a variety of non-traditional methods when writing the lyrics to their songs. One method the band used was the old surrealist word game *cadaver exquis*, which translates to the English "exquisite corpse." The title of the game represents an intriguing juxtaposition of words and reveals the way in which the game is played. To play the word game, Wilco placed a typewriter in the back of their tour bus, and whenever he got the urge, any member of the band could go to the typewriter to type a sentence. The important rule of *cadaver exquis* was that each writer could only see the sentence typed by the person that came before him. All of the other sentences were covered. The band members sometimes knew who had written before them, and sometimes did not. The intention of *cadaver exquis* was to produce an accidental poetic, as symbolized by the beauty in the seemingly misfit pair of words in the game's title: exquisite and corpse. In Wilco's case, the results of their *cadaver exquis* often found their way into song lyrics (Valania 66).

The structural and cohesive implications of the *cadaver exquis* writing method will be addressed in Chapter 4, but here the concentration is the interaction and collaboration amongst the writers. *Cadaver exquis* is an intriguing example of collaborative writing because of the disconnection between the collaborators. The text is written with the contributions of many writers, but each writer must wait until the previous writer finishes. No writer in the *cadaver exquis* can see the big picture of the text, but instead collaborates with only a preceding sentence. The Mahoney Project aims to create a greater sense of unity than does the *cadaver exquis* game; Mahoney aims for its poetic to be intentional instead of serendipitous. This means that writers need access to more information in the Mahoney Project in order to collaborate more effectively.

Filmmaking

While making films requires screenwriting, it is not explicitly an example of collaborative writing. It is, however, an intriguing example of collaboration because of the distinct roles played by those involved. When filmmakers work together on a film, many people with many distinct talents must work together in order to form the whole of the film. Screenwriters provide the script; directors contribute their vision and piece the film together; actors interpret their roles and portray their characters; costume and set designers give the film its visual style; musicians provide a score. The list of collaborators goes on as long as the exhaustive credits listed at the end of any given film.

The quantity of collaborators in filmmaking makes it an intriguing example of coordination for the take-all-comers Mahoney Project. Filmmaking, however, also serves as a good foil for the Mahoney Project because of the specialization of roles within the massive community of filmmaking collaborators. Collaborators in the Mahoney Project are not defined by titles like director or boom operator. Each member of the Mahoney community

is ostensibly as important as any other member and does a similar task for the story; that is, all of the collaborators write nodes in the story. Collaborators can distinguish themselves by the quality or quantity of their stories, but hierarchical roles are not pre-established, as they are in the film industry.

Large Document Writing

Another collaborative environment that brings large numbers of contributors together is large document writing. An example of this type of writing is software documentation for large and complicated computer programs. In this scenario a team of writers often divides the required areas and individuals or small teams write their own sections for contribution to the larger document. Writers in this collaborative environment must aim for a consistent style and must ensure that one section of the document cross-references with all other sections.

The example of large document writing shares some important similarities with the Mahoney Project. Like filmmaking and the Mahoney Project, a large team of collaborators must make a coordinated effort to produce the ultimate fruit of their labors. Also, the large document writing collaboration is like the Mahoney Project in that each writer is responsible for her part of the documentation or her nodes in the story. While these examples of collaboration are different in many ways, they all rely on a set of rules or a philosophy that control the interaction between collaborators and shape the final product they create. The Mahoney Project is no different, as it needs rules and philosophy along with technology and tools in order to enable collaborative writing and encourage a specific type of resulting story. The following sections of this chapter discuss ways in which the Mahoney Project implements rules and philosophy in order to facilitate a productive collaborative workspace.

Getting Credit in the Collaborative Workspace: The Politics of Authorship, Ownership, and Competition

While Ede and Lunsford's *Singular Texts/Plural Authors* champions collaborative writing, it also discusses some of the difficulties that go along with bringing multiple writers together on a project. These difficulties included political and social issues like the question of which author's name will appear first in the by-line of a collaborative writing project. Ede and Lunsford provide an example of this problem:

> A Kinsey Institute sex survey that could help researchers understand how AIDS spreads was delayed for almost a decade because two of its authors fought over whose name should appear first on the title page…Publication was scheduled in 1980, when an intense dispute broke out about whose name should appear on the title page…The survey languished for years, unavailable to most researchers until [an Institute Director] persuaded the authors to settle their differences. (Ede and Lunsford 1)

Such political battles can clearly have a deleterious effect on collaboration, and measures should be taken to avoid such problems.

As advocates of collaboration, Ede and Lunsford aimed to establish strategies for minimizing the negative impacts of politics on collaboration. Ede and Lunsford wrote in a discipline when collaborative writing was not as widely accepted as it is today, so they viewed many of the difficulties of collaborative writing as problems of adoption and adaptation. Because of their own success, they hoped that these difficulties might be overcome by social change. It seems that many of the problems Ede and Lunsford described have remained challenges to collaborative writing teams, but some of these political difficulties can be minimized through careful coordination of and good communication between writers. Indeed, Ede and Lunsford offer advice on how to create a successful collaborative writing environment when they establish eight criteria for the degree of satisfaction collaborators experienced when working on a collaborative project:

1. The degree to which the goals are clearly articulated and shared
2. The degree of openness and mutual respect characteristic of group members
3. The degree of control the writers have over the text
4. The degree to which writers can respond to others who may modify the text
5. The way credit (either direct or indirect) is realized
6. An agreed upon procedure for resolving disputes among group members
7. The number and kind of bureaucratic constraints (deadlines, technical or legal requirements, etc.) imposed on the writers
8. The status of the project within the organization

(Ede and Lunsford 65)

The Mahoney Project endeavors to provide collaborators with the best possible collaborative experience and equates writer satisfaction with successful collaboration. The community features discussed in Chapter 2 improve many of the criteria on the list, such as criterion 2: "the degree of openness and mutual respect characteristic of groups members" (Ede and Lunsford 65). Of particular interest in this section, however is criterion 5: "the way credit (either direct or indirect) is realized" (Ede and Lunsford 65). Simply put, it is human nature to desire credit for effort and creativity. Everyone wants a pat on the back, but in a collaborative environment it can be difficult to distinguish which collaborators deserve credit for which piece of work. This problem results in such trivial issues as the by-line controversy discussed above.

Designing the Mahoney Project with Collaborative Politics in Mind
The design of its structure and writing workflow process gives the Mahoney Project an advantage in resolving questions of credit and politics. The nodes of the Mahoney story are clearly atomized; they are written as separate entities. While the story is read as a whole, it is also read one screen at a time and one node at a time. As collaborators in the Mahoney Project are wholly responsible for their own story nodes, the story is read one

author at a time. Because of this atomization, writers can receive credit for their own work and not worry about confusion over the politics of ownership. In specific reference to the politics of the by-line, the Mahoney Project lists the author of each node at the bottom of the story text. No other collaborators receive credit for the contribution.

While the atomization of story nodes makes meting credit easier, it also makes the Mahoney Project less of a "pure" collaborative project than a project that encourages multiple writers to work on a single sentence. Instead, the Mahoney Project operates on a system of solitary writing and submission, much like large document writing. The Mahoney Project does, however, facilitate collaboration on a micro-level through its chat rooms and discussion boards. Furthermore, the story nodes in the Mahoney Project, while atomized, do not exist entirely separate from other story nodes. Instead, collaborators write in reactions to each other's contributions. As one visitor to the Mahoney Project enthusiastically posted to the discussion boards: "I'd like to remind users...that we can add to other user stories! That's half the fun, I think." This atomized collaboration allows for interaction between the writers, at the same time serving to minimize political conflict over ownership and credit.

The Mahoney Project employs two more strategies to make clear to collaborators how credit in the project is realized. The first strategy rewards a writer's quantity of contributions on the "Most Prolific Writers" page. This page displays writers in rank order of their quantity of contributions to the Mahoney Project. This page allows those writers who contribute a great deal to the story to receive credit for their efforts while encouraging new or less-involved writers to contribute to the story. While the "Most Prolific Writers" page credits quantity of work it does not address quality of work. The Mahoney Project is considering a "Highest Quality Writers" page to reward the highest rated writers, but does employ other means of crediting quality writing. The first of these strategies is the rating system. The rating system allows readers to rate each story node on a scale of 1-5. The Mahoney Project tabulates these ratings and reports an average rating for each story node. Writers who contribute particularly well-written nodes to the story are more likely to receive high ratings, and thus receive credit for their skillful work. Writers are also able to see the impact of their contributions on the community when they look at their "My Stories" page. This page displays all of their stories and these stories' rankings. It also displays a count of how many times community members have read a given story and how many times community members have been inspired by a given story node to add on to the story. These data give writers concrete validation of their writing efforts.

These strategies for rewarding quantity and quality of writing also encourage competition within the Mahoney Project. Competition can have both positive and negative effects on a collaborative project. The positive effect is that competition encourages writers to maintain or exceed the standards of their peers, creating a higher quality of overall writing for efforts like the Mahoney Project. The negative effect of competition is the threat of animosity between highly competitive individuals. The Mahoney Project aims to harness the positive

effects of competition while minimizing the negative effects of writers working against each other instead of together. The key to encouraging positive competition and discouraging negative competition in the Mahoney Project collaboration is in the design and transparency of the rewards system. The Mahoney Project makes clear to writers how their work receives credit. The objective credit data are transparent and indisputable. The community determines the subjective credit data. Because each collaborator is a member of the community, she understands the process by which the subjective ratings she and her peers receive are determined. This transparency and participation makes it difficult to dispute the validity of the qualitative data. This system does not, however, do well to counteract purposeful lowball scoring as a means of gaining competitive advantage.

Problems have not arisen in the competitive dynamic in the Mahoney community, and in general the atomized design and the clear delineation of credit work as effective strategies for encouraging positive collaboration amongst the members of the Mahoney community.

Fan Fiction: The Benefits and Liabilities of a Whole Community Writing Your Characters

This section addresses the phenomena of fan fiction, which in some forms is also referred to as slash fiction. Fan fiction is an intriguing topic in its own right, but it also informs the Mahoney Project's role as an online collaborative writing environment. Indeed, the writing culture surrounding fan fiction shares significant similarities with the expectations for the Mahoney Project writing community. The first similarity is that fan fiction writers use other peoples' characters in their stories. In the Mahoney Project, collaborators write about the adventures of Mahoney, the Evil Wizard, and other characters provided for them. The second similarity is that fan fiction is a form of collaborative writing and a form of community writing. Many times fan fiction writers work alone on their stories, but we will see that they often participate in a collaborative writing support system with other writers. Furthermore, each contribution to a specific fan fiction corpus represents a chapter in a larger story about a certain groups of characters.

Often, highly active communities develop around fan fiction writing cultures. Jenkins describes this community of fan fiction writers: "Almost as striking is how writing becomes a social activity for these fans, functioning simultaneously as a part of personal expression and as a source of collective identity…each of them has something interesting to contribute" (Jenkins 154). The Mahoney Project aimed for this type of highly participatory collaborative community. It also aimed to create the fervor found in many fan fiction circles. Furthermore, the Mahoney Project aimed to facilitate the type of pre-writing interactions Jenkins describes as typical of fan fiction cultures: "Fans often discuss story ideas informally with other fans before committing them to the page; ideas originate from collective discussions of the aired episodes and from critical exchanges in the letterzines. Stories are often workshopped with other fans (either formally or informally) and revised in response to the group's feedback" (Jenkins 161). This section will also discuss the

differences between fan fiction and the Mahoney Project as well as the liabilities and dangers of fan fiction culture.

Why Fan Fiction and the Web are Well Matched

In his authoritative 1992 book *Textual Poachers*, Henry Jenkins describes a culture of fanatical writers: the writers of fan fiction. He describes these writers as members of a highly participatory community, interacting and regularly producing significant quantities of fiction. Jenkins explains that writers of fan fiction are unique from most creative writers because they do not write about their own characters. Instead, the writers are fans that put characters from popular television shows, books, and movies into their own stories; they write as fans. These writers are most often amateur hobbyists, but are also highly dedicated and involved in their craft. Jenkins describes the lengths to which authors of fan fiction go in order to achieve publication and an audience (158-159). The effort and enthusiasm found in fan fiction culture manifests the potential for a fan fiction cultural surrounding the Mahoney Project.

When considering the potential of fan fiction, it is important to note that Jenkins' book was published ten years ago. The 1992 publication predated the mass popularization of the Web and fittingly reveals many aspects of the fan fiction culture that could benefit from the Web's connectivity. In Jenkins' account, authors of fan fiction struggled to reach an audience and struggled to interact with other writers. He describes a scene wherein four writers gather in an apartment to type fan stories for the popular television show *Quantum Leap* (Jenkins 152). These writers need the physical proximity of an apartment to discuss ideas and feel connected to similar writers. Furthermore, these writers work hard to publish and distribute small quantities of their work, but their effort dwarfs the size of the audience they are able to reach.

Jenkins' case studies, like the *Quantum Leap* writers described above, demonstrate the desire of fans to write about characters in which they have invested time and emotion. The studies also show that Internet culture and this fan behavior are well matched. While fan fiction has been popular in science fiction genres for some time, the Web facilitates the easy publication and distribution of these alternative texts. Based on these observations, it becomes clear that the Mahoney Project and the Users' Web represent an opportunity to facilitate the publication of a unique flavor of fan fiction.

The Mahoney Project could overcome the difficulties fan fiction faced ten years ago in areas such as publication, distribution, and collaboration by taking advantage of the connectivity and immediacy of the Web. Instead of spending many hours and dollars preparing a fanzine and waiting for a fan fiction convention to find an audience, a fan fiction writer working on the Mahoney Project could easily, cheaply, and instantly post a story to the Web. Thus, the Web – specifically the Mahoney Project -- demonstrates great potential for harnessing the rabid writing culture of fan fiction.

Overcoming the Differences Between Fan Fiction and the Mahoney Project

While the Mahoney Project shares similarities with the culture of fan fiction, it also differs from fan fictions in some significant ways. These differences provide context for the unique nature of the Mahoney Project and help inform the design of the Mahoney website. The primary difference between the Mahoney Project and fan fiction is the means by which the authors meet their characters. Fan fiction writers choose to write about characters from television or other fiction; characters they first knew outside of a writing context, and later found compelling enough to warrant significant effort. The Mahoney Project aims to both create the fervor associated with fan fiction and facilitate the writing that results from that fervor. It has to introduce the characters, make people want to write about them, and then facilitate that writing all in one website.

When writers of fan fiction develop their story lines, they can work with well-established characters in well-established settings because the context of the story is provided through television or other media. The Mahoney Project needs to provide users with this type of narrative context in order for writers to know what to write about, and in order to ensure the consistency of plot and character and place description in the story. The design of context delivery also affected the degrees of freedom and control members had over the site content. In her essay, "Community-Based Software, Participatory Theater: Models for Inviting Participation in Learning and Artistic Production," S.C. Warshauer writes about the difficulties in balancing the narrative and interactivity in an online environment such as the ExploreNet MUD for educational experimentation. This issue is similar to the challenges faced by the Mahoney Project in creating a place for readers to contribute to an already well-established cast of characters. Warshauer provokes questions like: How much moderation should such a site have? And: How much leeway should participants be given in changing this world? These are questions of context, and essentially ask how much context the Mahoney Project collaborators need in order to write successfully as a group.

Introducing a high degree of context as controlling factor ensures greater continuity between various writers' stories; it essentially provides all the information a television series provides fan fiction writers. This encourages writers to follow the given specifics of the story, but also threatens to take away writers' sense of freedom and creativity. The Mahoney Project aims to provide as much context as possible in the least obtrusive manner possible.

Fittingly, the Mahoney Project employed a passive method for providing context, hoping to find a middle ground of freedom and community control. An example of this implementation is found in the character descriptions provided to writers. Each of the main characters in the story is described on the "About the Characters" page with a summary similar to the following example:

> **Mahoney**
> Mahoney is a black cat with white paws. When all four or his paws are on
> the ground and his back is arched high, Mahoney stands almost a foot tall.

Mahoney has long gray whiskers that extend beyond the edges of his face. He also has a long tail that curls upward when he gets excited or walks quickly.

Mahoney's most distinguishing features are his eyes. They are green with piercing black pupils. He can look others deep in the eyes and make them see and do what is good. Mahoney's most unique quality is his ability to talk with all the creatures and folks of the forest when he is in the forest. When he is outside of the forest he can understand what others say, but cannot talk back to them. So, he can understand what the doctor tells him, but cannot reply.

(mahoneythecat.org)

This description gives writers enough context and detail to guide them as they write about Mahoney the cat. Similar descriptions of other characters, prominent locations, and a basic storyline are also provided as a means of informing writers of the basic premise of the story as well as some important details. This method for providing context is passive because writers are left to decide on their own whether or not they want to write in disagreement with the given context. In the Mahoney community, the decisions of what coincides with the given context and what disagrees with the context are left to the community. Furthermore, the community is left to decide if writing outside the context is an acceptable practice or not.

The Dangers of Fan Fiction

The freedom to write outside the intentions of the originators of a story is one of the most intriguing facets of fan fiction. Often, creative stories can succeed far outside the confines of the original text of the story. On other occasions, however, writers of fan fiction that go outside the intentions of the story originators can produce a damaging effect. Possibly the most dramatic example of creative license gone wrong is the surprisingly popular genre of pornographic slash fiction.

The genre and culture of slash fiction are discussed in Christopher Nixon's article "Pottershots: The Trouble with Harry." Nixon describes the highly active fan fiction culture that developed around the popular series of children's books about a young wizard, Harry Potter. Nixon specifically addresses the sizeable community of writers publishing sexually explicit stories using the well-loved characters of the Harry Potter stories. Those responsible for the authorized versions of the story, particularly the movie studio standing to make large profits from upcoming films, were quick to criticize the off-color material. Warner Brothers' studio executives submitted the following statement: "It is not only our legal obligation, but also our moral obligation to protect the integrity of our intellectual properties…this is especially true in the case of indecent infringement of any icon whose target audience is children" (qtd. in Nixon par. 16).

These revelations demonstrate the danger, for the creator of a story, of fans usurping characters and using them in an unintended manner. Clearly, the Mahoney Project wanted to take advantage of the enthusiasm of a fan fiction-like culture, but it did not want to degenerate into pornography like some of the Harry Potter fan fiction. Not surprisingly, one of the first comments an outside observer provided about the Mahoney Project centered on the threat of pornography and the role of control in curtailing that threat: "I've seen these before, but sometimes they degenerate into porn and the like; this one looks a little more controlled."

In order to counteract tendencies toward off-color material, the Mahoney Project needed to exercise subtle and passive control as described previously. Indeed, the techniques employed to introduce context and ensure consistency in the story have the effect of deterring pornographic writing. There are still, however, those writers who would prefer to write off-color material. For these writers, the Mahoney Project instantiated a series of safeguards. First, members are held responsible because they must register with an email address before they can join the community. Second, the Mahoney Project star rating system (along with discussion boards and chat rooms) allows community members to show their disapproval for inappropriate material. Finally, the site administrator can exercise editorial control over offensive material and issue warnings to its writer. While different from fan fiction in some aspects, the Mahoney Project was able to promote the positive facets of fan fiction while minimizing the hazards. Furthermore, the Mahoney Project put a fan faction-like community on the Web, taking advantage of the interconnectedness of the media. When one considers both the enthusiasm and difficulties of the Quantum Leap fan fiction writers Jenkins describes, the Mahoney Project provides a model for a next generation of fan fiction, albeit with a few slight alterations.

Interactive Channels for Facilitating Collaboration

Chapter 2 discussed the role of secondary functionality tools, such as discussion boards and chat rooms, in the development of community through multiple means of interaction. These interactive tools also represent an important means for facilitating collaboration in the writing process. When writers collaborate face-to-face they have many avenues for communication: they are able to talk formally and informally, manipulate and mark a document together, visualize organization together, and ensure literally and figuratively that they are on the same page.

Simulating a face-to-face collaboration on the Web is challenging, but evidence suggests that these avenues of collaboration remain just as important -- possibly more important -- when a computer network mediates the communication between writers. In their article "COSAR: Collaborative Writing of Argumentative Texts," Jos G.M. Japsers et al discuss the writing and editing groupware they developed at Utrech University in the Netherlands. COSAR used an interface designed for synchronous editing and discussion of argumentative texts. The application allowed students connected to the same server to

work on a primary text in a shared editing window, participate in live chat, make notes for themselves, and collaborate on outlining an essay. The developers found that COSAR was successful because of how many typically face-to-face collaborative features were simulated in the online environment.

Christine Neuwirth and her associates also investigated the interactive parameters that are most useful in computer-supported collaborative writing. They posit that there are different types of writers and each writing process follows a different workflow with writers taking on distinct roles -- and that a useful system should provide interactive parameters that support these varied requirements and control the structure and workflow of the writing. While Neuwirth et al claim that the size of nodes of information, the freedom of flow of these nodes, and the transmission speed of these nodes are the critical parameters to consider in the rough draft stage of writing, they also stress the importance of communication tools to collaboration. They find that users require that a system have substantial and easy-to-use tools that allow them to collaboratively manage their task. The findings of the Jaspers and Neuwirth studies suggest the importance of providing interactive tools to simulate face-to-face interaction in the Mahoney Project.

Fortunately, the Mahoney Project incorporates tools like a discussion board and chat room in order to facilitate community development. These tools can also serve the purpose of facilitating important collaborative writing activities such as informal discussion and assurance that writers understand each other's efforts and are on the same page. The degree of interactivity in these tools provides an important avenue for collaboration. The Mahoney Project does not, however, support other important collaborative tasks. The Mahoney Project does not provide collaborators with a workspace wherein they can view and manipulate a document together. The Mahoney Project does not provide collaborators with an environment that allows them to see the structure of the story and manipulate that structure together. These are significant shortcomings that result primarily from the lack of technical expertise of the Mahoney Project developer and do not reflect the intention of the project to facilitate as many simulated face-to-face collaborative avenues as possible. A more complete Mahoney Project would provide real-time interactive editing and discussion of texts. It would allow writers to collaboratively manipulate the structure of the story using a zooming outline feature. Based on Neuwirth and Jaspers findings, development of these features is a primary future goal for the Mahoney Project.

Editing Dynamics in the Collaborative Workspace
The writing process is never complete. Authors spend countless hours rewriting, rephrasing, and reworking the sentences and paragraphs of initial drafts. This editing process can range in scope from fixing typographical errors to completely restructuring the focus of an essay or the plot of the story. Whether micro editing or macro editing, the purpose of revision is to produce a work of the highest quality. If the work is a fictional story, the aim is to produce a work of literary quality – a text on par with published and respected novels and short stories.

Editing can be drastically different depending on the number of people involved in the process. Editing as a solitary author is a significant effort, but it does not require the coordination of multiple authors; the lone author has control over the entire document. She is responsible for its quality and continuity. On the other hand, editing in a collaborative workspace is a much different undertaking. In the collaborative workspace, multiple authors are contributing interrelated pieces to the text. When one author edits her material, her changes might impact the validity or cohesion of contributions from other authors. The problem of multiple voices and multiple iterations can threaten the coherence of a text. When the text is a work of fiction, the result of a lack of cross-referential integrity can be a break in the storyline or an inconsistency in the plot. These errors can prove disastrous to a story and rob a fiction of its literary merit. Furthermore, as Ede and Lunsford mention, "the degree of control the writers have over the text" and "the degree to which writers can respond to others who may modify the text" have a great deal of influence on the satisfaction of writers in a collaboration (65).

Clearly editing is an important issue for all collaborations, including the Mahoney Project. And the dynamics of editing become complicated in a collaborative environment with the specific goals of the Mahoney Project. First and foremost, maintaining literary merit is of great importance for the Mahoney Project, as one of the primary goals of the Mahoney Project is to produce a fiction of a literary quality. This literary quality requires, among other aspects, a polished style and tone and a cohesive storyline. These two seemingly mutual goals of cohesive text and a polished, well-edited text can come into conflict when implementing a publish-on-the-fly, massively multi-author website like the Mahoney Project.

When multiple authors write a traditional book, they can collaborate to ensure cohesion by the publication date. Once the book is published, it remains unchanged until subsequent editions are written, edited, and published. The Mahoney Project, on the other hand, is published every time a visitor loads the web site in her browser. The properties of immediate updates can create a unique editing dynamic. Indeed, as editing freedom increases in this type of environment, the possibility of disconnect from one node of the story to the next also increases. This cohesiveness problem arises when a writer decides to edit a node to which another writer has added a subsequent node. If the original writer changes her node substantially, the subsequent nodes could lose their cohesion with the whole story. One can coordinate to overcome this problem of cohesiveness when writing and editing for a single publication deadline. When publication is continuous and dynamic, however, it becomes very challenging to coordinate on a continuous and dynamic basis.

Choosing an Editing System for the Mahoney Project
In order to avoid disconnections between nodes and ensure a polished text, the Mahoney Project needed to institute a system that intelligently coordinated the editing process. Discussed below are six proposed editing solutions. Finally, a seventh editing solution, the system that was ultimately implemented, is introduced and described.

The first editing option for the Mahoney Project was to not allow any editing at all. This option boasted the benefits of requiring the least coding effort. Also, this option would ensure minimal opportunity for disconnection between story nodes because the nodes would not change after they were first written and published. Eliminating editing altogether, however, introduces some major shortcomings. Foremost of these shortcomings is the inability of writers to change even the slightest error. Once a misspelled word is submitted, it would remain misspelled without an editing system. A completely unpolished, unedited text was not considered an option because the Mahoney project aims to create a text of high literary value – not a text riddled with typographical errors.

The second option for the Mahoney Project's editing schema was to allow the original author to edit a story node until another writer had added a subsequent node. This schema allows an author to make typographical corrections and reconsider plot points for an unspecified period of time. While the uncertainty of time allowed for editing poses some potential frustration for writers, this option seems to present a strong balance between finalizing the portion of the document and allowing for editing of minor typographical errors. This option was not implemented largely due to technical limitations.

A third editing option, highly related to the second, would allow writers to edit their own story nodes for a specified period of time. This editing schema holds an advantage over the previous schema because writers would know a hard and fast deadline for submitting edited versions of their story nodes. It holds the disadvantage of allowing editing after subsequent nodes have been written. The threat of persistent incongruity between story nodes that might result from this editing schema makes it a mediocre choice for an editing strategy considering the Mahoney Projects goals.

A fourth editing option would designate a team of editors in charge of ensuring both the polished quality and overall cohesiveness of the story. This option was discarded in development for two reasons. The first is that it was deemed difficult to recruit and maintain an editorial staff for the Mahoney Project without financial compensation. The second reason was that an editorial board would take power and ownership away from writers where they most want power and ownership: their own writing. While an editorial board might present an optimal balance between polishing the text and ensuring its cohesiveness, this editorial schema also would have undermined much of the effort in designing the Mahoney Project to facilitate community and collaboration.

A fifth, and related, editing option would allow writers to collaborate with editors and other writers in the editorial process of their own texts. Such an editorial process was discussed above in the section on interactive channels for facilitating collaboration. This attractive feature proved difficult to implement, and while it does coordinate possibly many writers it does not present a good means for finalizing an edited story node.

A sixth editing option would inform writers when stories related to their own had been edited. This information could be provided via automated email and would help coordinate

writers collaborating on a specific section of the story. This schema presents multiple problems, however. First, it is difficult to define "related story" in a consistent and automated way. Second, this option possibly could result in a cascading cacophony of emails as writers try to edit to their own nodes to match the continuously changing nodes of their co-writers. The potential for frustration in this scenario is enough to rule out this sixth option.

Finally, there is the seventh editing option, and the one chosen for the Mahoney Project for its conduciveness to useful editing, preserving community and collaboration, and ease of implementation. Writers for the Mahoney Project are allowed to edit their own story nodes at any time after writing them. This option eliminates concerns authors might have about fixing typographical errors, but it does present the potential for inconsistency between nodes of the story. To overcome this difficulty, a low-tech strategy was implemented on the Mahoney Project editing pages. Writers were simply asked to consider their fellow writers when editing: "Remember that other users may have written subsequent story nodes based on your unedited story. Please be a considerate editor. If you wish to make sweeping changes to your story, simply add a new story node." While this strategy does not block a rogue editor, it does discourage a writer from accidentally over-editing her story node.

Other collaborative writing projects might have different priorities than the Mahoney Project, but for this publish on-the-fly collaborative workspace the chosen option proves to be the most viable means of balancing the need for polished sentences and well-connected story nodes. The choice of editing schema demonstrates the Mahoney Project's overall effort to facilitate a productive collaborative writing environment in order to meet its goals of producing a top-quality story and incorporating as many writers as possible.

Chapter 4

HYPERTEXT

At both the Mahoney Project's core and hypertext fiction's core is the simple question: "And what you think happened next?" This question became the tagline for the Mahoney Project because it summarizes my father's interactive style of storytelling and because it encourages users to reach further into the story or make their own contributions to the story. This tagline also summarizes the basic premise of hypertext fiction: the reader of the story has at least some degree of control over each turn in the plot. The aim of this chapter is to describe how the Mahoney Project fits into the larger discussion of hypertext.

Because hypertext is a broad topic, it is important to clarify how this chapter will address the issue. The chapter will only consider the specific context for hypertext developed in the Mahoney Project. This context is established as follows. The Mahoney Project is an online community designed to facilitate a specific type of writing: collaborative fiction writing. This collaborative fiction writing takes place in a specialized environment: an online environment. Online writing includes many forms of writing, but one of the most interesting types of online writing is hypertext. This chapter discusses hypertext and its position within this narrowing framework of hypertext as a type of online writing, online writing as a type of collaborative writing, and online collaborative writing as a type of online community.

Thus, the chapter will explore the Mahoney Project as one example of how hypertext can be employed on the Web. Specifically, the chapter will address the Mahoney Project's adaptation of my father's stories into a community-produced hypertext. The project will be informed by the general discussion of hypertext, and in turn will inform the discussion of hypertext as used within an online community.

Chapter 4 is organized in following way. The chapter begins by discussing the relationship between the original oral Mahoney stories and the hypertext form they took on in the Mahoney Project. This discussion aims to shed light on the similarities between oral stories and hypertext that are often overlooked by hypertext theorists who concentrate on the relationship between the hypertext and what they see as its closer relative: the traditional book. The chapter will then go on to address how the Mahoney Project was implemented to take advantage of the properties of hypertext fiction. This section will continue the discussion of the Mahoney Project's unique relationship with hypertext. Next, the chapter will address the issues of hypertext structure and how a large community of writers can contribute to a sensibly structured hypertext. Finally, the last section will directly address the issue of interactivity that has surfaced throughout the paper. This section will consider whether or not the traditional hypertext is in fact interactive and whether the features of the Mahoney Project make it more or less interactive than traditional hypertexts.

Why Chronology is Deceiving: Oral Stories and Hypertext as Highly Related Media

The Mahoney stories began as oral stories told by a father to his sons. These childhood stories followed a tradition of oral storytelling that spans many centuries and cultures. In many of these cultures, storytelling was adopted as a means of relating stories and history before written language developed, and long before the printing press altered the means of dissemination of knowledge and entertainment. In contrast, hypertext has been prevalent for a much shorter period, and only in technologically advanced cultures. Hypertext is a young information technology, and it is uncertain exactly what role it will play in society. It is also uncertain what hypertext's relation to oral storytelling and written text will be. This section aims to clarify that relationship by looking at hypertext from an oral storytelling perspective, specifically the perspective of my father's oral stories and their translation into a hypertext.

The most pervasive theory concerning the role of hypertext in the history of communication is that it exists as an evolutionary step subsequent to written or printed text and yet another step removed from oral communication. For example, George Landow describes the emergence of hypertext as a "revolution in human thought" (43). His discussion of revolution, however, stems primarily from a comparison of traditional printed texts and hypertexts. Landow compares the "multilinearity, nodes, links, and networks" of hypertext to the "centre, margin, hierarchy, and linearity" required by a traditional printed text (7). While these terms do not explicitly rule out the relationship between hypertext and oral stories, they suggest that the closer relationship exists between the two printed media and that the difference lies merely in the formatting.

Theodor H. Nelson, who first used the term hypertext in the 1960's further reveals hypertext theorists propensity for comparing hypertext to traditional print media when he describes his new term: "I mean non-sequential writing -- text that branches and allows choices to the reader, best read at an interactive screen. As popularly conceived, this is a series of text chunks connected by links which offer the reader different pathways" (qtd in Landow 4). Landow continues this train of thought by making the natural connection between books like James Joyce's *Ulysses* and hypertext (Landow 4-5).

In this type of argument, the oral tradition is implied as merely a precursor to the written book. Landow further stresses the importance of studying the transition from traditional print to hypertext as he explains its potential impact: "Electronic text processing marks the next major shift in information technology after the development of the printed book. It promises (or threatens) to produce effects on our culture, particularly on our literature, education, criticism, and scholarship, just as radical as those produced by Gutenberg's moveable type" (Landow 24).

This evolutionary theory of communication, typical of hypertext theorist concerned with the contrast between traditional books and hypertext media, makes it seem that the oral story is necessarily further removed from the hypertext than is the printed text. Theorists often

recount this view as a chronological story of how print replaced oral story telling and then how hypertext promises to replace the traditional text. Historically this familiar story holds merit, as successful new media have supplanted old. Furthermore, hypertext is often described as a liberating extension of the traditional linear text. This view, while in many ways reasonable and accurate, tends to unfairly undervalue the merits of the oral story. The oral story is marginalized as an inferior version of the print book merely because it came before the print book.

If one looks at oral storytelling, printed text, and hypertext as three entities outside of their historical order, the clear evolutionary path and the clear delineation of merit become much more clouded. One of the simple, yet more significant revelations of this change of viewpoint is that hypertext holds aspects in common with the oral tradition that it does not share with its seemingly closer cousin, traditional printed text.

It is important to note at this point that this section does not aim to undermine the considerable theoretical work of book scholars like Landow. These scholars stressed the relationship between traditional print media and hypertext for good reason: they were analyzing the impact of a new media on their field of study. Instead, the observations of this section are intended to demonstrate the Mahoney Project's unique position to inform the discussion of the important connections between oral storytelling and hypertext. The remainder of this section will discuss the differences between hypertext and the traditional printed book and will establish the link between the oral story style of the original Mahoney stories and hypertext media. This discussion runs in contrast to the assertion, depicted below in Figure 4.1 as the "Chronological, Evolutionary View," that hypertext has greater similarity to a printed book than an oral story because of the chronology of these technologies.

Figure 4.1 The chronological or evolutionary view of the relationship between oral storytelling, traditional printed text, and hypertext assumes that historical order establishes the relationships and similarities between the three.

Figure 4.2, below, demonstrates a contrasting view of how the Mahoney Project's unique properties are particularly well suited to bringing oral storytelling and hypertext together, as shown in the "Proposed Relationship."

Figure 4.2 The proposed relationship, shown with dashed lines and arrows, demonstrates the close connection between the historically distant oral stories and hypertext, and the

way in which the Mahoney Project is well suited to bring together the properties of these media.

The discussion of hypertext, oral storytelling, and traditional printed text will center on four topics: time, permanence and authority, place, and community and participation. In three out of the four cases, this discussion will conclude that the relationship between hypertext and oral stories is closer than the relationship between hypertext and traditional printed books. These conclusions serve as an argument for the topic of the next section: translating the Mahoney Oral Stories into hypertext. This next section will explain in greater detail the role of the Mahoney Project as a converging force in Figure 4.2.

Time
The differences between oral storytelling and printed text reveal some significant areas of exploration for the Mahoney Project. The first major difference is temporal. The oral story is an event limited to a specific time while the book lasts ostensibly in perpetuity; free to be read at any time. One might argue that just as a book can be read at any time, a hypertext can be read at any time, and an oral story may be told at any time. However, this assertion fails to consider the fleeting nature of an event in contrast to the permanence of printed text.

The ephemeral nature of the oral story is what makes it an event instead of text. Listeners know that they must gather around at the right moment to hear the story. Before print gained prominence, we lived in a world of fleeting sounds, what Marshall McLuhan called "multi-dimensional resonance, every word.... a poetic world unto itself, a 'momentary deity,' a revelation" (25). Each word and each story existed only as long as it lasted in human ears and ceased to exist outside of human minds at the very moment it was spoken. The temporal properties of a hypertext lie between those of a traditional text and an oral story. The reader of a hypertext can read the story at any time, but each reading becomes an event because it is unique to the trail the reader followed. Furthermore, each node of a hypertext exists much more as a momentary revelation than does a passage in a traditional print book because a hypertext reader is "moving" away from one node and toward a possibly far-removed subsequent node. The reader of a traditional printed book does not experience this mental displacement and therefore does not experience passages in the ephemeral way that hypertext readers experience nodes. The node is not, however, as fleeting as the spoken word.

Permanence and Authority
The ephemeral nature and openness to change of the oral story point to the second major difference between oral stories and traditional texts: permanence and authority. Traditional printed texts last for many years. They are, for the most part, considered unchanging. Book after book rolls off the printing press marked with the exact same words in the exact same order on the exact same pages. Publishers distribute these books to many locations to be consumed by readers who rely on a belief that their copy of The Catcher in the Rye is the same as every other reader's.

Oral stories, on the other hand, are not assumed to be permanent or unchanging. Instead, oral stories are expected to change with each telling. Thus, oral stories are difficult to study unless all those involved in the study experienced the same or highly similar renditions of the oral story. Some might even posit that the study of fiction did not mature until the permanence and consistency of the printed book allowed literary studies to succeed. With the emergence of the printed book, many scholars could discuss identical or nearly identical copies of a single authoritative text. This evolution of media coincided with a marked change in academic circles.

The emergence of hypertext has also marked a change in academic circles. In his 2001 essay "Emerging pedagogy: teaching digital hypertexts in social contexts," Kip Strasma considers the practical pedagogical difficulty of teaching a class centering on fluid, non-linear hypertext. His account describes a classroom of hypertext literature students struggling to discuss a single story because they each followed such varied paths through the hypertext. This difficulty in studying hypertext illustrates a difference between a bound, linear book and a free-flowing, choice-based hypertext. The hypertext is different each time it is read; no single reading of the text is authoritative. This trait of the hypertext makes it decidedly more similar to the changing oral story than the permanent printed text.

Place
A third major difference between oral stories and traditional texts is the importance of place: The oral story is only available to those within earshot of the storyteller. A storyteller must gather an audience close together to listen. The printed text allows the reader and the text to exist in their own physical space. In fact, the printed text encourages this seclusion, as it is difficult for more than one person to read from a traditional book. Thus, we have images of a group gathering around a campfire for oral stories and a solitary reader lounging in front of a fireplace with book in hand.

Place is one parameter in which the hypertext is more like the traditional book. Readers of computer-based hypertexts typically sit solitary in front of spatially isolated monitors. While the computer is most likely connected to other computers via a network or a modem, the reader is still alone in the room with the text, like the reader of the traditional text relaxing in the lounge chair. The Mahoney Project aims to make use of the network of the Web to create a sense of place online, so that readers in the community might feel less isolated from other readers. But in terms of physical place, the conventions for reading hypertext make it much more similar to reading traditional printed books than listening to an oral story.

Community and Participation
Spatial proximity is not the only measure of proximity, and therefore, not the only means of describing the fourth major difference between the oral story and the traditional printed text: community and participation. The time and space constraints of the oral story naturally encourage a community, as people must be gathered closely together at a given time to hear the story. Furthermore, because oral stories do not travel as easily or as

unchanged as printed stories, an oral story community is often more tightly knit and more centrally identifiable by its shared, local story.

Finally, the oral story – particularly my father's oral Mahoney stories -- encourages community by encouraging audience members to influence the story based on their reactions and verbal contributions. Participation by the audience makes the oral story a community event rather than a series of isolated instances of a reader receiving an author's text. The audience member at an oral story can participate in the story and change that story for everyone present. On the other hand, the reader of a traditional text can rely on the impact of her discussion of the text to change other readers' perceptions of the fixed text, but she can rarely be involved in a community that actually shapes the content of the story.

In these important properties of community and participation, a hypertext, especially the Mahoney Project hypertext, exists in a similar plane to the oral story. A hypertext, while read in spatial isolation, is likely to have a greater sense of community than a traditional text because of the communal possibilities associated with the technological milieu required of the hypertext. Furthermore, a hypertext made available on the Web helps create a virtual proximity and virtual community. Indeed, the Mahoney Project implemented a series of community-building and participatory facets into its hypertext story.

These four observations concerning oral storytelling, traditional printed text, and hypertext demonstrate that oral stories are not necessarily two steps removed from hypertext. On the contrary, it is possible that the emergence of hypertext signals text's opportunity to reconnect with its oral roots. Hypertext and oral stories are similar in that they are events dependent on time, they are impermanent and changing, and they can facilitate an involved community - be it geographically centered or virtually created across wires and networks. These similarities suggested that the Mahoney Project could employ the flexible properties of hypertext to translate a traditional oral story and its culture into a widely accessible text.

Translating the Mahoney Oral Stories into Hypertext
The previous section discussed the ways in which hypertext and oral stories (particularly my father's oral Mahoney stories) share some important but under-explored similarities. This section uses a discussion of the specifics of the Mahoney oral stories and their implementation as an online hypertext to explore these similarities and discover how the Mahoney Project can inform the discussion of the connection between oral stories and hypertext.

The written Mahoney stories needed flexible textual media if they were to be transcribed because they followed the long tradition of oral storytelling and were flexible in their own right. Over multiple performances of the Mahoney narrative, variations in the story grew out of creativity, circumstance, and occasional forgetfulness. The result was a broad and varied corpus of fiction centered on those parts of the story that remained unvaried. From

that central point, the story spread in many directions. Bolter suggests that this trend in the Mahoney oral stories is mirrored in the structure of hypertext. He uses words like "dynamic," "immediacy," and "flexibility" when he considers what can be perceived as distinct similarities between oral storytelling and electronic text (Bolter 59).

Because of these similarities, the implementation of a hypertext structure for the Mahoney Project becomes significant to project's success. After all, one goal of the project is to reconstruct the open-ended storylines that developed and changed over the years of oral storytelling.

A hypertext structure facilitates multiple readings through a plotline much in the way years of telling a similar oral story develops multiple variations of the plotline. This similar experience stems from the similarity in the media and the circumstances surrounding each media. Indeed, in the oral Mahoney stories the plotline depends on creativity, circumstance, forgetfulness and user input. Similarly, the plotline of the hypertext story depends on circumstance and reader participation via link choices or personal contributions. Just as each oral telling of the story altered, to varying degrees, the basic plotline of the Mahoney story, the hypertext "telling" of the story allows for multiple plotlines and multiple readings.

Hypertext and the Unique Nonlinearity of the Oral Mahoney Stories
Because of their unique properties and similarities to hypertext, the oral Mahoney stories proved particularly difficult to translate into a standard linear text. While much of this difficulty arose from differences in delivery between the oral and traditional printed communication media, problems also arose due to the structure of the oral Mahoney stories. The oral Mahoney stories did not have a well-defined structure. Fittingly, a standard linear text struggles to present the pieced-together and occasionally contradictory storylines of the oral Mahoney stories.

The Mahoney of oral storytelling did not have one adventure after another in a well-ordered sequence that suits traditional linear texts. Instead, the stories existed as a single hodge-podge meta-story that grew, building on itself, over time into multiple paths and storylines. The oral Mahoney meta-story was told in bits and pieces, dictated by bedtimes and campfires instead of orderly book chapters. While my father's stories always began with essentially the same plot points, they often diverged after the first few events. Furthermore, the sequence of the stories was not always linear. An installment of the story might end on a cliffhanger one night and start the next night at the beginning of the story. In the next installment, the beginning might be repeated differently, or the story might just return directly to the cliffhanger. This seeming disorder did not create confusion for those listening to the oral Mahoney stories. Instead, the lack of a refined structure yielded an organic, albeit fantasy, environment in the Enchanted Forest (the setting for much of the story). Thus, the meta-story benefited from recursive plots, repetition of key parts, decidedly different outcomes, control over these outcomes, and an uncertainty over what would happen next.

In other words, the Mahoney stories benefit from that which defines hypertext. These traits, which point away from the traditional book and toward the flexible nature of a hypertext, all become desirable when translating the oral Mahoney stories into text. Thus, the Mahoney Project endeavors to employ a hypertext system that best reproduces the original experience of the oral stories on the Web. The hypertext system that faithfully reproduces the Mahoney oral storytelling experience must accommodate the subtleties of the oral stories.

Using Hypertext to Promote Participation

Hypertext is also important for the Mahoney Project because it affords readers the opportunity to participate in the story. This facet is especially important because of my father's my interactive method of storytelling. As he told his stories, my father would regularly ask my brother and me what we thought we thought would happen next in the story, and regularly incorporated our suggestions. Our ability to participate in the stories was directly and positively related to our enjoyment of the stories.

One goal of the Mahoney Project is to create a textual version of the Mahoney stories that recreates this participatory behavior. While traditional books afford readers the opportunity for marginalia and discussion with other readers, they clearly do not allow for such direct and influential participation as my father allowed in the oral Mahoney stories. On the other hand, hypertext allows for this participation in two ways. The first and most basic way is through allowing readers to select links that connect the nodes of the story. The second and less frequently implemented way is through allowing readers to contribute their version of the story, just as my father did when he asked for contributions from his listeners. br>

Figure 4.3 The Mahoney Project interface presents readers with two participatory choices at the end of each story node. The reader can either choose one of the provided links or choose to "Add to the Story" with her own contribution.

The Mahoney Project employs these two participatory facets of hypertext in one small portion of the interface, as shown in Figure 4.3. At the bottom of each story node, the interface asks: "…And what do you think happened next?" The interface then provides the reader with two participatory choices. The reader can either choose one of the provided links or choose to "Add to the Story" with her contribution. These participatory choices represent the translation of the participatory nature of the oral Mahoney stories into an online hypertext media

Hypertext Structure and Writer Control

While this chapter has established the natural fit of hypertext structure within the Mahoney Project, structuring the hypertext presented one of the greatest challenges for the project.

The Mahoney Project is faced with the challenge of structuring a hypertext that is published "on the fly" and is written by an unlimited number of authors. These challenges make it unique from most hypertexts and present the Mahoney Project with limited structuring choices. The section will consider some other unique genre-specific structural difficulties and will discuss the thought behind the structure ultimately implemented for the Mahoney Project.

Balancing Structure, Freedom, and Control in Hypertext Authorship
Central to the discussion of hypertext structure in the Mahoney Project is the degree of central control writers exercise over a collaborative hypertext and the degree of individual freedom they experience in working with the hypertext. This balance of structure, freedom, and control is significant from a rhetorical perspective. Stuart Moulthrop lends to the discussion in his essay, "Rhizome and Resistance: Hypertext and the Dreams of a New Culture." He considers hypertexts as smooth and striated spaces, using social constructions as metaphor. For Moulthrop, smooth space is similar to subcultures, undergrounds, communes, and fan groups where consensus is important and command is decentralized or absent. These spaces encourage invention and creativity in large part due to a lack of central control. Smooth spaces also resist the linear print constructions, and Moulthrop feels, likely associate well with hypertext. The freedom of smooth spaces correlates to the unstructured hypertext discussed below. Writers in this smooth space are free to create their own nodes and structure them as they see fit. Moulthrop posits that these freedoms paired together represent hypertext's potential for breaking down the border between author and reader. Moulthrop feels that the smooth space of hypertext is where this might occur.

In contrast to smooth spaces, Moulthrop's striated spaces are more clearly defined with rules and hierarchies. Moulthrop particularly associates traditional printed books with striated spaces and wonders how hypertext might function in a striated writing space. The striated space correlates with the simply structured hypertext described below. The simple structure takes away some of the freedoms Moultrop describes as characterizing smooth spaces.

Moulthrop's assertion that smooth spaces correlate to hypertext and striated spaces to traditional texts suggests that the Mahoney Project should be designed to afford individual users maximum control in order to ensure maximum creativity. One asks then, how this space should be implemented and how control should be meted. These questions of control and space become particularly important as the Mahoney Project is implemented. Fundamental design choices include the level of control users would have and the basic hypertext construction of the site. The aim is to provide as smooth a writing environment as possible while ensuring there is enough structure for an enjoyable reading experience and a quality text.

While the Mahoney Project aims for many of the characteristics described by Moulthrop as smooth (hypertextual, decentralized, and user-centered), these characteristics often seem

at odds with creating a cogent multi-authored text. After describing his smooth and striated spaces, Moulthrop realizes the difficult balance of control that hypertext presents. He goes on to engage the debate over whether or not it is possible to build a hypertext environment that is in fact smooth. He considers Jim Rosenberg's assertion that hypertext just gives the impression of freedom, but that complicated and striating rules lie below the surface of the hypertext. Hypertext is after all a structure in itself and readers and writers are humans who are accustomed to recognizing order.

These hidden complications manifest themselves during the implementation of the Mahoney Project. The difficultly of de-centralizing control becomes evident because of the highly interactive role of Mahoney users. The practical implementation of the Mahoney Project hypertext structure follows.

How the Differences Between the Mahoney Project and Other Hypertexts Influenced the Structure of the Mahoney Project

Masterfully complex hypertexts, like Michael Joyce's oft-cited example Afternoon, are written by a single author, or on some occasions by a small team of writers. These writers have the advantage of guiding, directing, and shaping a complete narrative and all its sundry paths. These writers can consider each detail as they aim for cogency in structure, plot, and characterization. In a practical sense, they are able to work backwards and reshape their story when they realize the need for significant editing. These writers exercise complete control over the structure of the story they are presenting. Furthermore, hypertext authors can employ software like Joyce and Bolter's *Storyspace* to manage the complexities and visualize the structure of their hypertext stories.

At the other end of the spectrum, one might consider the *cadaver exquis* writing game discussed in Chapter 3. In this game, writers exercise control over only their sentence or paragraph and its relationship to the previous entry. There is a distinct lack of visualization of the structure and little or no opportunity to manipulate the structure. Importantly, the success of the game relies not on carefully arranging nodes like in a masterful hypertext, but instead on the serendipitous juxtaposition of the right words.

The structure of the Mahoney Project hypertext is informed by its differences for these two contrasting examples. The Mahoney Project differs from *cadaver exquis* in that it aims to provide its writers with more than merely serendipitous connections between story nodes. In contrast to the established mode of writing, the Mahoney Project aims to involve as many authors as possible. It also aims to publish story nodes immediately as they are created. These two facets of the Mahoney Project collaborative workspace present the project with a unique challenge and drastically change each writer's control over the structure of the hypertext. In the Mahoney Project, the complete control exercised by the traditional hypertext author is replaced with a collective responsibility for the structure of the story.

Because of this shift in control and the project's desire to afford writers a feeling of creative freedom, the Mahoney Project is left with some difficult choices. For Mahoney to succeed with an "on the fly" publishing model and multiple authors, it needs to prepare ahead of time for every structural eventuality or limit the possible eventualities. Preparing for every eventuality is ideal for providing writers with freedom, but difficult to do well. However, every eventuality can be accommodated to some limited degree of success through a less structured design. On the other hand, limiting structural possibilities might limit the freedom of the collaborators, but it also makes the structure of the hypertext clear and efficient.

This dichotomy of control and freedom in structural planning pushes the Mahoney Project toward either an unstructured or simply structured hypertext in order to cope with coordinating a large community of collaborative writers. The choice structure needs to be pre-determined, as the software behind the structure must be in place from the beginning to facilitate the writing and reading of the story. The unpredictability of the structure in a dispersed-control writing environment makes planning the software a difficult task. The following is a description of the differences between these two choices and a discussion of the way in which they shaped the hypertext structure and the software design of the Mahoney Project.

Unstructured Hypertexts

One of the implementation choices for the Mahoney Project hypertext was an unstructured hypertext. An unstructured hypertext allows individual writers the greatest control, but at the same time removes that control from the collective authorship of the story. To this end, the unstructured hypertext tends to lack a central controlling force and can be unwieldy and difficult to navigate. Within a multiple author model, this lack of central control might also lead to a less cohesive, less cogent story.

There is evidence, however, to suggest that an online writing community can create a highly complex, yet well-structured text online. In her essay "The evolution of Internet genres," Marcy Bauman notes the ability of electronic texts to evolve in meaning, content, and form over time in order to match the needs of their audience. She goes on to note the ability of collaborative texts to take shape on their own in an organic way without the strict governance of an editor (274). Furthermore, in their essay "Self-Organization and Identification of Web Communities," Flake et al. explain how the Web serves as an example of how a group's collective writing can self-organize:

> Millions of individuals operating independently and having a variety of backgrounds, knowledge, goals and cultures author the information on the Web. Despite the Web's decentralized, unorganized, and heterogeneous nature, our work shows that the Web self-organizes and its link structure allows efficient identification of communities. This self-organization is significant because no central authority or process governs the formation and structure of hyperlinks.
> (Flake 66)

While these examples demonstrate the ability of decentralized individuals to organize and structure hypertext information on the Web, they do not consider the tools in place for Web users to structure information. Web users employ a variety tools to publish interconnected nodes of information. In order for Mahoney to capitalize on the success of these users in implementing a structured hypertext, the Mahoney Project would need to provide myriad tools within its interface. In the end, the difficulty in providing this type of infrastructure proved an insurmountable feasibility problem. Whether or not members were skilled at structuring information did not influence the choice, as the major drawback to the unstructured system for the Mahoney Project was the uncertainty and flexibility required in code development and not member abilities.

Simply Structured Hypertexts

In contrast to an unstructured hypertext, a simply structured hypertext gives each writer minimal control over structure. While each writer has local control of what node links to what other node, she does not have far-reaching control to alter and organize the overall linking structure. The benefits of the simply structured hypertext are the ease of ahead-of-time implementation and the relative assurance of narrative cogency. The drawback to the simply structured hypertext is that writers only feel local control of their story nodes and do not feel the freedom or power to organize the story. These feelings can negatively impact perceptions of ownership and willingness to participate in the project.

Despite its limitations, the simply structured hypertext paradigm was adopted by the Mahoney Project. This system allows relatively easy implementation in an "on the fly" collaborative environment and precludes outlier structural eventualities through its rigid structure.

The Mahoney Project uses the most simple of means to organize its structure. Each time a writer adds to the Mahoney story, she is adding her contribution as a node that explicitly and sequentially follows the node that inspired her to click on the "Add to the Story" button. In this way Node B follows Node A. If a writer adds Node C after Node B, then a sequential chain of nodes is created as follows: Node A -> Node B -> Node C. This simple structure allows for multiple nodes to be added after Node A, but it does not allow any non-sequential nodes to be linked together. For example, a writer in the Mahoney Project is not able to link Node C to Node A. This simply structured hypertext system limits the hypertext to a branching tree structure extending outward from the original node and does not represent the full potential of hypertext. For example, one limitation of this structure is that it decreases the likelihood of writers working together and linking their stories together. Instead of collaborating, writers are more likely to write their own linear story as its own branch in the tree of the story. A more complex and powerful linking structure would likely facilitate more connections between multiple authors' nodes.

An important area for further investigation is the development of an online massively multi-authored collaborative writing environment capable of facilitating a more complex hypertext

structure. This system would need to anticipate the writing community's structural whims or be able to adapt to an ever changing, persistently publishing hypertext.

Hypertext Structure in Mysteries and Cinema

Because of the Mahoney Project's existence in the adventure genre, it is worth investigating how other plot-driven genres deal with hypertext structures. In his essay "Structure Problems in Hypertext Mysteries," Chris Willerton addresses the importance of control in the structure of hypertext mysteries. Specifically, he considers the difficulty of presenting a mystery story in a non-linear hypertext. The challenge lies in mysteries' particular sensitivity to the order in which information is presented. Most simply, the detective can't solve the mystery a third of the way through the story. While considering the importance of sequence, Willerton tries to formulate strategies for taking advantage of the flexibility of hypertext while maintaining the order necessary to structure a proper mystery story. One of his proposed solutions is to allow multiple paths, but have specific gateways where a single node is the only way to the next section of the story. The use of conditional linking to withhold parts of a story until after certain information is revealed seems to be a reasonable balance between the occasional need for linearity and the experimental freedom hypertext offers.

Willerton's gateway hypertext structure provides an intriguing commentary on the Mahoney Project's branching tree structure because they both attempt to control hypertext structure to meet specific needs of plot or community writing dynamics. Implementation and collaborative issues define the Mahoney Project's structure. If the Mahoney Project were free to explore any structural design, then it might consider the importance of hypertext gateways to ensure the cohesiveness of the storyline.

In her essay "From Cinematographic to Hypertext Narrative," Clara Mancini argues that hypertext can benefit by borrowing from the rhetoric of movies. She looks at shots in cinema as the smallest unit and considers the technique of moving from one shot to the next in an effort to make a coherent narrative whole. Cinema presents a particular difficulty for a storyteller because there are not obvious linguistic transitions to connect one shot to another. Filmmakers, however, have thrived in the creative opportunities of their visual medium, and have created new means of visual communication of ideas.

Mancini argues that hypertext has many properties of visual media and that the connection between self-sufficient nodes is ripe with opportunity, much as the connection between shots in film. The significant differences between the media, however, are the linearity of film and the use of written language in hypertext. Still, Mancini notes the potential for a montage form of hypertext and the possibility of different juxtapositions of story nodes creating different meanings, just as juxtaposition is used in film – only the non-linearity of hypertext allows a single node to interact with many other nodes.

Mancini's thoughts on the art of transition in hypertext are particularly applicable to a multi-authored hypertext like the Mahoney Project. When members write in the Mahoney

Project, they write in response to a previous story node. These writers have the opportunity to contribute a story node that presents a surprising or artistic transition from the previous story node. Furthermore, writers can also follow the example of film and create a story node that succeeds on its own as well as in context, much like some of the more powerful scenes in cinema.

These two examples of hypertext's implementation within specific genres represent just a brief glimpse at the importance of understanding genre when implementing a hypertext. The Mahoney Project also could have learned about hypertext and hypertext structure from the example provided by hypertext science fiction or even hypertext software documentation.

The Question of Interactivity

When hypertext emerged it was routinely accompanied with the buzzword interactive. Hypertext theorists, excited by the promise of their new media, quickly hailed the interactivity of texts that required users to click on links to navigate their unique path through the story. In his essay "Selfish Interaction: Subversive Texts and the Multiple Novel" Michael Joyce addresses the question of interactivity in hypertext. He reconsiders his earlier assertion that hypertext narratives developed by a single author and read by multiple readers are in fact interactive.

In the essay he questions how much a reader is really interacting with the author and how much she is interacting with the text as she is making choices to move through a hypertext fiction. Joyce notes that his hypertext publishing software, *Storyspace*, allows only the author to view the whole scope of the story and to add and edit the story. This type of realization leads Joyce to wonder what tools will become popular in the future to facilitate writing that is less selfish and more sharing-based. He hints that this technology will further blur the barrier between writer and reader. He envisions avid readers writing sequels and alternative versions of popular novels as they work in concert with the primary author.

In his book *Cybertext*, Espen Aarseth further explores this question of interactivity in hypertext. Aarseth's thoughtful book considers what he terms a "cybertext" or "ergodic literature" and how literary study should react to the emergence of these texts. The cybertext differs from traditional text not only because of traits typically associated with hypertext like nonlinearity and association with computer technology, but primarily because it more explicitly requires reader feedback in order to propel the plot. Similarly, ergodic texts - texts where non-trivial effort is required on the part of the reader - include hypertext and stand in contrast to traditional texts wherein a reader must simply turn pages. Cybertext and ergodic literature also pointedly involve computer adventure games, wherein readers input command prompts as they play a decidedly active role as readers of the text. As mentioned in Chapter 2, Aarseth considers the possibilities of literature existing within a MUD environment. In his discussion of this technology, Aarseth considers texts written by

many authors with many different goals. He suggests that this opportunity for true interactivity produces a unique form of literature and offers great potential.

Golovchinsky and Marshall provide a third voice to this conversation when they describe hypertext interactivity as an activity that falls somewhere between following links and full collaboration. This distinction refers to Aarseth and the distinction he makes in defining ergodic. The authors consider the history of interaction with print text, referring to marginalia and other interactions and hypothesize about a future for hypertext that will allow users to become authors, designers, and architects.

In keeping with the tradition of my father's storytelling technique, the Mahoney Project defines interactivity in much the way Joyce, Aarseth, Golovchinsky and Marshall define interactivity. The Mahoney Project goes a step further by attempting to implement the type of fully interactive hypertext environment that these theorists describe as the potential for the future of hypertext. Indeed, the Mahoney Project hypertext is interactive in the traditional hypertext sense because readers can participate in the story by choosing which links to follow. But more importantly, the Mahoney Project is fully interactive and fully blurs the line between reader and writer because each reader can choose to become a writer at any point in the story. This level of interaction replicates the interactivity of my father's oral Mahoney stories and constitutes a success in the Mahoney Project, both in its internal goals and in fulfilling one potential of the media.

The Mahoney Project represents a unique hypertext because of its oral storytelling legacy, collaborative authorship, and continuous online publishing. While these factors combined to preclude an ideal implementation of hypertext structure in the Mahoney Project, the Mahoney Project succeeds in many ways because of its awareness of its relationship with other implementations and classifications of hypertext and the importance of establishing a sense of community.

Chapter 5

CONCLUSIONS

The Mahoney Project represents the confluence of online community, collaborative writing, and hypertext to facilitate my father's oral Mahoney stories in a new media environment. The Mahoney Project's success can be measured by its effectiveness in achieving its goals, as mentioned in the introductory chapter. This conclusion will focus on these five goals and evaluate the project's ability to meet the goals.

1. **To produce a cohesive fiction with significant literary quality**

   At the time of writing, the Mahoney Project is far from a significant literary work. This shortcoming has little to do with the cohesiveness of the nodes or the quality of writing within the node. Instead, this failure is characterized by a lack of contributions from the writing community. Only eight story nodes have been contributed to date, and while these nodes are well written, well polished, and well connected, they are very small in number.

   The nodes written in the Mahoney Project to date to not give a good indication of potential literary quality of the site. These few nodes are, however, carefully written and in the spirit and context of the original story. Therefore, the early contributions indicate that members understand the intentions of the site and produce writing of literary quality. It remains to be seen if the writing community will produce a sizable hypertext fiction that maintains high standards for cohesiveness and style.

2. **To facilitate and encourage multiple reading paths through the fiction**

   The Mahoney Project succeeds in this goal multiple reading paths to a limited extent. In this case, the limits are not due to the immaturity of the site, but instead are due to the design of the site's hypertext architecture. As discussed in Chapter 4, the structure of the Mahoney Project was designed to be very simple. This structure allows for a branching decision tree, but not for a more complex, interwoven hypertext. The simplicity of the hypertext structure limits the number of reading paths and the degree of success of the Mahoney Project.

   The Mahoney Project's inability to produce a highly complex and highly structured hypertext had more to do with my development abilities than with the limitations of hypertext. Indeed, more sophisticated developers like Weigang Wang and Antonia Dattolo and Vincenzo Loia describe successful but highly complex hypertext writing systems in their papers, "Structured Hypertexts with Domain Semantics" and "Collaborative Version Control in an Agent-based Hypertext Environment," respectively. The Mahoney Project represents an initial step toward incorporating online storytelling and complex hypertext.

3. **To allow unlimited authors to contribute to the effort**

The Mahoney Project succeeds in this goal because of the ease of access to the project via the Web and the ease with which interested visitors signed up for a membership. While it is easy to claim success in "allowing authors to contribute," it is another matter to declare success in actually convincing authors to write in the project. Very few members took the time to write even one story node at this site. This problem had to do with the immaturity of the site and its lack of highly visible advertising. The goal of accepting anyone and everyone on the Web was met.

4. **To provide a sense of community that encourages long-term investment from readers and writers**

During development, the Mahoney Project went to great lengths to produce a feeling of community at the site with such features as discussion boards, chat rooms, rating systems, and user profiles. These features appeared to create a small following of loyal community members. As evidenced by server log statistics, these members returned frequently to access other members' profiles, read other writers' story nodes, and stay up to date with discussion board topics. The main area of interest for future study in this area will be scalability. As the Mahoney community grows, it may need to adapt to meet the needs of a very large community.

5. **To exist within the domains of the Users' Web**

This final goal is the most ambitious and the most loosely defined. Sites on the Users' Web are those that fundamentally change the way we write, discuss, read, think, and live. Despite all the planning and rhetorical effort that went into developing the Mahoney Project within the domains of the Users' Web, it is difficult to gauge how well the project meets its goal. Clearly, the Mahoney Project has changed the way I think, write, and read, but it is not nearly as clear if other users experience such an impact while participating in the Mahoney Project. These users can know, however, that the Mahoney Project was designed with the intention of using the Web to change the way they lived and thought. Whether it does that remains to be seen.

Considering the incompatibility of some of the Mahoney Project's five primary goals, the early activity on the project suggests that the Mahoney Project admirably meets its goals. These results are preliminary, however, and do not yet fully indicate the degree of success some of the decisions made in the design of the Mahoney Project might enjoy. Hopefully the future will prove that consideration of these five goals and the thoughtful implementation of design decisions made the Mahoney Project an honorable legacy for my father and his stories. And hopefully many more people will have a chance to find out what happens next to the magical cat who lived in a corner of the world long since forgotten.

Appendix A

SUMMARY OF MAHONEY PROJECT ASP CODE

This appendix provides a brief explanation of the server-side ASP code used to develop the Mahoney Project. All SQL code was written using the VBScript language. The author of this paper wrote all the code for the Mahoney Project using simple text editors including notepad and Macromedia Homesite.

Database Structure and Connectivity

In order to support this complex collaboration in real time, the Mahoney Project needed to be an interactive Website that accepted inputted content and generated output publications on the fly, all the while storing all of the information regarding the story. For this reason, the Mahoney Project was implemented using a relational database and SQL to create active server pages. (More discussion of these design decision are described in Chapter 2.) The relational database stores information about each of the nodes of the story and each of the users. It also supports data from community features like discussion boards, a ranking system, bookmarked story lists, and favorite people lists. Figure A.1, below, shows a schematic representation of the data structure used to support the Mahoney Project.
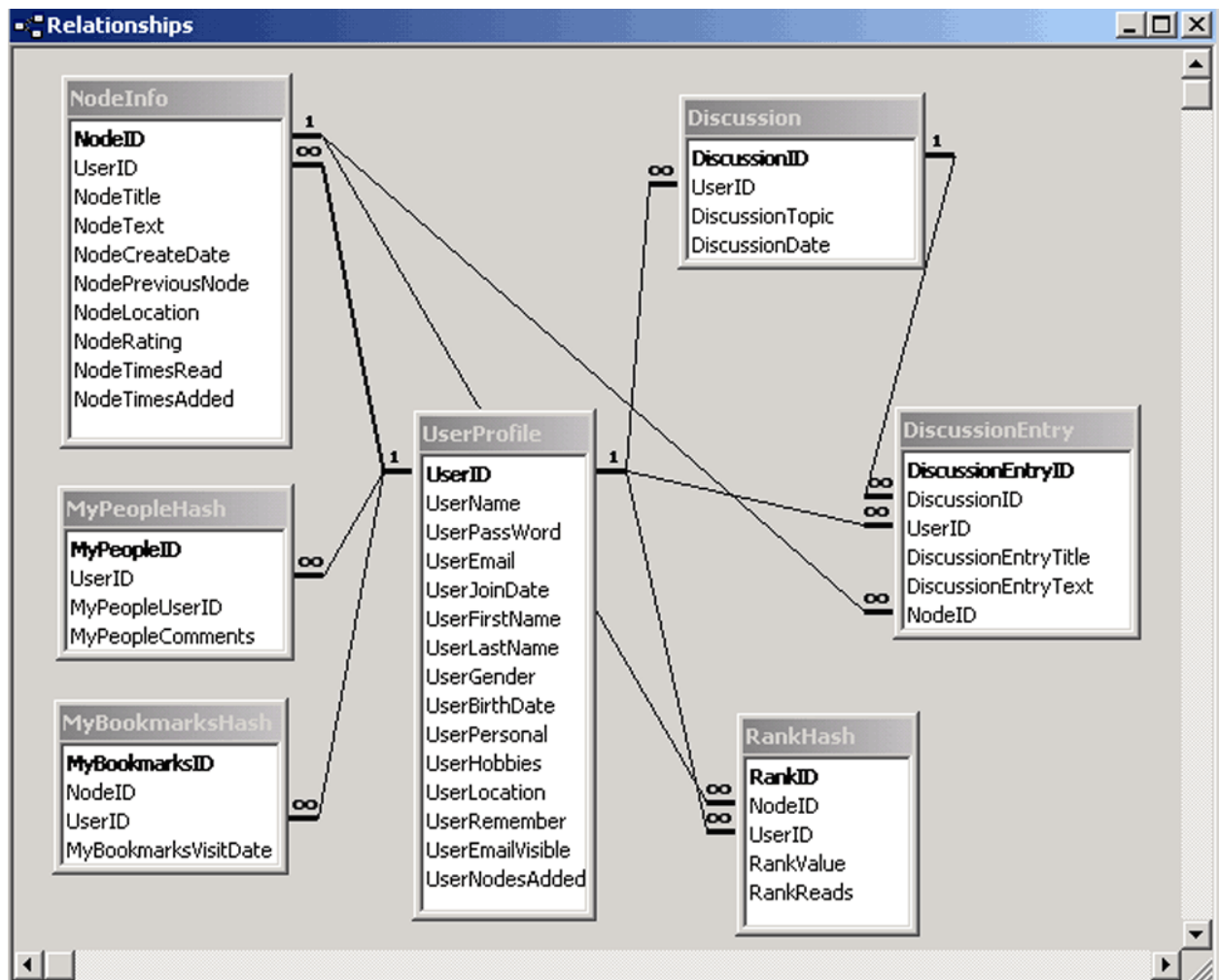
Figure A.1 Entity Relationship Diagram for Mahoney Project Database.

In the relational database, UserID serves as a primary key for the UserProfile table. This key is used to relate to the NodeInfo table so that the database is able to keep track of the author of each node. UserID is also keyed to the MyPeopleHash in order to keep track of who belongs on a given users list of favorite people. Similarly UserID keys to MyBookmarksHash to keep track of which bookmarks belong to which user. The UserProfile table stores all of the user's account information including name, contact information, and hobbies. The NodeID is always used to refer to a specific node in the story. Each node's specific information is stored in the NodeInfo table. NodeInfo includes the title, text, and author of each node as well as when the node was created, what previous node the current node should be linked to, and how many times a given node has been read or added to.

Populating Database Fields
The database receives content from ASP pages through the INSERT and UPDATE SQL

queries. A typical content submission task for Mahoney users is signing up to become a user of the site. In order to accomplish this task, a new user must fill out the forms on the sign-up page, as shown in Figure A.2.

The user is required to include a username, password, and email address. Other information is optional. After a user fills out the form and presses submit, the site stores the information from the forms in the appropriate fields in the database. The information is inputted to the database using the INSERT query. The INSERT query for storing registration information is shown below:

```
<% dim rs3, SQLINSERT
SQLINSERT="INSERT INTO UserProfile(UserName, UserEmail, UserFirstName,
UserLastName, UserGender, UserLocation, UserPersonal, UserHobbies,
UserEmailVisible, UserBirthDate, UserPassWord, UserJoinDate) VALUES('"
& userynamesafe & "', '" & emailsafe & "', '" & firstnamesafe & "', '"
& lastnamesafe & "', '" & gendersafe & "', '" & locationsafe & "', '"
& personalsafe & "', '" & hobbiessafe & "', '" & checkbox & "', '" &
birthdatesafe & "', '" & passywordsafe & "', '" & joindate & "')"
set rs3 = conn.Execute(SQLINSERT) %>
```

Figure A.2 Mahoney Sign Up page for new users.

The site would then display that user's information, as shown in Figure A.3.

Figure A.3 User Profile page generated from values stored in relational database.

Once the user profile has been created, the user can click on the "Edit Profile" button to update his or her user information. The update page looks and works very much like the sign-up page, except the UPDATE query is used to change an existing record rather than create a new record. Shown below is the UPDATE query used for editing a user's profile:

```
<% dim rs3, SQLUPDATE
SQLUPDATE="UPDATE UserProfile SET UserName = '" & userynamesafe & "',
UserEmail = '" & emailsafe & "' , UserFirstName = '" & firstnamesafe &
"', UserLastName = '" & lastnamesafe & "', UserGender = '" &
gendersafe & "', UserLocation = '" & locationsafe & "', UserPersonal =
'" & personalsafe & "', UserHobbies = '" & hobbiessafe & "',
UserEmailVisible = '" & checkbox & "', UserBirthDate = '" &
birthdatesafe & "', UserPassWord = '" & passywordsafe & "',
UserJoinDate = '" & joindate & "' WHERE UserProfile.UserName = '" &
userynamesafe & "';"
set rs3 = conn.Execute(SQLUPDATE) %>
```

Generating Web Pages from the Data

Information from the database is retrieved via the SQL SELECT query for publication on webpages. For example, if a page needs to display the title for a certain node, then the query requests "NodeTitle" from the "NodeInfo" table for the node with a "NodeID" matching the one requested. Figure A.4 shows a sample node page with the various field entities required to display the page circled and labeled. (Note: this is an early version of the node page for the Mahoney Project. The node page became more complicated as community features were added.)
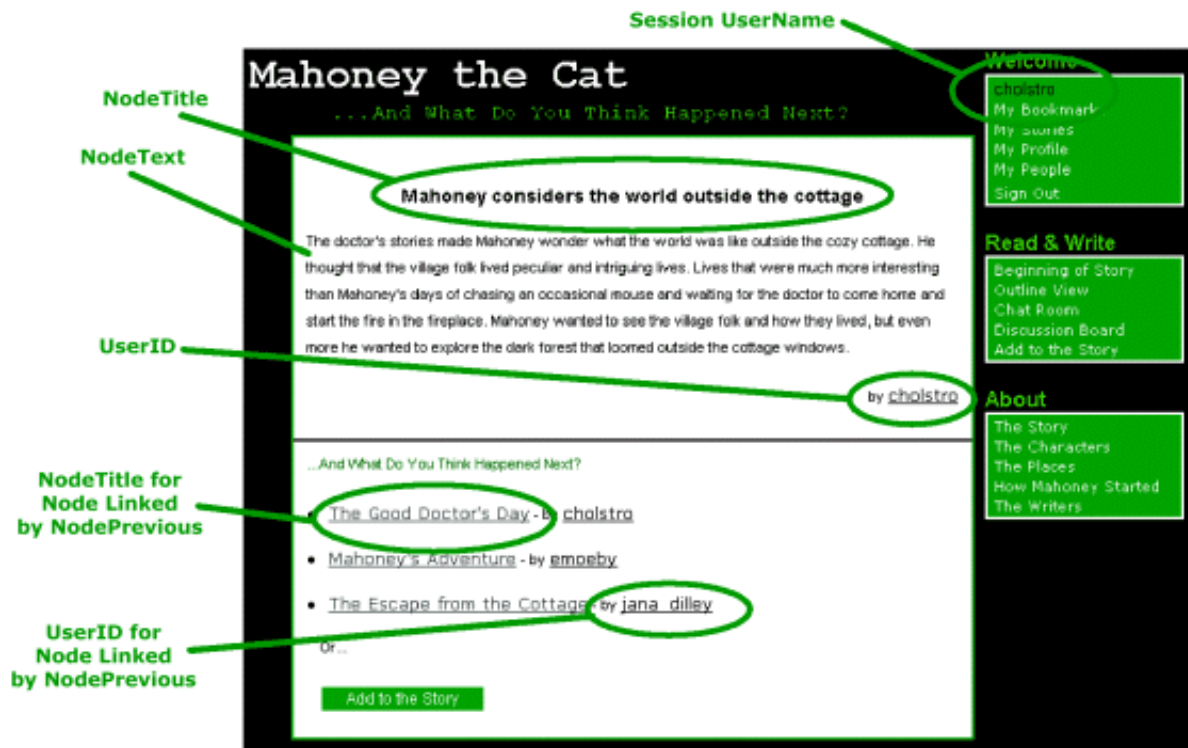

Figure A.4 Sample node page with labeled field entities.

Some of the queries can become quite complicated as a series of criteria might be required to determine which content to display. For example, the UserName (mislabeled in Figure A.4 as UserID) for a node linked by "NodePrevious" relies on the query to determine which nodes belong in the list of links at the bottom of the page. The linked stories must include only those stories directly subsequent to the node currently being displayed. The links are chosen using the following SELECT query:

```
<% dim previous
SQLPrevious = "SELECT NodeID, NodeTitle, UserName FROM NodeInfo,
UserProfile WHERE (((NodeInfo.NodePreviousNode) Like '" & NodesID &
```

```
"') AND ((NodeInfo.USerID) Like (USerProfile.UserID)));"
set previous = conn.Execute(SQLPrevious) %>
```

This query also determines which Username is responsible for each given node. This
information is imbedded in a loop structure that produces the story rating, story title, story
URL, and story author for each respective story that meets the criteria of the query. This
loop is shown below:

```
<%Do While Not previous.EOF%>
<% SQLStrAVG2 = "SELECT AVG(RankValue) from RankHash WHERE
((RankHash.NodeID) Like '" & (previous.Fields("NodeID").Value) & "');"
set rsAVG2 = conn.Execute(SQLStrAVG2)
AverageRating2=rsAVG2(0)
%>
<% OrNot="Or..." %><li><%If AverageRating2<1.5 Then%><img
src="onestar.gif"><%Else%><%End If%> <%If (AverageRating2>=1.5) AND
(AverageRating2<2.5) Then%><img src="twostars.gif"><%Else%><%End If%>
<%If (AverageRating2>=2.5) AND (AverageRating2<3.5) Then%><img
src="threestars.gif"><%Else%><%End If%> <%If (AverageRating2>=3.5) AND
(AverageRating2<4.5) Then%><img src="fourstars.gif"><%Else%><%End If%>
<%If AverageRating2>=4.5 Then%><img src="fivestars.gif">
<%Else%><%End If%> <a
href="node.asp?Node=<%=Server.HTMLEncode((previous.Fields("NodeID").Va
lue))%>"> <font
color="#363E46"><%=(previous.Fields("NodeTitle").Value)%></font></a> -
by <a
href="otherprofile.asp?userprofile=<%=(previous.Fields("UserName").Val
ue)%>"> <%=(previous.Fields("UserName").Value)%> </a><br><br>
<%
previous.MoveNext
Loop
%>
```

This loop yields the portion of the node layout shown below in Figure A.5.

Figure A.5 The displayed result of the looping code employed at the bottom of each node
page.

These examples of code and graphical output provide some indication of the intricacies of
the SQL code used to develop the Mahoney Project. Because of server-side technology,
the complexities of the code are hidden from the end user. This makes learning how to

implement active server pages a difficult process. More information can be found on the Web at: http://www.asp101.com and http://www.4guysfromrolla.com/.